



1 Introducción.

El presente reporte contiene el Estudio Técnico Vial para el proyecto **CORREDOR DE MOVILIDAD SEGURA ALFONSO REYES**, el cual es propuesto por el Gobierno del Municipio de San Pedro Garza García, N.L.

El estudio tiene como objetivo el análisis del corredor Alfonso Reyes, en el tramo comprendido entre la avenida Gómez Morín y el acceso a la UDEM, considerando la incorporación de una ciclovía segregada de un carril de circulación por sentido, a lo largo del tramo de vía analizado.

Este análisis genera observaciones, por medio de la elaboración de estudios de tránsito tales como aforos vehiculares y análisis de capacidad, las cuales son entregadas al Municipio de SPGG para su consideración en la elaboración del proyecto de ciclovía.

Este reporte se elabora con el respaldo de la experiencia de **Vargas Torres y Asociados, S. A. de C.V** y la adaptación a nuestro medio, de procedimientos y parámetros contenidos tanto en el Traffic Engineering Handbook del ITE, como en los manuales de capacidad Highway Capacity Manual 2010 e Intersection Capacity Manual 2003.”



2 Área de Influencia

El área de influencia analizada para el proyecto **CORREDOR DE MOVILIDAD SEGURA ALFONSO REYES** contiene 22 intersecciones, 17 de las cuales son semaforizadas y 5 controladas por señales de alto. A continuación se indican las intersecciones objeto de análisis.

1. Alfonso Reyes – Bajo Paso a Desnivel Plaza Nativa (A)
2. Alfonso Reyes – Jiménez (S)
3. Alfonso Reyes – Las Sendas (S)
4. Alfonso Reyes – Miguel Hidalgo (A)
5. Alfonso Reyes – Corregidora (S)
6. Alfonso Reyes – Juárez (S)
7. Alfonso Reyes – Manuel González / Ticomán (S)
8. Alfonso Reyes – Montefalco (S)
9. Alfonso Reyes – Genaro Garza García (S)
10. Alfonso Reyes – Matamoros (S)
11. Alfonso Reyes – Santa Bárbara (A)
12. Alfonso Reyes – Guillermo Prieto (S)
13. Alfonso Reyes – Neil Armstrong (S)
14. Alfonso Reyes – Olimpiadas (S)
15. Alfonso Reyes – Río Suchiate (S)
16. Alfonso Reyes – Lomas del Valle (S)
17. Lomas del Valle – Río Pílon (A)
18. Lomas del Valle – Laredo (A)
19. Alfonso Reyes – Sierra Azul / Bosque del Olivo (S)
20. Alfonso Reyes – Bosques del Valle (S)
21. Alfonso Reyes – Jerónimo Siller (S)
22. Alfonso Reyes – Gómez Morín (S)

La siguiente figura indica la ubicación de las intersecciones analizadas.







3 Aforos vehiculares, peatonales y ciclistas

La siguiente tabla presenta los aforos vehiculares, peatonales y ciclistas para las 22 intersecciones analizadas. Gran parte de los aforos fueron obtenidos del estudio técnico vial de 101 intersecciones elaborado por nuestra empresa para el Municipio de San Pedro Garza García durante los años 2019 y 2020. El estudio contiene aforos realizados previos a la pandemia COVID-19, donde se capturan vehículos que tienen como origen/destino las escuelas o universidades cercanas al corredor Alfonso Reyes.

Intersección	Nombre	Hora Pico	Volumen Vehicular	Volumen Ciclista	Volumen Peatonal
1	Alfonso Reyes – Bajo Paso a Desnivel en Plaza Nativa	08:15-09:15	109	8	21
		13:30-14:30	199	-	15
		18:15-19:15	205	1	34
2	Alfonso Reyes – Jiménez	07:15-08:15	3,733	34	88
		12:45-13:45	2,981	14	47
		18:30-19:30	3,527	85	98
3	Alfonso Reyes – Las Sendas	08:00-09:00	3,137	36	7
		13:00-14:00	2,988	14	2
		18:30-19:30	2,975	87	2
4	Alfonso Reyes – Hidalgo	08:00-09:00	2,798	87	80
		13:15-14:15	2,571	5	13
		18:30-19:30	2,719	10	70
5	Alfonso Reyes – Corregidora	07:30-08:30	2,586	37	6
		13:30-14:30	2,695	14	6
		17:15-18:15	2,903	92	7
6	Alfonso Reyes – Juárez	07:30-08:30	2,313	39	5
		13:30-14:30	2,586	15	6
		17:15-18:15	2,714	90	8
7	Alfonso Reyes – Manuel González	08:00-09:00	2,370	40	8
		13:30-14:30	2,597	16	5
		17:15-18:15	2,659	92	8



Intersección	Nombre	Hora Pico	Volumen Vehicular	Volumen Ciclista	Volumen Peatonal
8	Alfonso Reyes – Montefalco	08:00-09:00	2,561	41	52
		13:30-14:30	2,962	15	28
		17:15-18:15	3,026	99	13
9	Alfonso Reyes – Genaro Garza García	08:00-09:00	2,494	38	9
		13:30-14:30	2,984	14	7
		17:15-18:15	2,951	99	13
10	Alfonso Reyes – Matamoros	08:00-09:00	2,564	36	19
		13:30-14:30	2,944	12	6
		17:15-18:15	2,983	103	18
11	Alfonso Reyes – Santa Bárbara	07:45-08:45	2,892	16	3
		13:30-14:30	2,849	4	4
		17:00-18:00	3,105	40	1
12	Alfonso Reyes – Guillermo Prieto	07:15-08:15	2,868	15	7
		13:30-14:30	3,402	4	4
		18:30-19:30	3,440	104	3
13	Alfonso Reyes – Neil Armstrong	07:15-08:15	2,716	11	7
		13:15-14:15	3,029	3	3
		17:45-18:45	3,046	101	3
14	Alfonso Reyes – Olimpiadas	07:30-08:30	2,557	11	8
		13:15-14:15	2,999	2	1
		17:30-18:30	3,058	39	6
15	Alfonso Reyes – Río Suchiate	08:30-09:30	2,431	8	1
		13:15-14:15	2,958	4	3
		17:30-18:30	2,902	39	1
16	Alfonso Reyes – Lomas Del Valle	08:00-09:00	2,644	9	4
		13:30-14:30	3,487	3	5
		17:00-18:00	3,414	37	2
17	Lomas del Valle – Río Pílon	08:30-09:30	551	12	30
		12:15-13:15	693	0	15
		17:30-18:30	691	0	26



Intersección	Nombre	Hora Pico	Volumen Vehicular	Volumen Ciclista	Volumen Peatonal
18	Lomas del Valle – Laredo	08:30-09:30	622	8	70
		12:00-13:00	752	1	15
		17:15-18:15	867	1	49
19	Alfonso Reyes – Sierra Azul	08:30-09:30	2,186	10	4
		13:15-14:15	2,694	3	8
		17:30-18:30	2,620	36	4
20	Alfonso Reyes – Bosques del Valle	08:30-09:30	2,387	14	5
		13:15-14:15	2,868	5	2
		17:00-18:00	3,316	40	1
21	Alfonso Reyes – Jerónimo Siller	08:30-09:30	2,846	16	7
		13:30-14:30	3,092	5	13
		17:30-18:30	3,498	43	8
22	Alfonso Reyes – Gómez Morín	08:30-09:30	3,446	17	65
		13:30-14:30	4,085	2	29
		17:30-18:30	4,169	81	103

Al final de este reporte se anexan las figuras de flujos vehiculares (todos sus horarios pico), ciclistas (horario pico) y peatonales (horario pico) de cada una de las intersecciones analizadas.



4 Tiempos de Recorrido

Para el tramo comprendido entre las calles Jiménez y Gómez Morín, se presenta a continuación los datos del recorrido vehicular que se tiene sobre la Av. Alfonso Reyes;

Recorrido	Gómez Morín → Jiménez (Oriente a Poniente)
Longitud	5,442 mts
Número de intersecciones	18
Tiempo de recorrido	8 min 20 seg
Velocidad global	39.18 km/hr
Velocidad de marcha	51.69 km/hr
Demora total	2 min 01 seg
Demora máxima / causa	47 segundos, semáforo en Jiménez

Recorrido	Jiménez → Gómez Morín (Poniente a Oriente)
Longitud	5,442 mts
Número de intersecciones	17
Tiempo de recorrido	11 min 04 seg
Velocidad global	29.50 km/hr
Velocidad de marcha	46.87 km/hr
Demora total	4 min 06 seg
Demora máxima / causa	52 segundos, semáforo en Neil Armstrong



Se observan recorridos donde la velocidad global es aceptable, con cortas demoras totales y escasos puntos donde la demora es mayor a los 40 segundos. Se mantiene un recorrido con velocidad dentro de los límites que indica el tablero de máxima velocidad, se podrán tener cómodos tiempos de traslado entre los límites de cada uno de los corredores analizados.

A continuación se anexan los graficas de recorridos para cada uno de los corredores analizados.



Vargas Torres y Asociados S.A. de C.V.

Zimapan #201
Col. Mitras Centro
Monterrey, N.L.

ANÁLISIS DE TIEMPOS DE RECORRIDO Y DEMORA

MUNICIPIO: San Pedro Garza García, N.L.

CALLE: Av. Alfonso Reyes

FECHA: 15/07/2020

ESTADO DEL TIEMPO: Soleado

SENTIDO: Oriente a Poniente

HORA: Mediodía

UBICACION Y NUMERO DE INTERSECCION CON CALLE:			DEMORA		TIEMPOS		VEL. GLOBAL
CADENAMIENTO	NUM.	INTERSECCIÓN - AV. ALFONSO REYES	CAUSA	TIEMPO	PARCIALES	ACUMULADOS	(km/hr)
0+	1	Gomez Morín			00:00	00:00:00	43.8
0+755	2	Jeronimo Siller	Semáforo	00:00:13	01:02	00:01:02	43.8
1+144	3	Bosques del Valle			00:30	00:01:32	46.7
1+676	4	Sierra Azul	Semáforo	00:00:27	01:03	00:02:35	30.4
1+971	5	Lomas del Valle			00:22	00:02:57	48.3
2+120	6	Suchiate			00:10	00:03:07	53.6
2+619	7	Las Olimpiadas			00:31	00:03:38	57.9
3+393	8	Neil Armstrong			00:52	00:04:30	53.6
3+743	9	Jardines Coloniales			00:29	00:04:59	43.4
3+850	10	Santa Barbara			00:08	00:05:07	48.2
4+135	11	Matamoros	Semáforo	00:00:34	00:56	00:06:03	18.3
4+230	12	Genaro Garza García			00:09	00:06:12	38.0
4+421	13	Treviño			00:13	00:06:25	52.9
4+611	14	Manuel Gonzalez			00:12	00:06:37	57.0
4+900	15	Juárez			00:19	00:06:56	54.8
5+059	16	Corregidora			00:10	00:07:06	57.2
5+284	17	Las Sendas			00:14	00:07:20	57.9
5+442	18	Jiménez	Semáforo	00:00:47	01:00	00:08:20	9.5

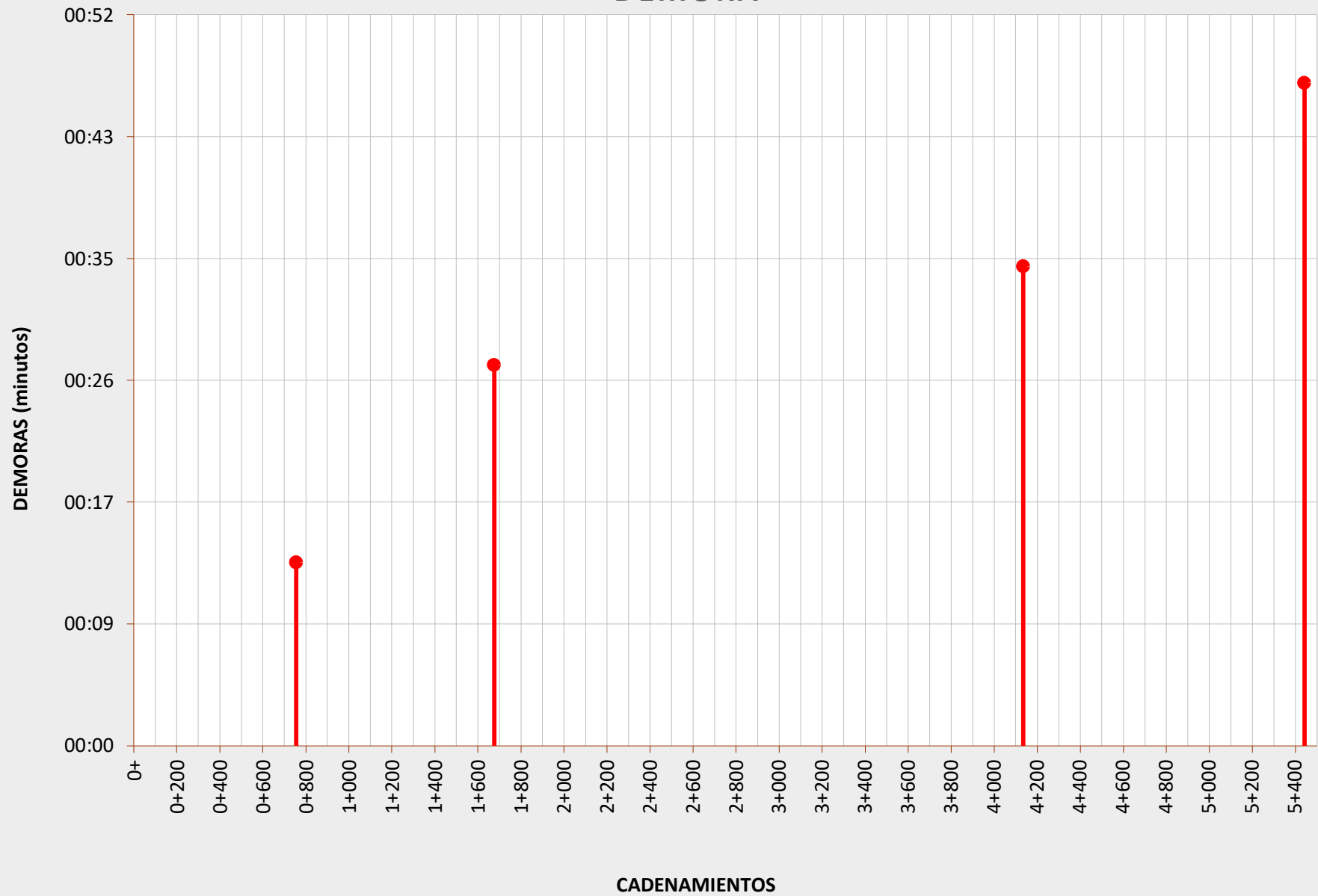
Descripción del Recorrido:

Recorrido de Ida: Inicio en calle Gómez Morín continúa al poniente hasta cruce con Av. Jiménez

Kilómetro	Demora total	Tiempo global	Vel. Global	Vel. Marcha
0+		00:00:00		
5+442	00:02:01	00:08:20	39.18	51.69

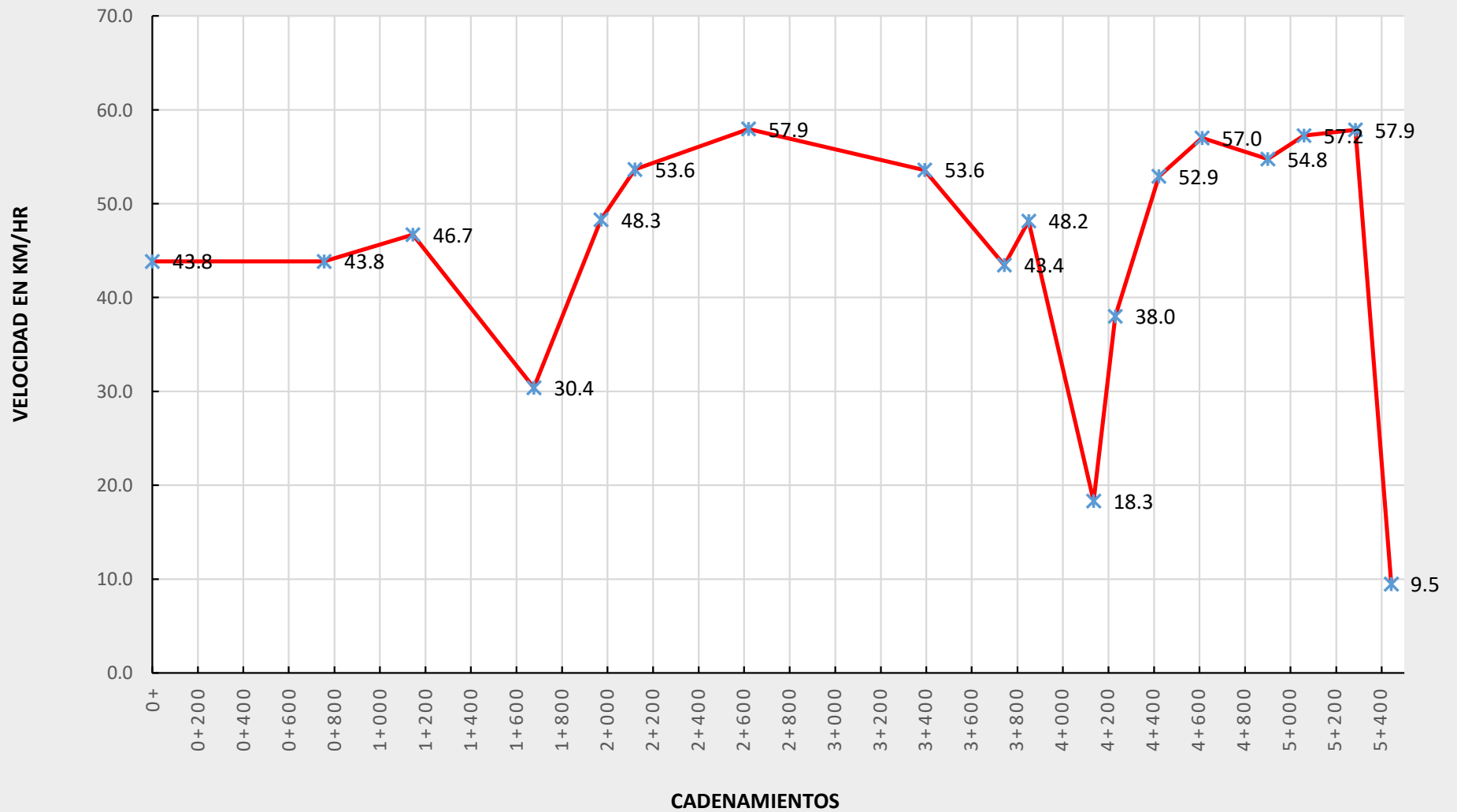
ALFONSO REYES - ORIENTE A PONIENTE

DEMORA



ALFONSO REYES - ORIENTE A PONIENTE

VELOCIDAD DE RECORRIDO





Vargas Torres y Asociados S.A. de C.V.

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Col. Mitras Centro
Monterrey, N.L.

ANÁLISIS DE TIEMPOS DE RECORRIDO Y DEMORA

MUNICIPIO: San Pedro Garza García, N.L.
CALLE: Av. Alfonso Reyes
FECHA: 15/07/2020
ESTADO DEL TIEMPO: Soleado

HORA: Mediodía
SENTIDO: Poniente a Oriente

UBICACION Y NUMERO DE INTERSECCION CON CALLE:			DEMORA		TIEMPOS		VEL. GLOBAL
CADENAMIENTO	NUM.	INTERSECCIÓN - AV. ALFONSO REYES	CAUSA	TIEMPO	PARCIALES	ACUMULADOS	(km/hr)
0+	1	Jiménez			00:00	00:00:00	8.7
0+155	2	Las Sendas	Semáforo	00:00:50	01:04	00:01:04	8.7
0+385	3	I.M. Altamirano			00:16	00:01:20	51.8
0+542	4	Juárez			00:11	00:01:31	51.4
0+833	5	Ticomán			00:19	00:01:50	55.1
1+027	6	Montefalco	Semáforo	00:00:44	01:03	00:02:53	11.1
1+214	7	Genaro Garza García			00:14	00:03:07	48.1
1+310	8	Matamoros			00:07	00:03:14	49.4
1+697	9	Jardines Coloniales			00:26	00:03:40	53.6
2+054	10	Neil Armstrong	Semáforo	00:00:52	01:24	00:05:04	15.3
2+822	11	Las Olimpiadas			00:59	00:06:03	46.9
3+321	12	Suchiate	Semáforo	00:00:26	01:06	00:07:09	27.2
3+473	13	Lomas del Valle			00:13	00:07:22	42.1
3+766	14	Sierra Azul			00:20	00:07:42	52.7
4+305	15	Bosques del Valle			00:39	00:08:21	49.8
4+690	16	Jeronimo Siller	Semáforo	00:00:34	01:06	00:09:27	21.0
5+442	17	Gomez Morin	Semáforo	00:00:40	01:37	00:11:04	27.9

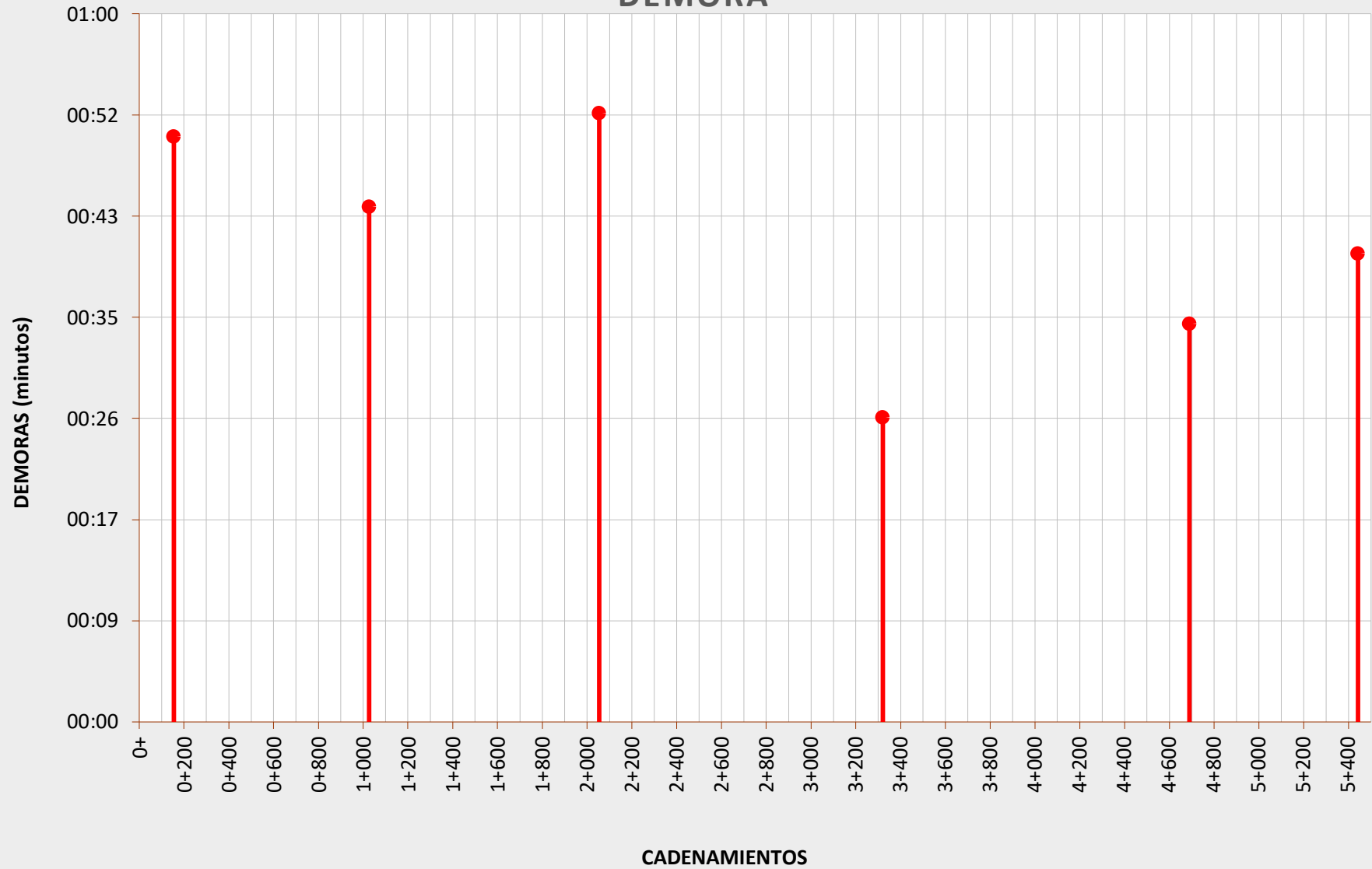
Descripción del Recorrido:

Recorrido de Ida: Inicio en Av. Jiménez continúa al oriente hasta cruce con calle Gómez Morín

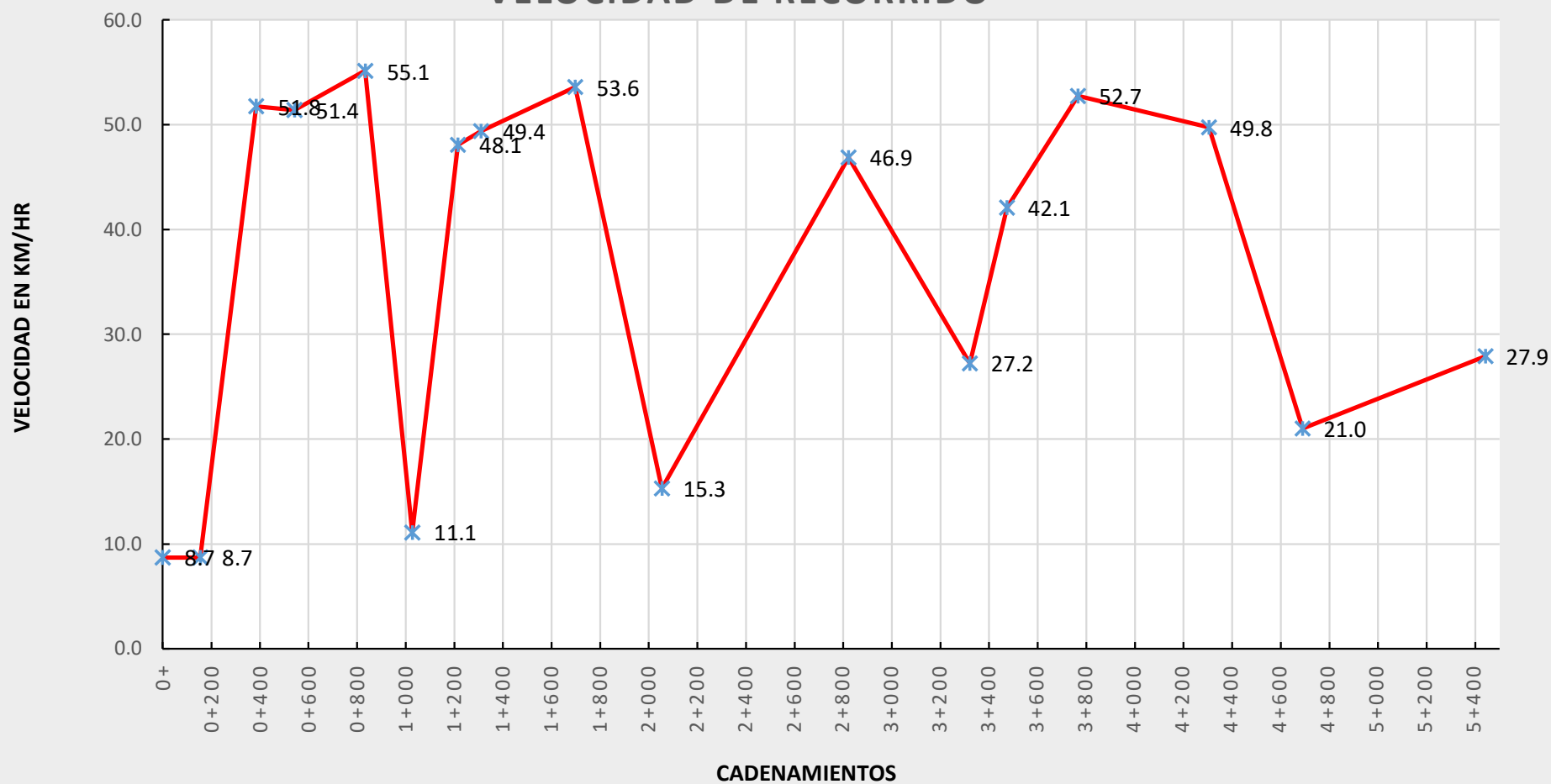
Kilómetro	Demora total	Tiempo global	Vel. Global	Vel. Marcha
0+		00:00:00		
5+442	00:04:06	00:11:04	29.50	46.87

ALFONSO REYES - PONIENTE A ORIENTE

DEMORA



ALFONSO REYES - PONIENTE A ORIENTE VELOCIDAD DE RECORRIDO





5 Análisis de Capacidad en Operación Actual

En esta sección se presenta el análisis las operaciones actuales de las 22 intersecciones aforadas para el proyecto **CORREDOR DE MOVILIDAD SEGURA ALFONSO REYES** del IMPLANG

Para el análisis de la situación actual de cada una de las intersecciones estudiadas, se utiliza el paquete computacional Synchro 9.0, empleando la metodología, parámetros y criterios del Highway Capacity Manual 2010 y del Intersection Capacity Utilization 2003, éste último dirigido específicamente a los estudios de Impacto Vial, diseño de caminos y manejo del congestionamiento vial.

1. Alfonso Reyes – Bajo Paso a Desnivel Plaza Nativa

TURNO PICO MATUTINO

Nivel de Servicio: A
Demora Promedio: 6.0 seg/veh
ICU Máximo: 18.4%
V/c Máxima: 0.07

TURNO PICO VESPERTINO

Nivel de Servicio: A
Demora Promedio: 8.9 seg/veh
ICU Máximo: 14.4%
V/c Máxima: 0.09

Este cruce presenta actualmente una operación estable, no requiere cambios en cuanto a su capacidad.



2. Alfonso Reyes – Jiménez

TURNO PICO MATUTINO

Nivel de Servicio: C
Demora Promedio: 25.3 seg/veh
ICU Máximo: 90.0%
V/c Máxima: 0.93

TURNO PICO VESPERTINO

Nivel de Servicio: C
Demora Promedio: 20.1 seg/veh
ICU Máximo: 89.2%
V/c Máxima: 0.78

Este cruce presenta una operación estable, no requiere cambios en cuanto a su capacidad. Se observan filas para la vuelta izquierda desde Alfonso Reyes hacia el norte de Jiménez, estas generalmente ocurren durante el periodo pico de la mañana o medio día, durante la entrada/salida de los alumnos de la UDEM o colegios aledaños.

3. Alfonso Reyes – Las Sendas

TURNO PICO MATUTINO

Nivel de Servicio: C
Demora Promedio: 20.8 seg/veh
ICU Máximo: 62.3%
V/c Máxima: 0.79

TURNO PICO VESPERTINO

Nivel de Servicio: B
Demora Promedio: 17.3 seg/veh
ICU Máximo: 55.5%
V/c Máxima: 0.85

Este cruce presenta una operación estable, no requiere cambios en cuanto a su capacidad. Todos los movimientos cuentan con un nivel de servicio aceptable, con cortas demoras promedio. Se observan filas durante los turnos matutino y de medio día, esto se debe a las demoras producto del proceso de recepción/entrega de alumnos del Colegio Himalaya, no a un alto flujo vehicular.



4. Alfonso Reyes – Hidalgo

TURNO PICO MATUTINO

Nivel de Servicio: A
Demora Promedio: 0.3 seg/veh
ICU Máximo: 49.3%
V/c Máxima: 0.39

TURNO PICO VESPERTINO

Nivel de Servicio: A
Demora Promedio: 0.3 seg/veh
ICU Máximo: 58.6%
V/c Máxima: 0.56

El cruce presenta una operación estable, no requiere cambios en cuanto a su capacidad. No se presenta alta demora, el flujo de salida de la calle Hidalgo tiene nivel de servicio A.

5. Alfonso Reyes – Corregidora

TURNO PICO MATUTINO

Nivel de Servicio: C
Demora Promedio: 25.5 seg/veh
ICU Máximo: 51.8%
V/c Máxima: 0.73

TURNO PICO VESPERTINO

Nivel de Servicio: B
Demora Promedio: 17.3 seg/veh
ICU Máximo: 64.3%
V/c Máxima: 0.72

Se recomienda modificar la geometría de la intersección, los peatones se encuentran desprotegidos en algunas de las ramas que la componen. En cuanto a su capacidad, la intersección opera actualmente con un nivel de servicio aceptable y cortas demoras.



6. Alfonso Reyes – Juárez

TURNO PICO MATUTINO

Nivel de Servicio: B
Demora Promedio: 10.5 seg/veh
ICU Máximo: 57.1%
V/c Máxima: 0.84

TURNO PICO VESPERTINO

Nivel de Servicio: A
Demora Promedio: 7.6 seg/veh
ICU Máximo: 58.8%
V/c Máxima: 0.65

Este cruce presenta una operación estable, no requiere cambios en cuanto a su capacidad. El flujo de salida desde la calle Juárez tiene nivel de servicio D con filas de hasta 50 metros (turno matutino.)

7. Alfonso Reyes – Manuel González / Ticomán

TURNO PICO MATUTINO

Nivel de Servicio: B
Demora Promedio: 13.3 seg/veh
ICU Máximo: 52.9%
V/c Máxima: 0.64

TURNO PICO VESPERTINO

Nivel de Servicio: B
Demora Promedio: 14.8 seg/veh
ICU Máximo: 63.3%
V/c Máxima: 0.70

Las vueltas izquierdas hacia el norte y sur de la calle Manuel González presentan nivel de servicio D con filas de hasta 50 metros, estas filas generan obstrucciones al flujo de paso de Alfonso Reyes.



8. Alfonso Reyes – Montefalco

TURNO PICO MATUTINO

Nivel de Servicio: B
Demora Promedio: 18.2 seg/veh
ICU Máximo: 59.4%
V/c Máxima: 0.70

TURNO PICO VESPERTINO

Nivel de Servicio: C
Demora Promedio: 21.6 seg/veh
ICU Máximo: 63.1%
V/c Máxima: 0.83

Se requiere modificar la capacidad de almacenamiento del carril de vuelta izquierda hacia Montefalco (Sur), mínimo a 60 metros. Asimismo, se recomienda cancelar las vueltas derechas continuas ubicadas al sur de la intersección.

9. Alfonso Reyes – Genaro Garza García

TURNO PICO MATUTINO

Nivel de Servicio: B
Demora Promedio: 13.8 seg/veh
ICU Máximo: 56.7%
V/c Máxima: 0.57

TURNO PICO VESPERTINO

Nivel de Servicio: C
Demora Promedio: 27.2 seg/veh
ICU Máximo: 61.2%
V/c Máxima: 0.70

Este cruce presenta una operación estable, no requiere cambios en cuanto a su capacidad. Se propone la construcción del camellón central sobre Alfonso Reyes para proteger el cruce peatonal.



10. Alfonso Reyes – Matamoros

TURNO PICO MATUTINO

Nivel de Servicio: A
Demora Promedio: 6.5 seg/veh
ICU Máximo: 56.7%
V/c Máxima: 0.57

TURNO PICO VESPERTINO

Nivel de Servicio: A
Demora Promedio: 5.9 seg/veh
ICU Máximo: 61.2%
V/c Máxima: 0.69

Este cruce presenta una operación estable, no requiere cambios en cuanto a su capacidad. Se propone la construcción de un camellón central sobre Alfonso Reyes para evitar vueltas izquierdas prohibidas.

11. Alfonso Reyes – Santa Bárbara

TURNO PICO MATUTINO

Nivel de Servicio: A
Demora Promedio: 2.4 seg/veh
ICU Máximo: 59.5%
V/c Máxima: 0.63

TURNO PICO VESPERTINO

Nivel de Servicio: A
Demora Promedio: 2.8 seg/veh
ICU Máximo: 69.5%
V/c Máxima: 0.70

Aun y con un nivel de servicio D para el movimiento de vuelta izquierda hacia el norte de Santa Bárbara, se observan flujo eficiente dada la protección del semáforo ubicado al oriente de Alfonso Reyes, en su cruce con la calle Guillermo Prieto



12. Alfonso Reyes – Guillermo Prieto

TURNO PICO MATUTINO

Nivel de Servicio: B
Demora Promedio: 12.5 seg/veh
ICU Máximo: 59.0%
V/c Máxima: 0.76

TURNO PICO MATUTINO

Nivel de Servicio: B
Demora Promedio: 16.6 seg/veh
ICU Máximo: 72.0%
V/c Máxima: 0.88

El flujo vehicular norte-sur presenta un nivel de servicio E (PM) con filas de 50 metros al 50° percentil. Este cruce podrá ser rediseñado al modificar los radios de giro e isletas ubicados al sur (Jardines Coloniales). Asimismo, se deberá colocar un camellón central sobre Alfonso Reyes para evitar vueltas izquierdas prohibidas.

13. Alfonso Reyes – Neil Armstrong

TURNO PICO MATUTINO

Nivel de Servicio: B
Demora Promedio: 12.5 seg/veh
ICU Máximo: 59.0%
V/c Máxima: 0.76

TURNO PICO VESPERTINO

Nivel de Servicio: B
Demora Promedio: 14.1 seg/veh
ICU Máximo: 61.8%
V/c Máxima: 0.62

Este cruce presenta una operación estable, no requiere cambios en cuanto a su capacidad. Se propone sólo el rediseño de la esquina sur-poniente, es necesario reducir el radio de giro para mitigar altas velocidades de ingreso hacia la calle Neil Armstrong.



14. Alfonso Reyes – Las Olimpiadas

TURNO PICO MATUTINO

Nivel de Servicio: B
Demora Promedio: 13.7 seg/veh
ICU Máximo: 56.7%
V/c Máxima: 0.65

TURNO PICO VESPERTINO

Nivel de Servicio: B
Demora Promedio: 18.6 seg/veh
ICU Máximo: 66.1%
V/c Máxima: 0.91

Este cruce presenta un diseño geométrico el cual permite hasta 19 movimientos, se recomienda su rediseño para disminuir esta cantidad y mitigar problemas de seguridad vial.

15. Alfonso Reyes – Río Suchiate

TURNO PICO MATUTINO

Nivel de Servicio: B
Demora Promedio: 15.1 seg/veh
ICU Máximo: 53.2%
V/c Máxima: 0.85

TURNO PICO VESPERTINO

Nivel de Servicio: B
Demora Promedio: 11.8 seg/veh
ICU Máximo: 54.7%
V/c Máxima: 0.73

Durante el turno matutino, el movimiento norte-sur (Río Suchiate) presenta un nivel de servicio E con filas al 50° percentil de 30 metros. Se recomienda la construcción de un camellón central para evitar vueltas prohibidas y facilitar el cruce de peatones.



16. Alfonso Reyes – Lomas del Valle

TURNO PICO MATUTINO

Nivel de Servicio: E
Demora Promedio: 65.7 seg/veh
ICU Máximo: 68.1%
V/c Máxima: 1.05

TURNO PICO VESPERTINO

Nivel de Servicio: E
Demora Promedio: 56.8 seg/veh
ICU Máximo: 78.5%
V/c Máxima: 0.98

Este cruce presenta una operación con largas filas sobre Alfonso Reyes y altas demoras para algunos de sus movimientos, con niveles de servicio E o F.

17. Lomas del Valle – Río Pilón

TURNO PICO MATUTINO

Nivel de Servicio: A
Demora Promedio: 1.1 seg/veh
ICU Máximo: 22.3%
V/c Máxima: 0.09

TURNO PICO VESPERTINO

Nivel de Servicio: A
Demora Promedio: 1.2 seg/veh
ICU Máximo: 26.7%
V/c Máxima: 0.14

Este cruce presenta una operación estable, no requiere cambios en cuanto a su capacidad.



18. Lomas del Valle – Laredo

TURNO PICO MATUTINO

Nivel de Servicio: A
Demora Promedio: 2.1 seg/veh
ICU Máximo: 24.6%
V/c Máxima: 0.14

TURNO PICO VESPERTINO

Nivel de Servicio: A
Demora Promedio: 1.7 seg/veh
ICU Máximo: 30.6%
V/c Máxima: 0.15

Este cruce presenta una operación estable, no requiere cambios en cuanto a su capacidad.

19. Alfonso Reyes – Sierra Azul / Bosque del Olivo

TURNO PICO MATUTINO

Nivel de Servicio: B
Demora Promedio: 12.0 seg/veh
ICU Máximo: 51.3%
V/c Máxima: 0.78

TURNO PICO VESPERTINO

Nivel de Servicio: B
Demora Promedio: 11.1 seg/veh
ICU Máximo: 50.7%
V/c Máxima: 0.68

Este cruce presenta una operación estable, no requiere cambios en cuanto a su capacidad.



20. Alfonso Reyes – Bosques del Valle

TURNO PICO MATUTINO

Nivel de Servicio: B
Demora Promedio: 16.3 seg/veh
ICU Máximo: 50.5%
V/c Máxima: 0.66

TURNO PICO VESPERTINO

Nivel de Servicio: C
Demora Promedio: 25.2 seg/veh
ICU Máximo: 62.0%
V/c Máxima: 0.82

Este cruce presenta una operación estable, no requiere cambios en cuanto a su capacidad.

21. Alfonso Reyes – Jerónimo Siller

TURNO PICO MATUTINO

Nivel de Servicio: C
Demora Promedio: 27.5 seg/veh
ICU Máximo: 67.2%
V/c Máxima: 1.14

TURNO PICO VESPERTINO

Nivel de Servicio: E
Demora Promedio: 61.4 seg/veh
ICU Máximo: 72.3%
V/c Máxima: 1.31

Para ambos turnos pico se observan movimientos con niveles de servicio E y F, principalmente para los flujos norte y sur, los cuales cuentan con escaso tiempo en verde. Durante el turno vespertino, se presentan largas filas para Alfonso Reyes, mayores a los 100 metros.



22. Alfonso Reyes – Gómez Morín

TURNO PICO MATUTINO

Nivel de Servicio: E
Demora Promedio: 57.0 seg/veh
ICU Máximo: 71.7%
V/c Máxima: 1.24

TURNO PICO VESPERTINO

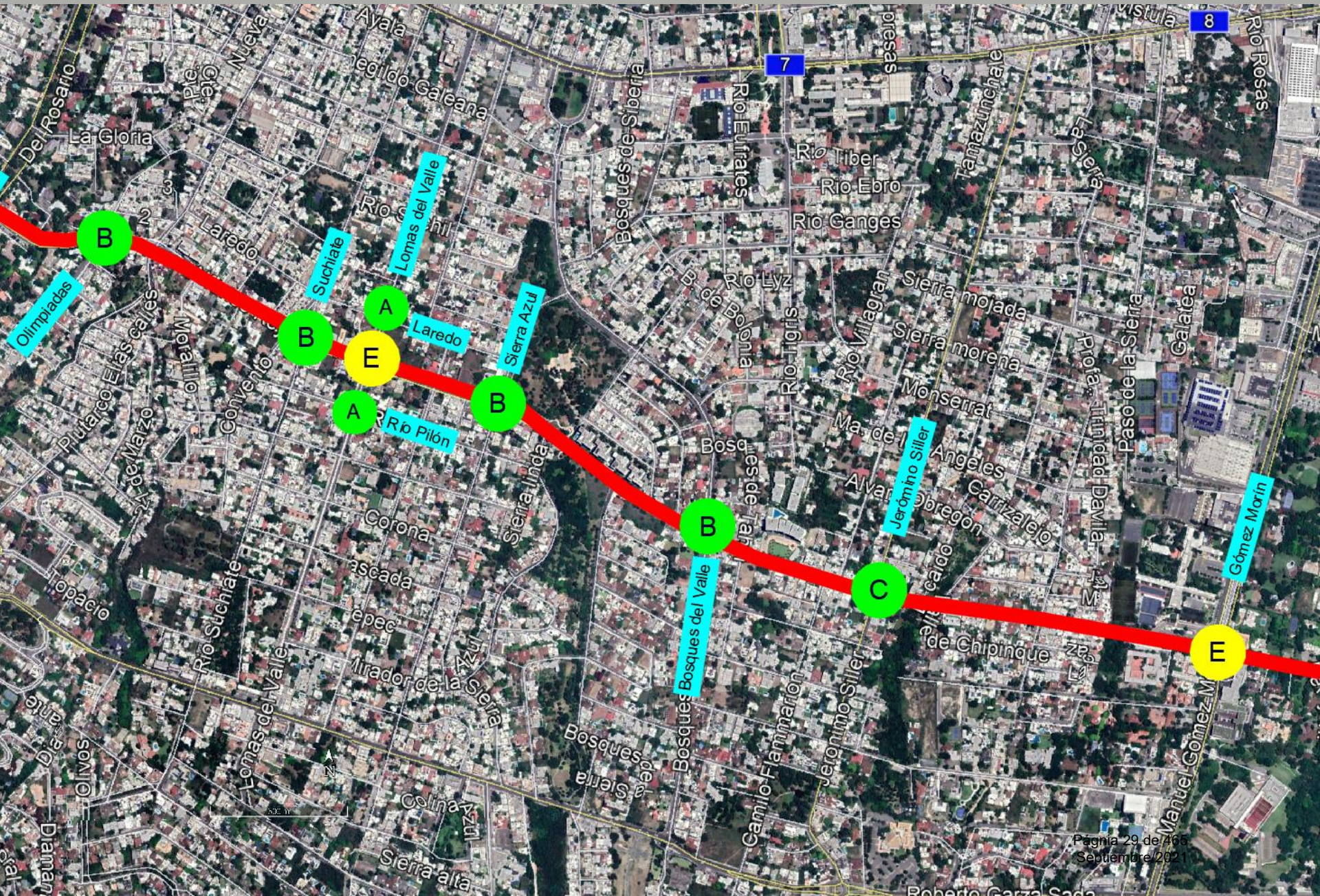
Nivel de Servicio: D
Demora Promedio: 51.0 seg/veh
ICU Máximo: 71.0%
V/c Máxima: 1.22

Se podría considerar que este cruce presenta los mayores conflictos vehiculares y peatonales del tramo de avenida analizada, con largas filas para el flujo oriente-poniente y altas demoras para gran parte de sus movimientos. Es necesaria la ampliación de su rama oriente (Alfonso Reyes) y mejoras para la seguridad del peatón.

A continuación se anexa una grafica donde se indican los niveles de servicio calculados para cada una de las intersecciones analizadas. Al final del estudio vial se anexan los reportes que resultan de estos análisis en operación actual.

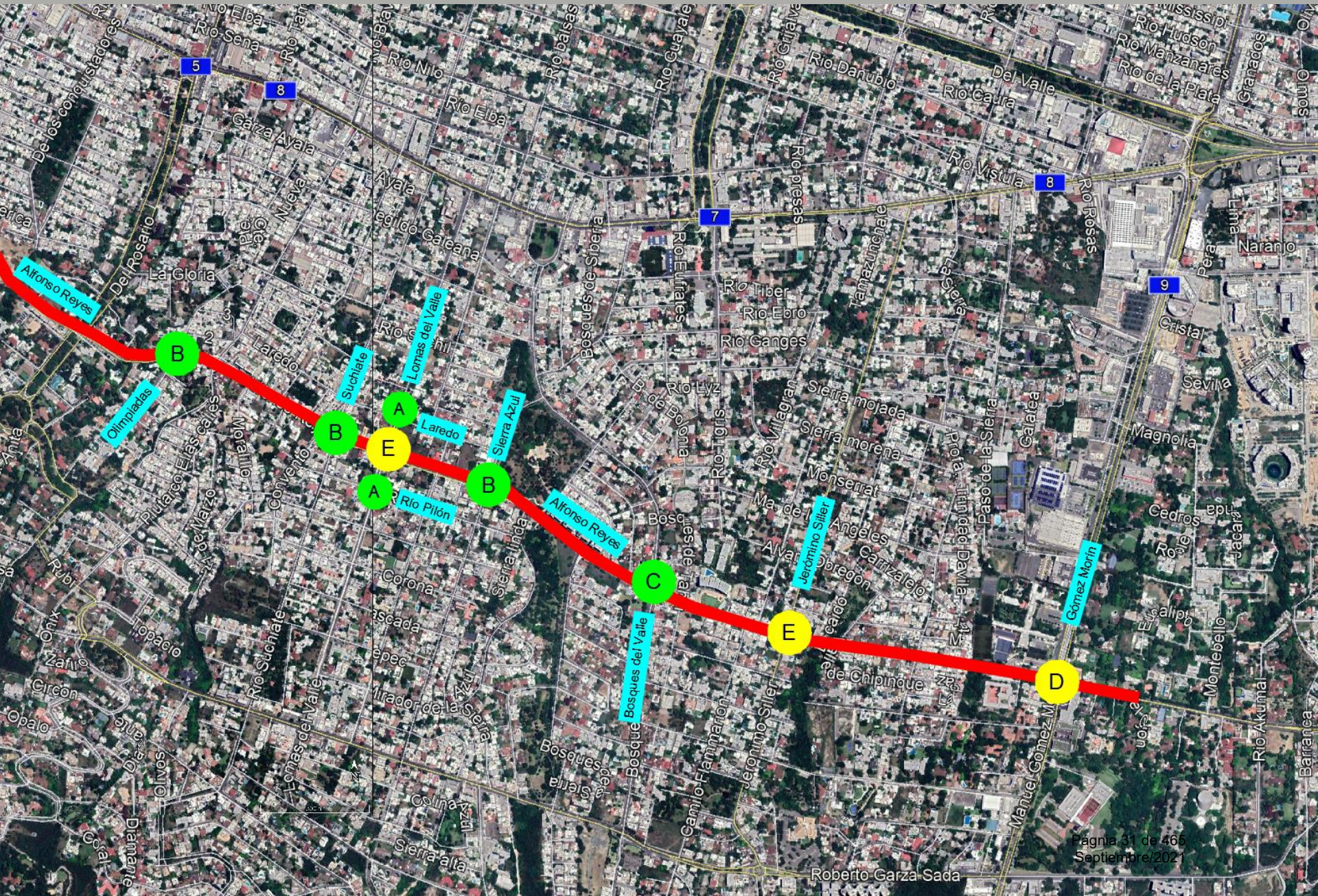


Niveles de Servicio - AM





Niveles de Servicio - PM

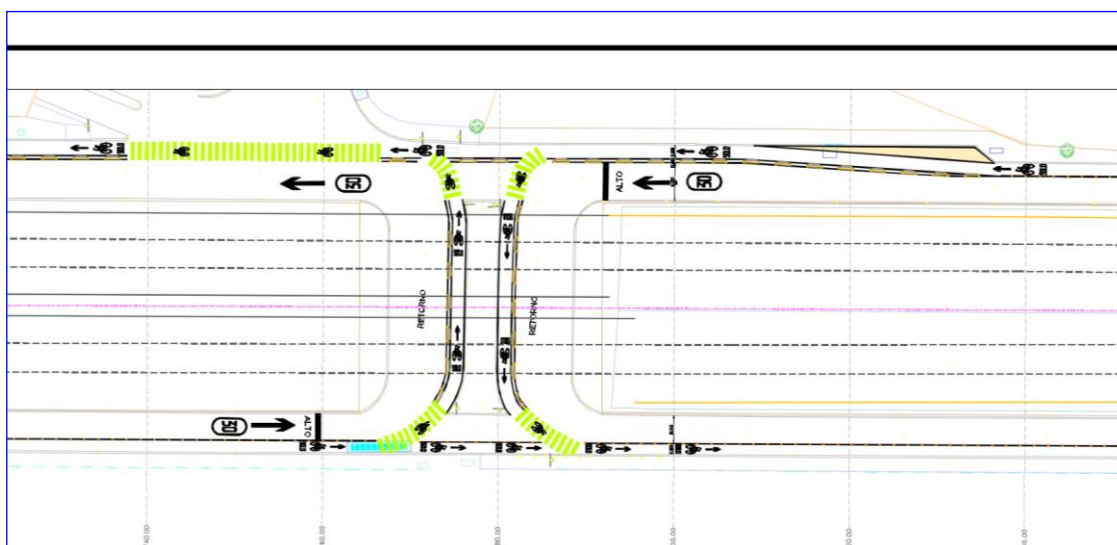




6 Proyecto de Ciclovía

El proyecto **CORREDOR DE MOVILIDAD SEGURA ALFONSO REYES**, del Municipio de San Pedro Garza García, modifica todas las intersecciones ubicadas a lo largo de la vía, entre la avenida Gómez Morín al oriente y la UDEM al poniente. La incorporación de un carril para ciclistas segregado y con una sección de 2.0 metros en casi toda su longitud, rediseña el corredor Alfonso Reyes al cancelar vueltas izquierdas en algunas de sus intersecciones. A continuación se indican los cambios propuestos por el Municipio de San Pedro Garza García para esta vía y sus intersecciones.

1. Alfonso Reyes – Bajos Paso a Desnivel Plaza Nativa

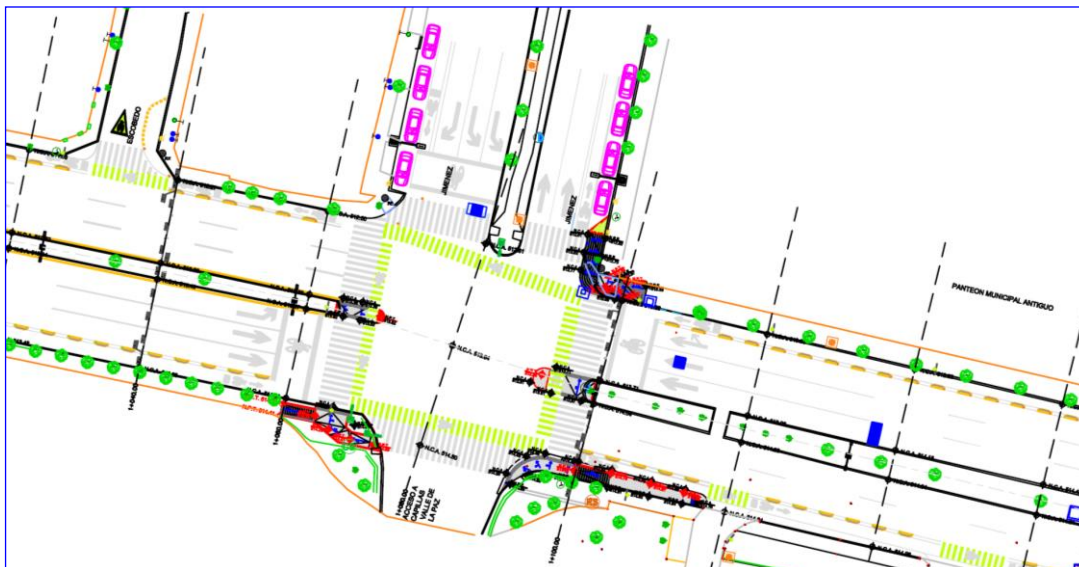


Se cancela un carril de circulación de la lateral norte de esta intersección, asimismo, se reduce la sección vial de la lateral sur. La señal de alto del retorno poniente es reubicada, esta se coloca ahora para el sentido de circulación oriente-poniente de la lateral.

Para este cruce, se mantienen los flujos vehiculares actuales, estos no se modifican con la construcción de la nueva ciclovía.



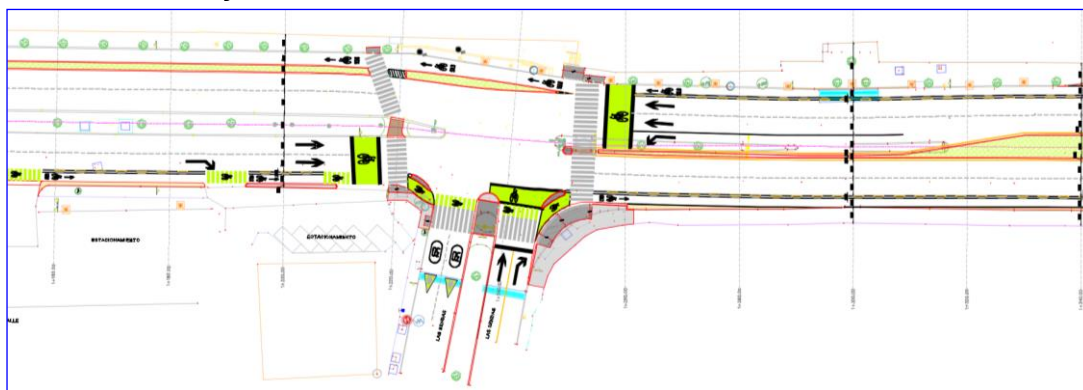
2. Alfonso Reyes – Jiménez



Se mantiene la sección vial para las vías en estudio, se modifica el camellón central de Alfonso Reyes para permitir la incorporación del carril segregado ciclista

Los flujos vehiculares de este cruce no son modificados, no se cancelan vueltas izquierdas o derechas existentes.

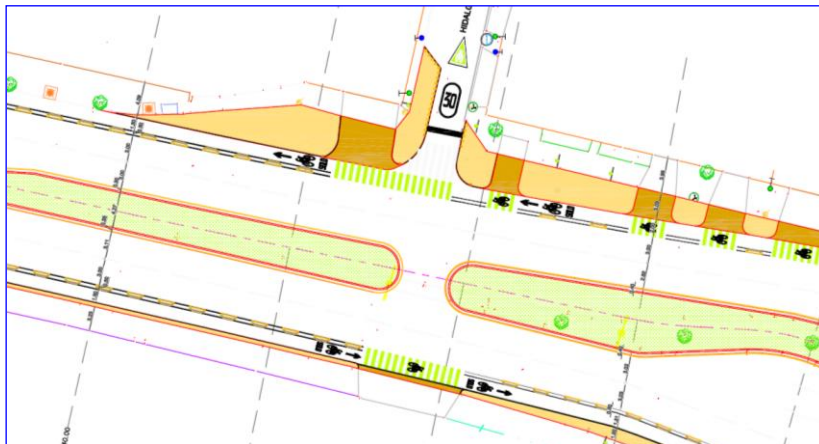
3. Alfonso Reyes – Las Sendas



Se mantiene la sección vial para el sentido oriente a poniente, con dos carriles de circulación y un carril auxiliar para la vuelta izquierda hacia Las Sendas. Para el sentido poniente a oriente, se reduce la sección vial de 3 a 2 carriles de circulación. Se mantiene la sección existente de Las Sendas. Los flujos vehiculares de este cruce no son modificados, no se cancelan vueltas izquierdas o derechas existentes.

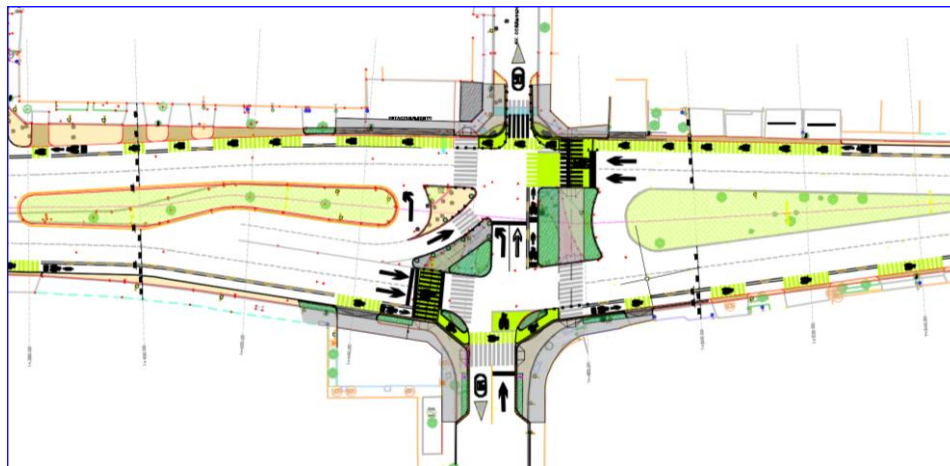


4. Alfonso Reyes – Hidalgo



Este cruce es modificado en cuanto a su geometría y flujos vehiculares. El proyecto contempla la apertura del camellón central frente a la calle Hidalgo y permite las vueltas izquierdas directas hacia Alfonso Reyes. Actualmente los vehículos que salen de Hidalgo y que tienen como destino el oriente de Alfonso Reyes, utilizan un retorno ubicado 25 metros al poniente de este cruce.

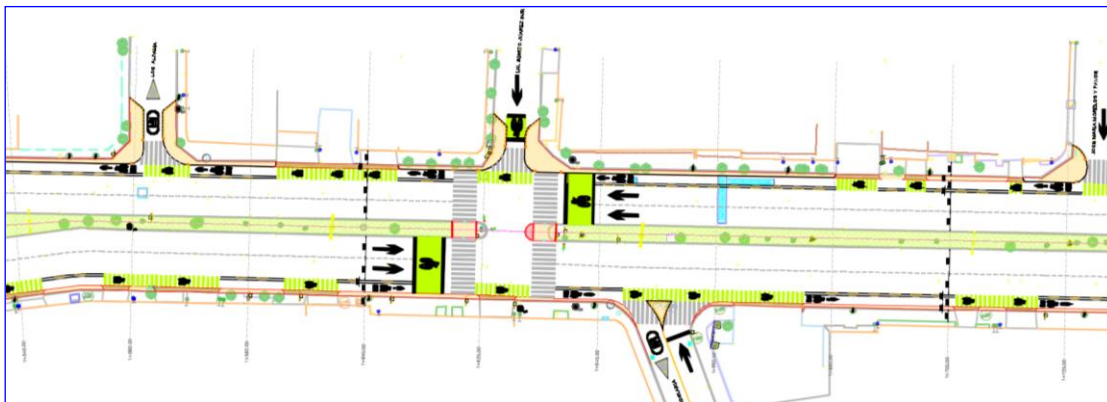
5. Alfonso Reyes – Corregidora



Se retira el estacionamiento en vía pública para Alfonso Reyes, esto permite la instalación del carril de ciclistas en ambos sentidos. Se mantiene la vuelta izquierda/retorno de Alfonso Reyes hacia el norte de Corregidora. Se reduce la sección vial de la calle Altamirano de 4 a 2 carriles de circulación. Los flujos vehiculares de este cruce no son modificados, no se cancelan vueltas izquierdas o derechas existentes.

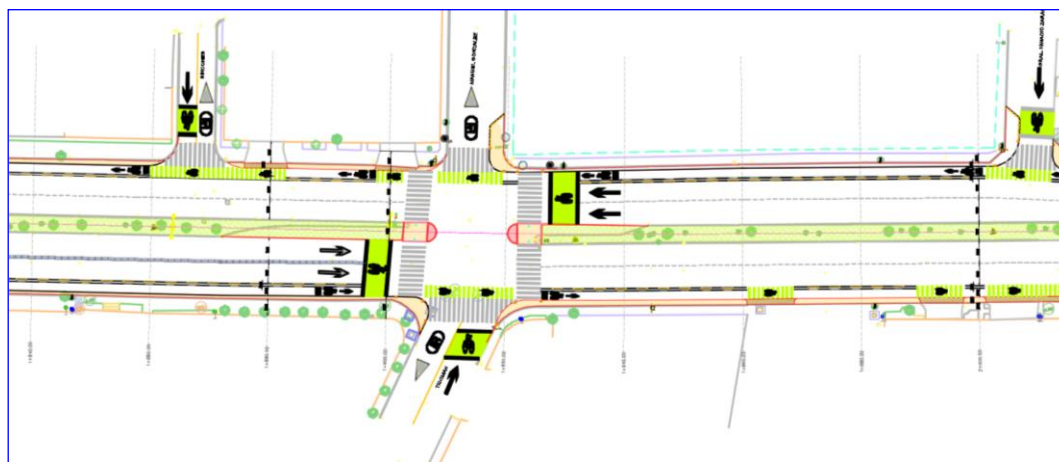


6. Alfonso Reyes – Juárez



Se retira el estacionamiento en vía pública para Alfonso Reyes, esto permite la instalación del carril de ciclistas en ambos sentidos. Se mantienen los dos carriles de circulación por sentido para Alfonso Reyes y se reduce la sección vial de la calle Juárez. Con la cancelación de las vueltas izquierdas en el cruce ubicado al oriente de esta intersección (Ticomán), se espera un incremento en el flujo vehicular de vuelta izquierda en la calle Juárez y en el flujo de vuelta derecha hacia la calle Candelaria.

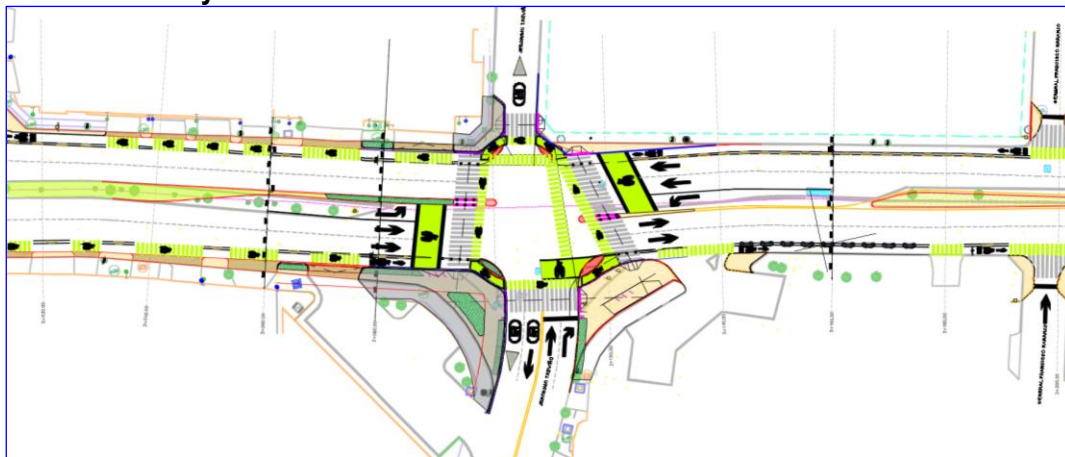
7. Alfonso Reyes – Manuel González / Ticomán



Se retira el estacionamiento en vía pública para Alfonso Reyes, esto permite la instalación del carril de ciclistas en ambos sentidos. Se mantienen los dos carriles de circulación por sentido para Alfonso Reyes y se cancelan sur retornos/vueltas izquierdas. Se mantiene la sección vial para las calles Ticomán y Manuel González.

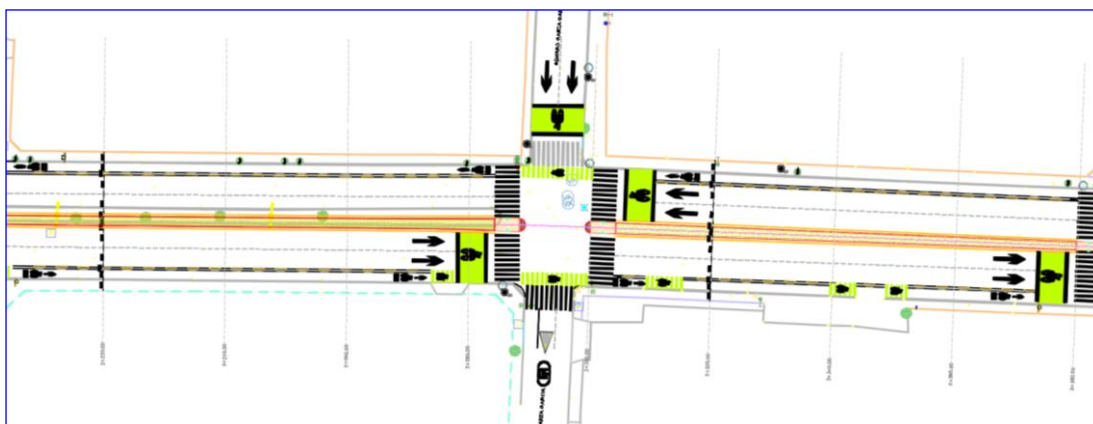


8. Alfonso Reyes – Montefalco



Se retira el estacionamiento en vía pública para Alfonso Reyes, esto permite la instalación del carril de ciclistas en ambos sentidos. Se mantiene la sección vial para todas las ramas que componen la intersección, sólo se modifica el diseño de la zona sur del cruce al cancelar las vueltas derechas continuas, asimismo se prolongan los carriles auxiliares de retorno/vuelta izquierda para los dos sentidos de Alfonso Reyes. Se tendrá un aumento en el flujo vehicular de las vueltas izquierdas/retornos de este cruce.

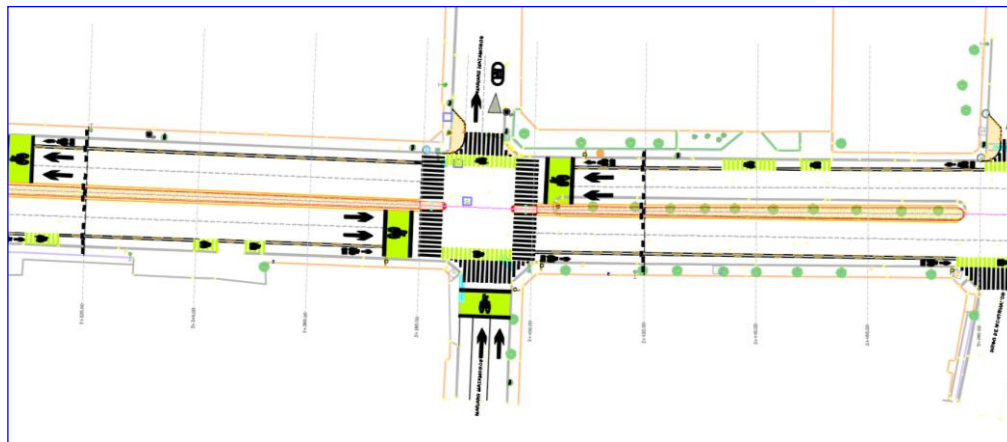
9. Alfonso Reyes – Genaro Garza García



Se mantienen 2 carriles de circulación para el sentido oriente-poniente y poniente-oriente de Alfonso Reyes, se cancela la vuelta izquierda hacia el sur de Genaro Garza García. Se rediseña la franja central de Alfonso Reyes. Al cancelar la vuelta izquierda hacia el sur, los conductores deberán modificar su recorrido, de preferencia utilizar la rama norte de la calle Genaro Garza García.

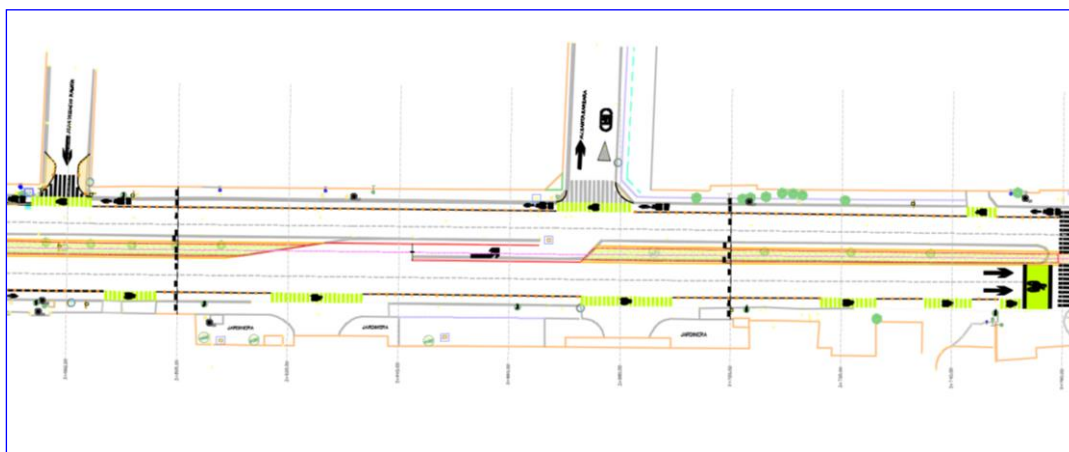


10. Alfonso Reyes – Matamoras



Se mantienen 2 carriles de circulación para el sentido oriente-poniente y poniente-oriente de Alfonso Reyes. Se rediseña la franja central de Alfonso Reyes al reducir su ancho. La calle Matamoras mantiene su sección vial con dos carriles de circulación. La cancelación de la vuelta izquierda en Genaro Garza García aumenta el flujo en vuelta derecha del cruce hacia el norte de Matamoras.

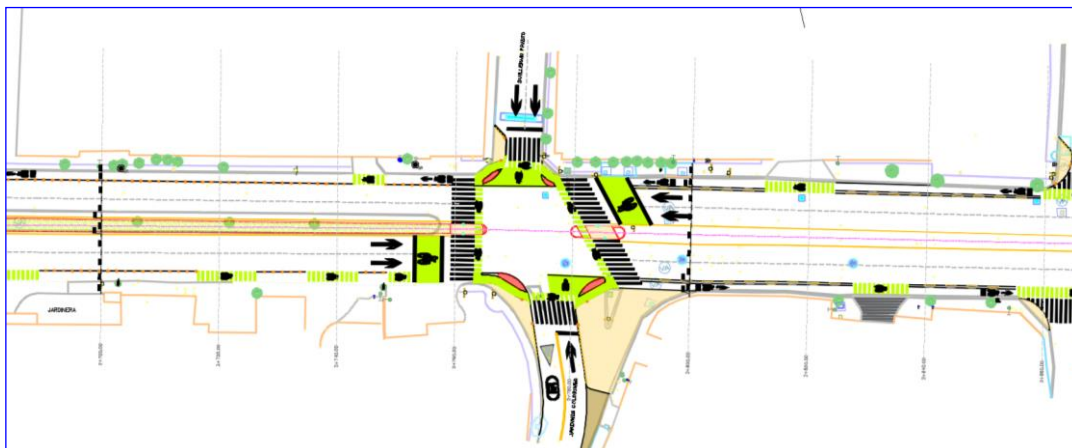
11. Alfonso Reyes – Santa Bárbara



Se mantienen 2 carriles de circulación para ambos sentidos de Alfonso Reyes. Se rediseña el camellón central al reducir su sección, se mantiene la vuelta izquierda hacia el norte de Santa Bárbara.

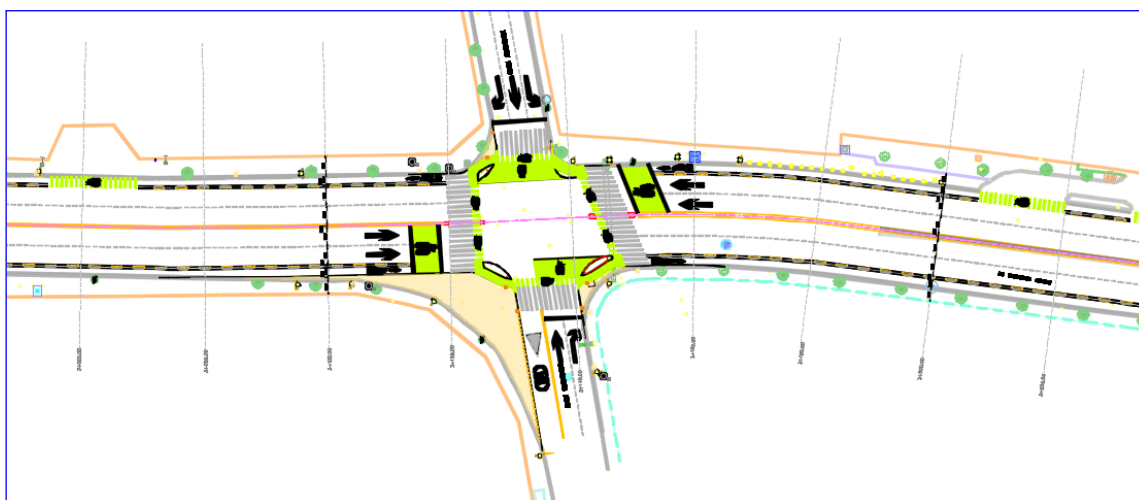


12. Alfonso Reyes – Guillermo Prieto



Se mantiene la sección vial de Alfonso Reyes con dos carriles de circulación por sentido. Para la rama sur, calle Jardines Coloniales, se rediseña su sección vial al retirar vueltas derechas continuas. Se mantiene la sección vial de la calle Guillermo Prieto.

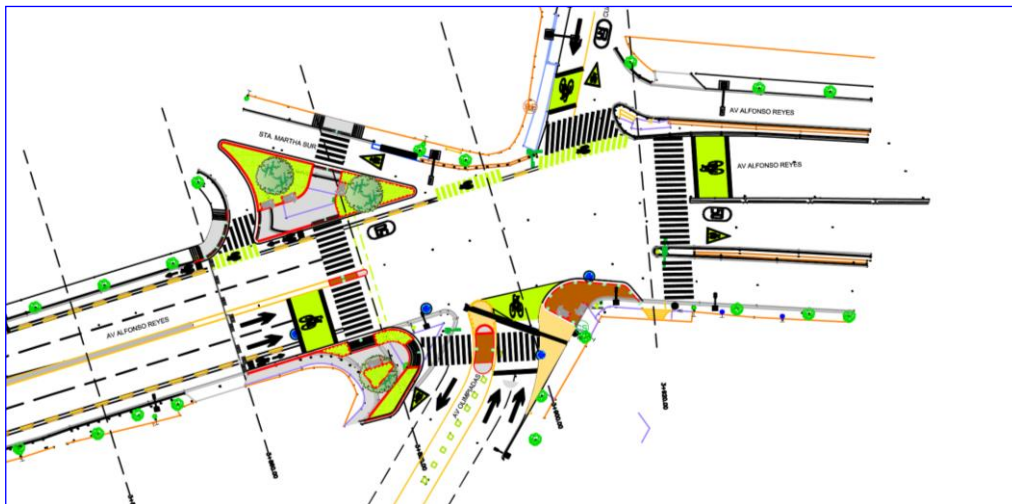
13. Alfonso Reyes – Neil Armstrong



Para esta intersección se cancela el carril de vuelta izquierda desde el oriente de Alfonso Reyes hacia el sur de la calle Neil Armstrong. Asimismo, se rediseña la vuelta derecha continua hacia el sur de la intersección y se reduce el ancho de los carriles de Alfonso Reyes para acomodar el carril ciclista segregado. El flujo hacia el sur de Neil Armstrong deberá realizar una denominada “vuelta izquierda diferida” por medio de las calles Degollado y Puebla.

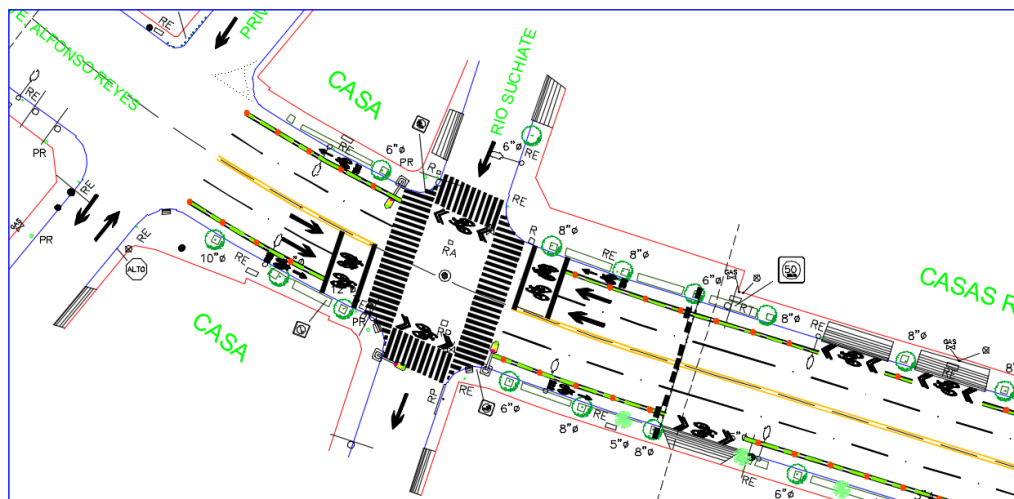


14. Alfonso Reyes – Las Olimpiadas



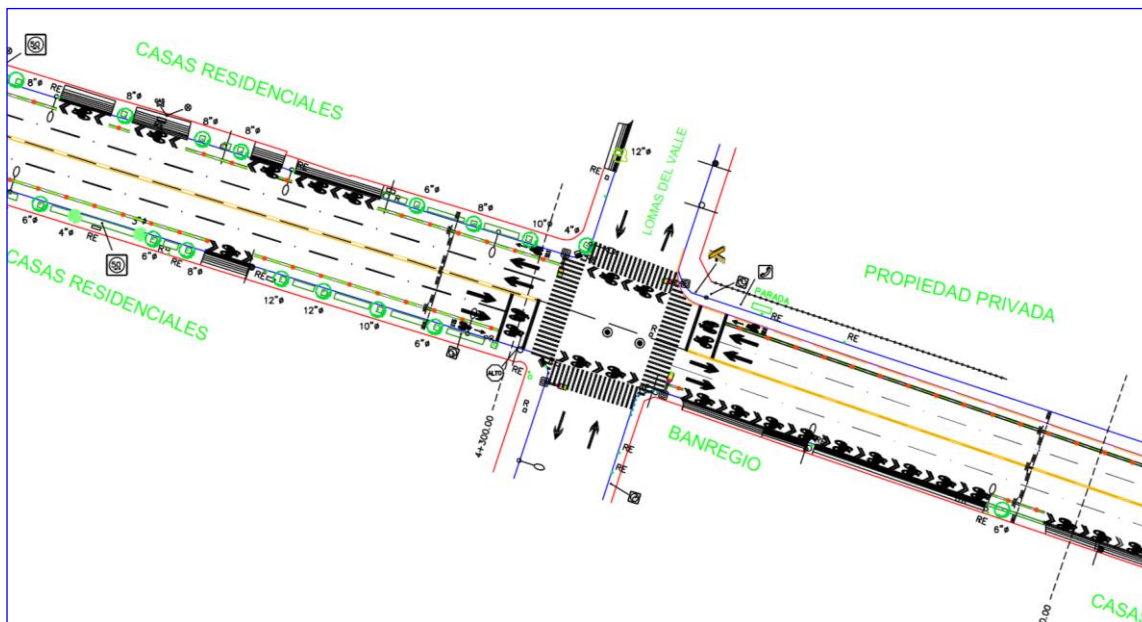
Se mantienen los 2 carriles por sentido de circulación sobre Alfonso Reyes, el carril de ciclistas no es segregado en la zona oriente del cruce (paso a desnivel.) Las otras vialidades son rediseñadas para mejorar la seguridad del peatón, estas no cambian en su capacidad.

15. Alfonso Reyes – Río Suchiate



Se mantienen los 2 carriles por sentido de circulación sobre Alfonso Reyes, se reduce la sección central de la vía para colocar un carril ciclista segregado. No se permiten las vueltas izquierdas en Alfonso Reyes hacia Río Suchiate, los conductores deberán utilizar vías alternas.

16. Alfonso Reyes – Lomas del Valle



Se cancelan las vueltas izquierdas desde Alfonso Reyes hacia Lomas del Valle, se mantienen los carriles de circulación para todas las ramas. La franja central de Alfonso Reyes es reducida para acomodar la ciclovía segregada. Los conductores que realizan actualmente vueltas izquierdas desde el Alfonso Reyes hacia Lomas del Valle deberán utilizar vías alternas, se prevé el incremento al flujo vehicular de las calles Laredo y Río Pílon.

17. Lomas del Valle – Río Pilon

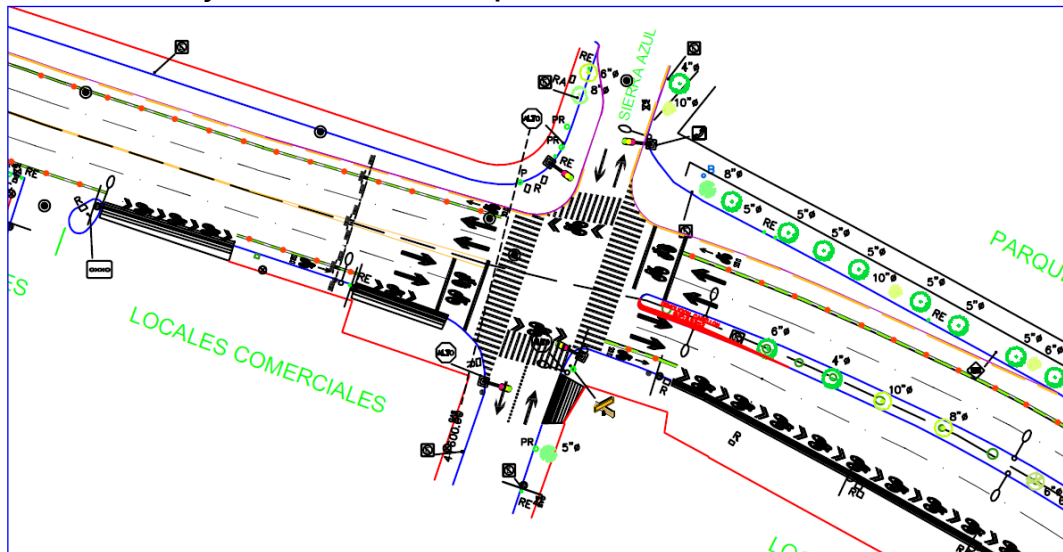
No se contemplan cambios geométricos a esta intersección. La cancelación de las vueltas izquierdas de Alfonso Reyes incrementa el flujo de la calle Río Pílon.

18. Lomas del Valle - Laredo

No se contemplan cambios geométricos a esta intersección. La cancelación de las vueltas izquierdas de Alfonso Reyes incrementa el flujo de la calle Laredo.

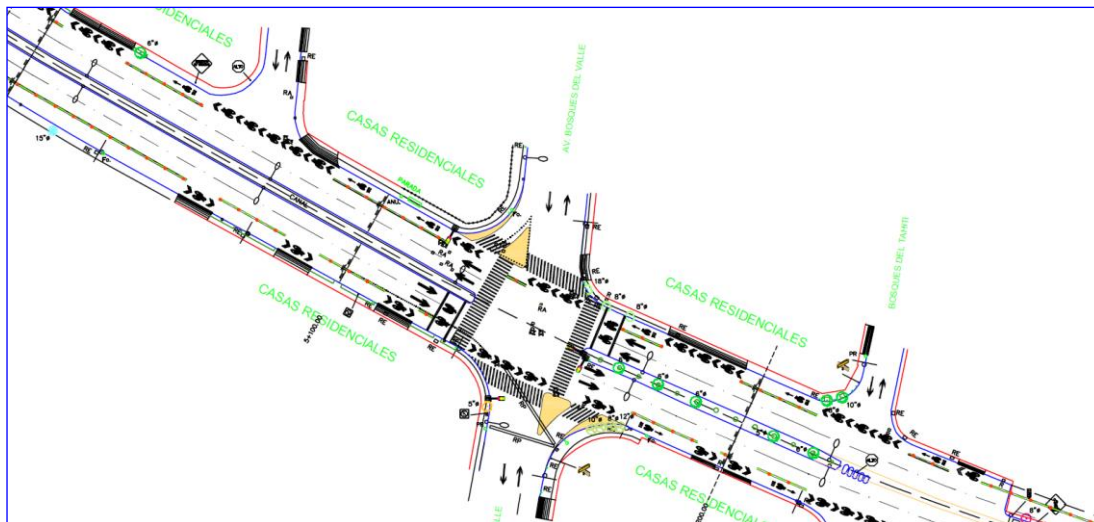


19. Alfonso Reyes – Sierra Azul / Bosque del Olivo



Se reduce la sección vial al oriente al eliminar el carril de vuelta derecha hacia la calle Bosque del Olivo. Se mantiene la sección vial con dos carriles de circulación por sentido de la ramificación de Alfonso Reyes. No se permiten las vueltas izquierdas hacia Sierra Azul/Bosque del Olivo.

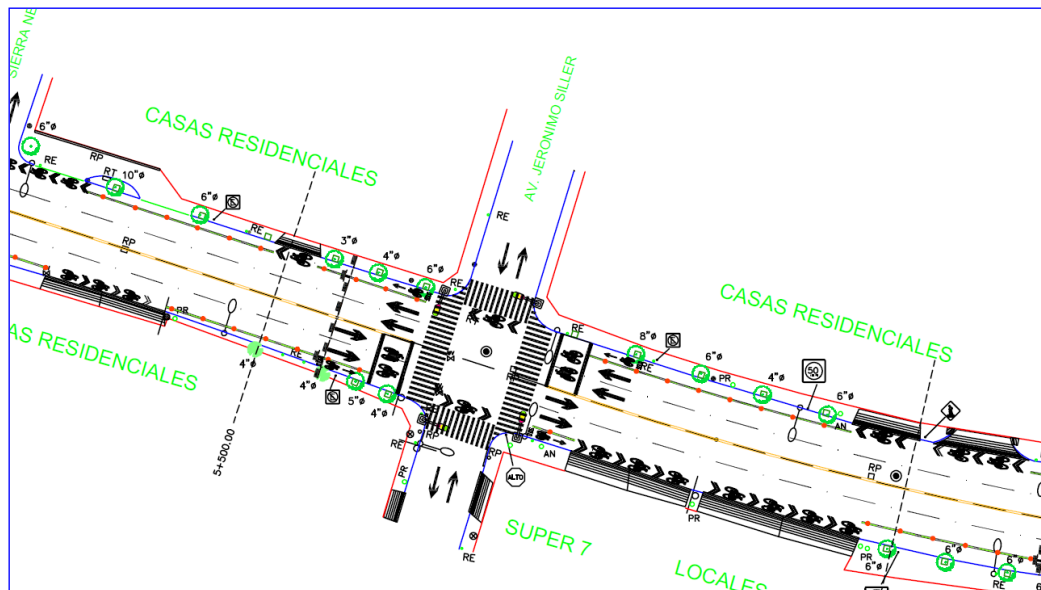
20. Alfonso Reyes – Bosques del Valle



Se reduce la sección vial de Alfonso Reyes de 3 a 2 carriles de circulación por sentido. Este cambio se requiere para instalar el carril segregado ciclista.

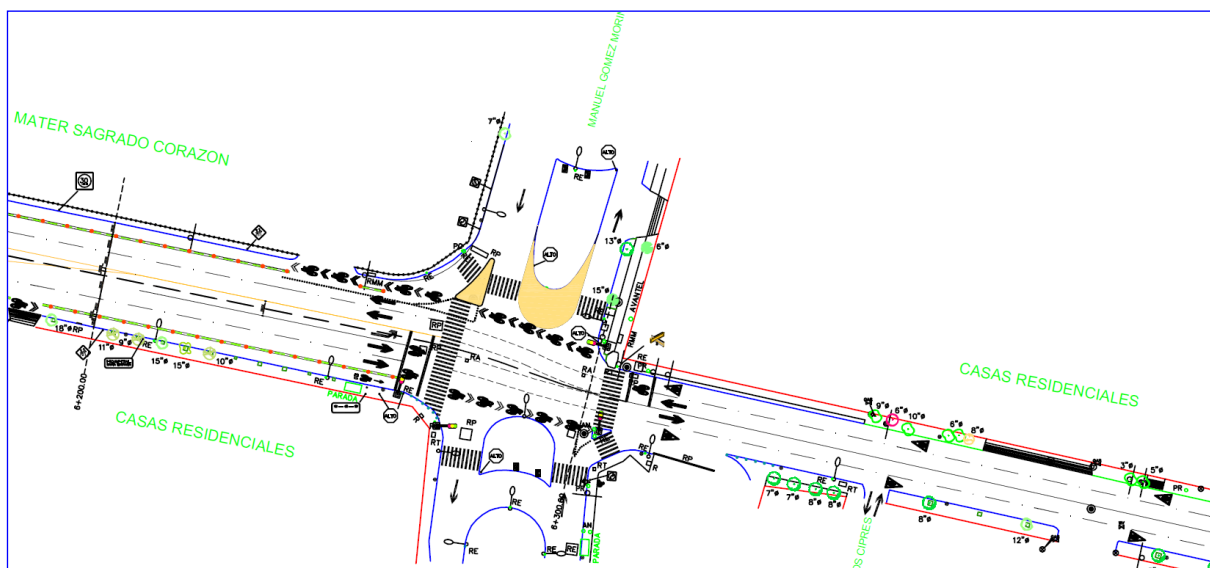


21. Alfonso Reyes – Jerónimo Siller



Se cancelan las vueltas izquierdas desde Alfonso Reyes hacia Jerónimo Siller. Se quita el carril non de Alfonso Reyes para permitir la construcción del carril segregado para ciclistas. Los conductores que circulen por Alfonso Reyes deberán utilizar calles como Sierra Nevada, Álvaro Obregón, El Caído, Camilo Flammarion y Sierra del Carmen para dirigirse hacia el norte/sur de Jerónimo Siller.

22. Alfonso Reyes – Gómez Morín





Se rediseñan los carriles de circulación de la zona poniente de Alfonso Reyes, estos son mas angostos para lograr el acomodo del carril segregado ciclistas. Para esta vía, en su sentido poniente-orienta se mantienen dos carriles de circulación con uno auxiliar de vuelta izquierda, para el sentido oriente-poniente, el carril ciclista comparte espacio con el automóvil, no se modifica la sección actual. No se tienen cambios para Gómez Morín, esta mantiene su diseño.



7 Redistribución del Flujo Vehicular

Con el proyecto **CORREDOR DE MOVILIDAD SEGURA ALFONSO REYES**, algunos de los 22 cruces analizadas cancelan sus vueltas izquierdas para reducir el ancho de su franja central y permitir la incorporación de un carril segregado para ciclistas. Con esta modificación, los conductores deberán realizar vueltas izquierdas de forma indirecta por medio de calles locales colindantes, a continuación se indican los cambios tentativos en el patrón del conductor.

ZONA UDEM – MONTEFALCO

Para esta zona se cancelan las vueltas izquierdas en el cruce de las calles Alfonso Reyes con Ticomán/Manuel González, los conductores deberán utilizar los cruces con Montefalco, Juárez y/o Corregidora para girar hacia el norte o sur.





ZONA GENARO GARZA GARCIA – NEIL ARMSTRONG

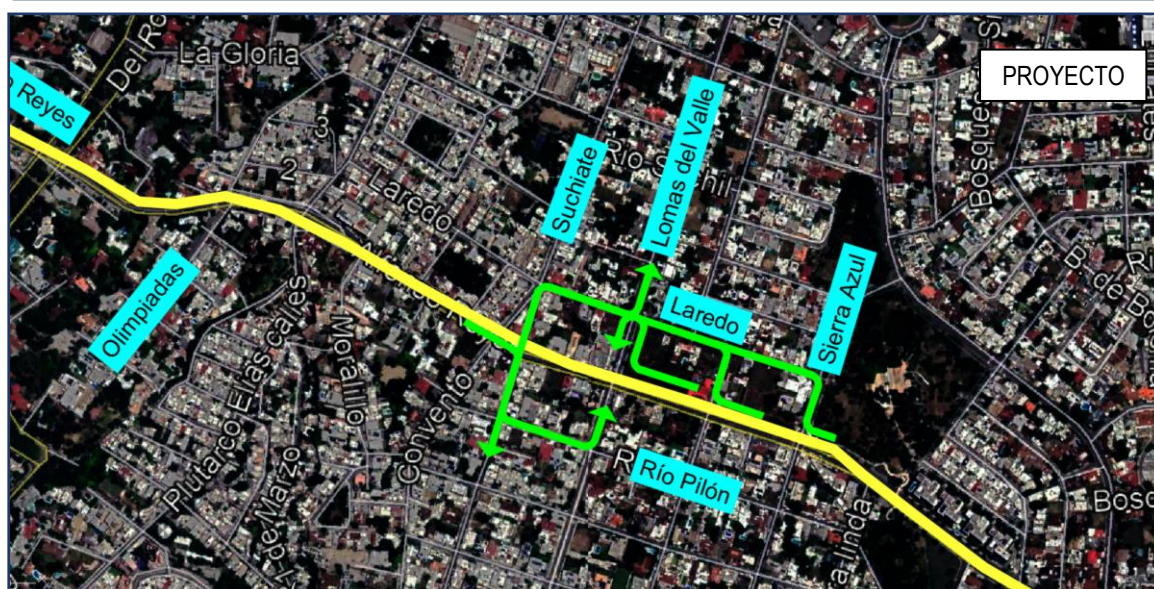
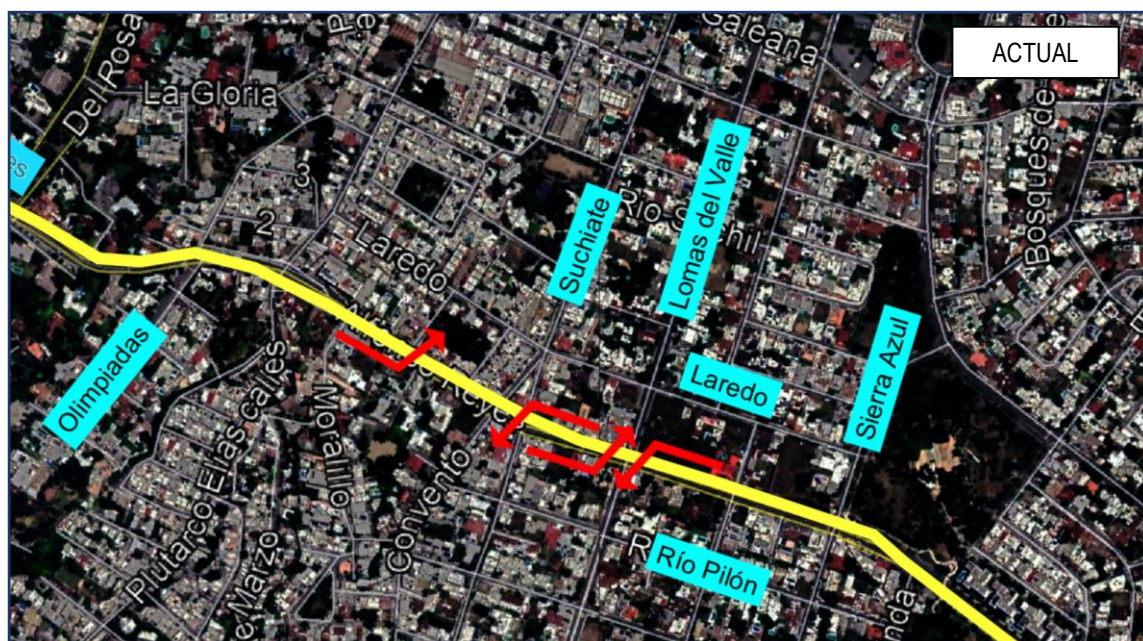
Se cancela las vueltas izquierdas hacia Genaro Garza Garcia (sur), hacia Neil Armstrong (sur) desde Doblado hacia Alfonso Reyes y hacia Degollado (norte.) Los conductores deberán utilizar otras vías para dirigirse hacia el sur o norte, se requieren vueltas izquierdas diferidas por medio de las calles Guillermo Prieto, Matamoras, Puebla y/o Degollado.





ZONA OLIMPIADAS – SIERRA AZUL / BOSQUE DEL OLIVO

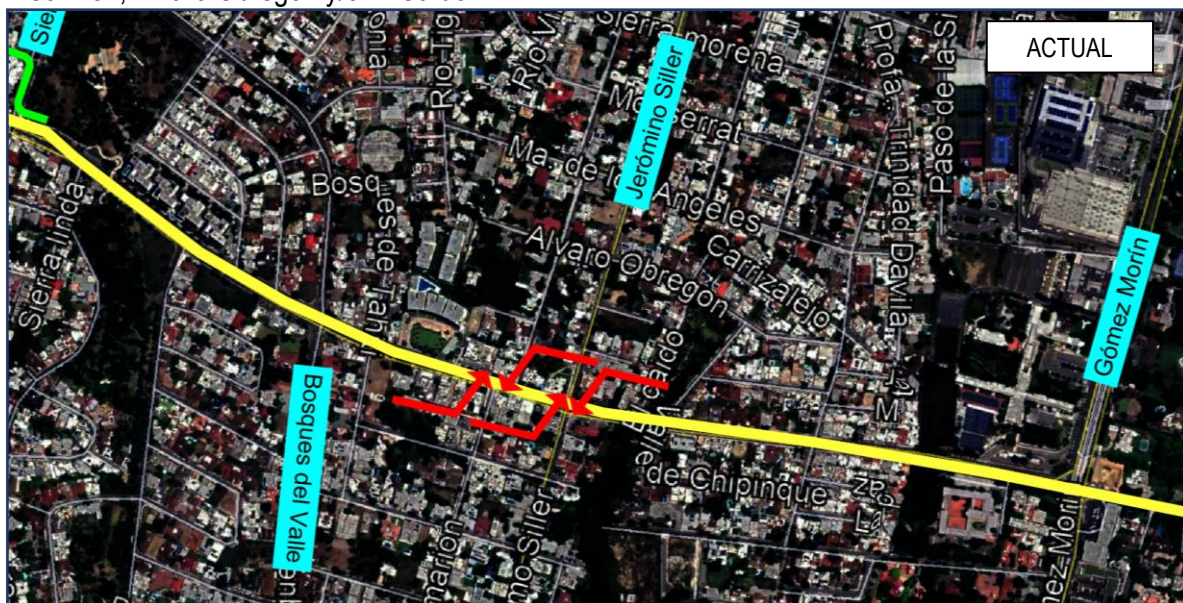
Para esta zona se todas las vueltas izquierdas desde cancelan las vueltas izquierdas desde la calle Herradura hasta Lomas del Valle. Los conductores deben utilizar vías alternas tal es el caso de las calles Laredo, Río Pílon, Bosque del Olivo, Río Suchiate y/o Sierra Verde.





ZONA BOSQUES DEL VALLE – GÓMEZ MORÍN

Para esta zona se cancelan las vueltas izquierdas desde Alfonso Reyes hacia Jerónimo Siller. Los conductores deberán utilizar como vías alternas las calles Camilo Flammarion, Sierra del Carmen, Álvaro Obregón y/o El Caído.





8 Análisis de Capacidad en Operación con Proyecto

En esta sección se presenta el análisis en operación con proyecto para cada una de las 22 intersecciones aforadas para el corredor Alfonso Reyes.

El análisis con proyecto contempla el rediseño de la red vial según propuesta elaborada por el Municipio de San Pedro Garza García de una ciclovía con carriles segregados a lo largo de Alfonso Reyes. Para todos los casos se optimizan los tiempos de los semáforos para acortar demoras y minimizar el impacto que esta ciclovía podría tener en la zona. Para ningún caso se tiene una fase dedicada a los ciclistas, estos deberán compartir los tiempos en verde con los conductores.

1. Alfonso Reyes – Bajo Paso a Desnivel Plaza Nativa

TURNO PICO MATUTINO

Nivel de Servicio: A
Demora Promedio: 8.7 seg/veh
ICU Máximo: 18.4%
V/c Máxima: 0.07

TURNO PICO VESPERTINO

Nivel de Servicio: A
Demora Promedio: 8.9 seg/veh
ICU Máximo: 18.4%
V/c Máxima: 0.13

Con la reducción a la sección vial de la lateral norte de esta intersección, la vialidad mantiene niveles de servicio altos con baja demoras. Este cruce no presenta impacto vial por la construcción de la ciclovía.



2. Alfonso Reyes – Jiménez

TURNO PICO MATUTINO

Nivel de Servicio: C
Demora Promedio: 26.2 seg/veh
ICU Máximo: 84.1%
V/c Máxima: 0.85

TURNO PICO VESPERTINO

Nivel de Servicio: B
Demora Promedio: 18.3 seg/veh
ICU Máximo: 86.4%
V/c Máxima: 0.86

La operación en este cruce se mantiene para ambos turnos, se observa una pequeña mejoría para el turno vespertino, el rediseño del señalamiento horizontal y la optimización del semáforo existente resultan en una disminución en la demora promedio.

3. Alfonso Reyes – Las Sendas

TURNO PICO MATUTINO

Nivel de Servicio: C
Demora Promedio: 30.6 seg/veh
ICU Máximo: 95.3%
V/c Máxima: 0.92

TURNO PICO VESPERTINO

Nivel de Servicio: B
Demora Promedio: 17.2 seg/veh
ICU Máximo: 56.7%
V/c Máxima: 0.85

Este cruce presenta un impacto moderado con el rediseño de Alfonso Reyes, se mantienen niveles de servicio promedio.



4. Alfonso Reyes – Hidalgo

TURNO PICO MATUTINO

Nivel de Servicio: A
Demora Promedio: 0.4 seg/veh
ICU Máximo: 55.0%
V/c Máxima: 0.45

TURNO PICO VESPERTINO

Nivel de Servicio: A
Demora Promedio: 0.8 seg/veh
ICU Máximo: 57.9%
V/c Máxima: 0.56

Los cambios propuestos a este cruce no impactan la operación actual, se mantienen niveles de servicio y demoras. Para el turno de la tarde, el flujo de salida de Hidalgo hacia el oriente de Alfonso Reyes presenta un nivel de servicio D con demora de 28.5 seg/veh.

5. Alfonso Reyes – Corregidora

TURNO PICO MATUTINO

Nivel de Servicio: C
Demora Promedio: 25.2 seg/veh
ICU Máximo: 51.8%
V/c Máxima: 0.70

TURNO PICO VESPERTINO

Nivel de Servicio: B
Demora Promedio: 15.7 seg/veh
ICU Máximo: 64.9%
V/c Máxima: 0.71

No se presenta un impacto en la operación actual de la intersección. Todos los movimientos de esta intersección mantienen niveles de servicio y demora aceptables.



6. Alfonso Reyes – Juárez

TURNO PICO MATUTINO

Nivel de Servicio: B
Demora Promedio: 14.7 seg/veh
ICU Máximo: 59.3%
V/c Máxima: 0.79

TURNO PICO VESPERTINO

Nivel de Servicio: B
Demora Promedio: 10.9 seg/veh
ICU Máximo: 60.2%
V/c Máxima: 0.68

Se observa un ligero incremento en la demora de la intersección, esto no modifica el nivel de servicio actual. Debido a la cancelación de las vueltas izquierdas hacia Manuel Gzz/Ticomán, se incrementa el flujo vehicular para algunos movimientos de esta intersección.

7. Alfonso Reyes – Manuel González / Ticomán.

TURNO PICO MATUTINO

Nivel de Servicio: A
Demora Promedio: 5.6 seg/veh
ICU Máximo: 51.9%
V/c Máxima: 0.63

TURNO PICO VESPERTINO

Nivel de Servicio: A
Demora Promedio: 7.1 seg/veh
ICU Máximo: 58.3%
V/c Máxima: 0.69

La cancelación de las vueltas izquierdas en esta intersección aumenta el nivel de servicio de B a, asimismo, se observa una disminución en la demora promedio. Con estos cambios, se espera una mayor demora promedio para el flujo de salida de Ticomán.



8. Alfonso Reyes – Montefalco

TURNO PICO MATUTINO

Nivel de Servicio: B
Demora Promedio: 18.6 seg/veh
ICU Máximo: 60.0%
V/c Máxima: 0.74

TURNO PICO VESPERTINO

Nivel de Servicio: C
Demora Promedio: 25.0 seg/veh
ICU Máximo: 65.3%
V/c Máxima: 0.88

Se observa un ligero incremento en la demora promedio de la intersección, esto no modifica el nivel de servicio actual. Debido a la cancelación de las vueltas izquierdas hacia Manuel Gzz/Ticomán, se incrementa el flujo vehicular para algunos movimientos de esta intersección. El movimiento de vuelta izquierda de Alfonso Reyes hacia Montefalco presenta un nivel de servicio D con una fila mayor a los 70 metros.

9. Alfonso Reyes – Genaro Garza García

TURNO PICO MATUTINO

Nivel de Servicio: A
Demora Promedio: 7.1 seg/veh
ICU Máximo: 53.0%
V/c Máxima: 0.56

TURNO PICO VESPERTINO

Nivel de Servicio: B
Demora Promedio: 16.9 seg/veh
ICU Máximo: 61.5%
V/c Máxima: 0.69

La cancelación de las vueltas izquierdas en esta intersección aumenta el nivel de servicio de B a, asimismo se disminuye su demora promedio.



10. Alfonso Reyes – Matamoros

TURNO PICO MATUTINO

Nivel de Servicio: A
Demora Promedio: 6.5 seg/veh
ICU Máximo: 53.0%
V/c Máxima: 0.57

TURNO PICO VESPERTINO

Nivel de Servicio: A
Demora Promedio: 6.0 seg/veh
ICU Máximo: 61.5%
V/c Máxima: 0.71

Este cruce mantiene niveles de servicio y demoras, el proyecto de la ciclovía no afecta la operación de esta intersección.

11. Alfonso Reyes – Santa Bárbara

TURNO PICO MATUTINO

Nivel de Servicio: A
Demora Promedio: 3.0 seg/veh
ICU Máximo: 61.1%
V/c Máxima: 0.69

TURNO PICO VESPERTINO

Nivel de Servicio: A
Demora Promedio: 4.2 seg/veh
ICU Máximo: 72.1%
V/c Máxima: 0.80

Se presenta un nivel de servicio E en el movimiento de vuelta izquierda hacia el norte de Santa Bárbara, con una fila de aproximadamente 57 metros. El semáforo de Guillermo Prieto podrá ayudar a disminuir las filas esperadas, abriendo espacios para el paso de vehículos hacia Santa Bárbara.



12. Alfonso Reyes – Guillermo Prieto

TURNO PICO MATUTINO

Nivel de Servicio: B
Demora Promedio: 12.5 seg/veh
ICU Máximo: 58.2%
V/c Máxima: 0.74

TURNO PICO MATUTINO

Nivel de Servicio: B
Demora Promedio: 16.9 seg/veh
ICU Máximo: 72.0%
V/c Máxima: 0.78

Este cruce mantiene niveles de servicio y demoras, el proyecto de la ciclovía no afecta la operación de esta intersección.

13. Alfonso Reyes – Neil Armstrong

TURNO PICO MATUTINO

Nivel de Servicio: B
Demora Promedio: 14.9 seg/veh
ICU Máximo: 54.6%
V/c Máxima: 0.75

TURNO PICO VESPERTINO

Nivel de Servicio: B
Demora Promedio: 11.2 seg/veh
ICU Máximo: 62.4%
V/c Máxima: 0.64

La cancelación de la vuelta izquierda hacia el sur de la intersección en conjunto con el proyecto de la ciclovía, mantienen niveles de servicio y demoras promedio.



14. Alfonso Reyes – Las Olimpiadas

TURNO PICO MATUTINO

Nivel de Servicio: B
Demora Promedio: 13.7 seg/veh
ICU Máximo: 56.9%
V/c Máxima: 0.65

TURNO PICO VESPERTINO

Nivel de Servicio: B
Demora Promedio: 18.8 seg/veh
ICU Máximo: 66.1%
V/c Máxima: 0.91

Este cruce mantiene niveles de servicio y demoras, el proyecto de la ciclovía no afecta la operación de esta intersección.

15. Alfonso Reyes – Río Suchiate

TURNO PICO MATUTINO

Nivel de Servicio: A
Demora Promedio: 7.8 seg/veh
ICU Máximo: 54.3%
V/c Máxima: 0.65

TURNO PICO VESPERTINO

Nivel de Servicio: A
Demora Promedio: 9.1 seg/veh
ICU Máximo: 55.0%
V/c Máxima: 0.66

La cancelación de la vuelta izquierda hacia el sur de la intersección, en conjunto con el proyecto de la ciclovía, mejoran el nivel de servicio actual y disminuye la demora promedio. El flujo norte-sur en Río Suchiate presenta nivel de servicio C con demora de 31 seg/veh (AM)



16. Alfonso Reyes – Lomas del Valle

TURNO PICO MATUTINO

Nivel de Servicio: C
Demora Promedio: 27.7 seg/veh
ICU Máximo: 59.1%
V/c Máxima: 0.79

TURNO PICO VESPERTINO

Nivel de Servicio: C
Demora Promedio: 28.7 seg/veh
ICU Máximo: 70.7%
V/c Máxima: 0.82

La operación de este cruce mejora con la cancelación de las vueltas izquierdas en Alfonso Reyes, el nivel de servicio aumenta de E a C en sus periodos pico. Las filas en Alfonso Reyes se calculan mayores a los 100 metros durante su horario pico.

17. Lomas del Valle – Río Pílon

TURNO PICO MATUTINO

Nivel de Servicio: A
Demora Promedio: 4.0 seg/veh
ICU Máximo: 34.0%
V/c Máxima: 0.35

TURNO PICO VESPERTINO

Nivel de Servicio: A
Demora Promedio: 3.2 seg/veh
ICU Máximo: 34.4%
V/c Máxima: 0.32

Con la cancelación de las vueltas izquierdas, en el cruce de Alfonso Reyes con Lomas del Valle, se tendrá un pequeño incremento en su demora promedio, parte de los conductores deberán utilizar la calle Río Pílon para dirigirse hacia el norte o sur del cruce.



18. Lomas del Valle – Laredo

TURNO PICO MATUTINO

Nivel de Servicio: A
Demora Promedio: 2.5 seg/veh
ICU Máximo: 31.6%
V/c Máxima: 0.15

TURNO PICO VESPERTINO

Nivel de Servicio: A
Demora Promedio: 2.4 seg/veh
ICU Máximo: 34.6%
V/c Máxima: 0.20

Con la cancelación de las vueltas izquierdas, en el cruce de Alfonso Reyes con Lomas del Valle, se tendrá un pequeño incremento en su demora promedio, parte de los conductores deberán utilizar la calle Laredo para dirigirse hacia el norte o sur del cruce.

19. Alfonso Reyes – Sierra Azul / Bosque del Olivo

TURNO PICO MATUTINO

Nivel de Servicio: B
Demora Promedio: 12.0 seg/veh
ICU Máximo: 51.3%
V/c Máxima: 0.64

TURNO PICO VESPERTINO

Nivel de Servicio: B
Demora Promedio: 12.5 seg/veh
ICU Máximo: 52.6%
V/c Máxima: 0.66

La incorporación de la ciclovía y la cancelación del carril de vuelta derecha hacia Bosque del Olivo no generan un impacto vial en esta intersección, los niveles de servicio se mantienen en B.



20. Alfonso Reyes – Bosques del Valle

TURNO PICO MATUTINO

Nivel de Servicio: B
Demora Promedio: 18.8 seg/veh
ICU Máximo: 56.3%
V/c Máxima: 0.66

TURNO PICO VESPERTINO

Nivel de Servicio: C
Demora Promedio: 30.9 seg/veh
ICU Máximo: 72.0%
V/c Máxima: 0.86

Este cruce mantiene niveles de servicio existente, aun y con los cambios a su sección vial. Se observa un incremento en la demora promedio y en las filas de Alfonso Reyes, se calculan mayores a los 100 metros para ambos sentidos de la vía.

21. Alfonso Reyes – Jerónimo Siller

TURNO PICO MATUTINO

Nivel de Servicio: C
Demora Promedio: 21.2 seg/veh
ICU Máximo: 64.8%
V/c Máxima: 0.76

TURNO PICO VESPERTINO

Nivel de Servicio: C
Demora Promedio: 28.8 seg/veh
ICU Máximo: 68.7%
V/c Máxima: 0.91

Con los cambios previstos - cancelación de las vueltas izquierdas para Alfonso Reyes y la instalación de un carril ciclistas - este cruce tendrá una mejora en su operación, su nivel de servicio cambia de E a C. Aun y con esta mejora, las filas en Alfonso Reyes se calculan mayores a los 100 metros durante su horario pico.



22. Alfonso Reyes – Gómez Morín

TURNO PICO MATUTINO

Nivel de Servicio: D
Demora Promedio: 41.0 seg/veh
ICU Máximo: 71.7%
V/c Máxima: 1.03

TURNO PICO VESPERTINO

Nivel de Servicio: E
Demora Promedio: 69.0 seg/veh
ICU Máximo: 78.8%
V/c Máxima: 1.40

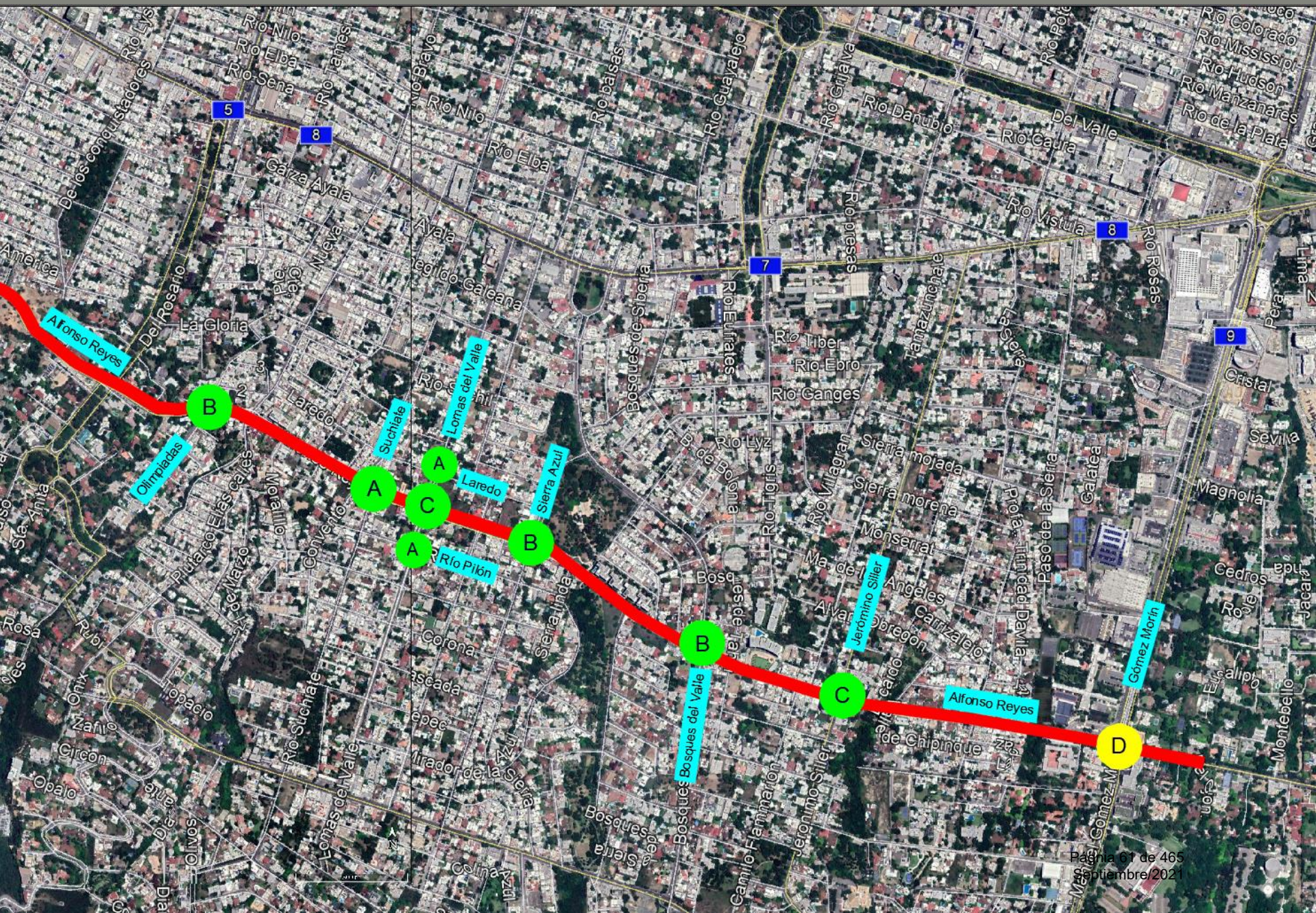
Este cruce presenta una reducción en su demora para el turno matutino. Para el turno vespertino se incrementa la demora promedio y disminuye su nivel de servicio de D a E, esto se debe a una redistribución de los tiempos del semáforo donde se tiene mas tiempo en verde para el flujo norte-sur de Gomez Morin y así mitigar la cancelación, por la incorporación del carril de ciclistas, del flujo libre en vuelta derecha desde esa rama.

A continuación se anexa una gráfica donde se indican los niveles de servicio calculados para cada una de las intersecciones analizadas. Al final del estudio vial se anexan los reportes que resultan de estos análisis en operación con proyecto.

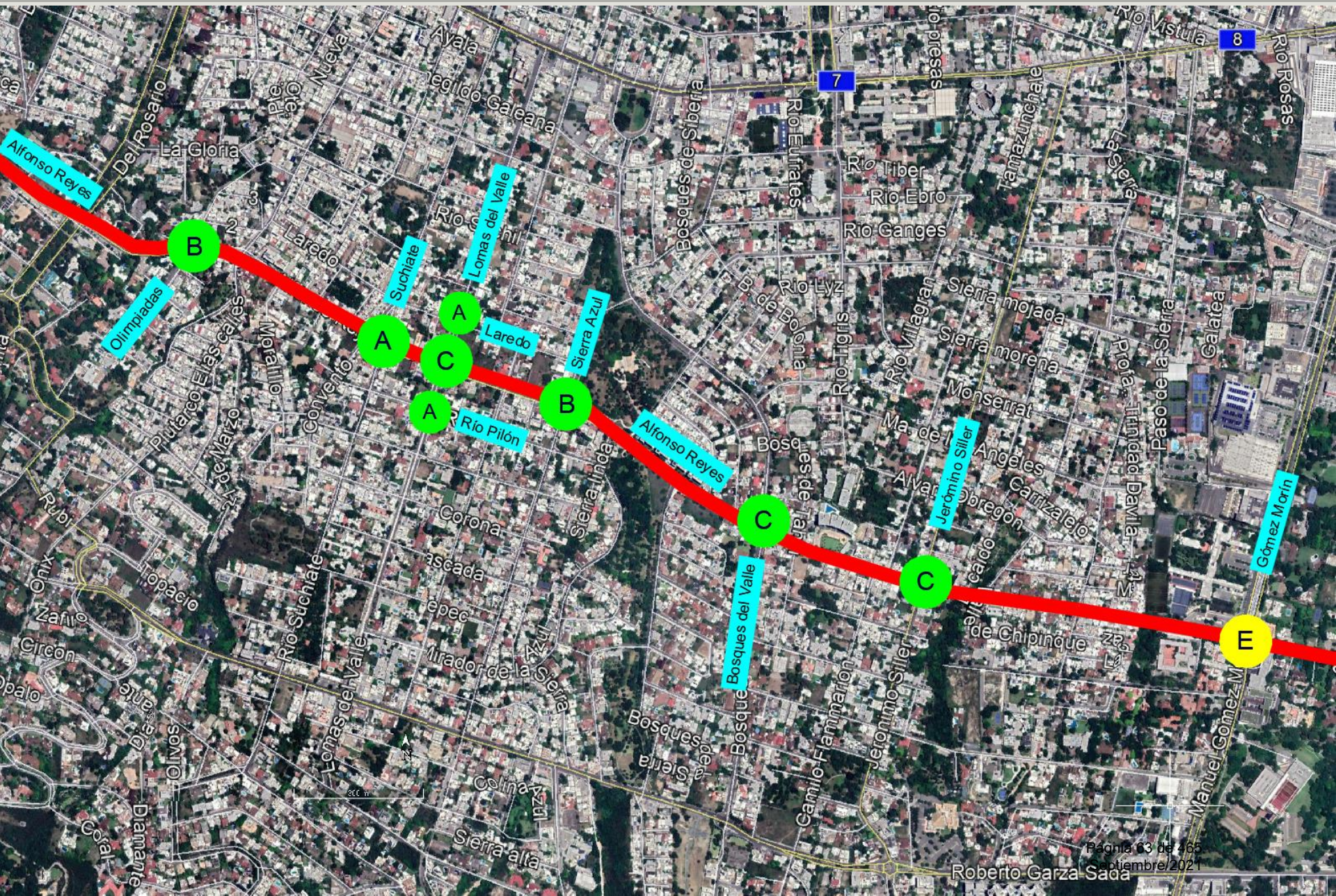
Niveles de Servicio con Proyecto – AM



Niveles de Servicio con Proyecto – AM









9 Recomendaciones y Conclusiones

El proyecto Ciclovía Alfonso Reyes, el cual comprende una longitud de aproximadamente 6,300 metros (por sentido de circulación), modifica la sección vial a lo largo del corredor; en casi todos los casos se reducen los carriles de circulación a 3.0 metros y en otros mas escasos, se cancelan vueltas izquierdas protegidas o carriles en vuelta derecha continuos.

No obstante este rediseño de la sección vial, los niveles de servicio se mantienen o mejoran en gran parte del corredor. Dos de las intersecciones del corredor que actualmente presentan una alta demora; Alfonso Reyes con Lomas del Valle y Alfonso Reyes con Jerónimo Siller, presentan sustanciales mejoras; la primera opera actualmente con nivel de servicio E (AM y PM) y con el proyecto de la ciclovía cambia a nivel de servicio C, la segunda intersección cambia su nivel de servicio E (PM) a C (PM.)

Asimismo, el mayor impacto negativo de la ciclovía se ubica en pocas intersecciones, principalmente en Alfonso Reyes con Las Sendas, con Benito Juárez, con Bosques del Valle y con Gómez Morín, donde se presenta un aumento en su demora promedio; Ejemplo, para el cruce con Las Sendas se tendrá un aumento en la demora promedio de 9.8 seg/veh (20.8 s/v a 30.6 s/v.)

La capacidad de la vía se mantiene en casi todos los casos, sólo en las zonas donde se reduce la capacidad de la vía de 3 a 2 carriles de circulación por sentido se observa algún deterioro, el cual es mitigado con el rediseño de las fases y tiempos del sistema semafórico del corredor.

A continuación se incluye una tabla comparativa de la operación actual vs proyecto de cada una de las intersecciones analizadas.



#	Intersección	Escenario	Periodo	Nivel de Servicio	Demora Promedio	Demora Actual vs Proyecto	
1	Alfonso Reyes - PSV Plaza Nativa	Actual	AM	A	6.0 seg/veh	AM	2.7 seg/veh
			PM	A	8.9 seg/veh		
		Proyecto	AM	A	8.7 seg/veh	PM	0.0 seg/veh
			PM	A	8.9 seg/veh		
2	Alfonso Reyes - Jiménez	Actual	AM	C	25.3 seg/veh	AM	0.9 seg/veh
			PM	C	20.1 seg/veh		
		Proyecto	AM	C	26.2 seg/veh	PM	-1.8 seg/veh
			PM	B	18.3 seg/veh		
3	Alfonso Reyes - Las Sendas	Actual	AM	C	20.8 seg/veh	AM	9.8 seg/veh
			PM	B	17.3 seg/veh		
		Proyecto	AM	C	30.6 seg/veh	PM	-0.1 seg/veh
			PM	B	17.2 seg/veh		
4	Alfonso Reyes - Miguel Hidalgo	Actual	AM	A	0.3 seg/veh	AM	0.1 seg/veh
			PM	A	0.3 seg/veh		
		Proyecto	AM	A	0.4 seg/veh	PM	0.5 seg/veh
			PM	A	0.8 seg/veh		
5	Alfonso Reyes - Corregidora	Actual	AM	C	25.5 seg/veh	AM	-0.3 seg/veh
			PM	B	17.3 seg/veh		
		Proyecto	AM	C	25.2 seg/veh	PM	-1.6 seg/veh
			PM	B	15.7 seg/veh		
6	Alfonso Reyes - Benito Juárez	Actual	AM	B	10.5 seg/veh	AM	4.2 seg/veh
			PM	A	7.6 seg/veh		
		Proyecto	AM	B	14.7 seg/veh	PM	3.3 seg/veh
			PM	B	10.9 seg/veh		
7	Alfonso Reyes - Manuel Gzz/Ticomán	Actual	AM	B	13.3 seg/veh	AM	-7.7 seg/veh
			PM	B	14.8 seg/veh		
		Proyecto	AM	A	5.6 seg/veh	PM	-7.7 seg/veh
			PM	A	7.1 seg/veh		
8	Alfonso Reyes - Montefalco	Actual	AM	B	18.2 seg/veh	AM	0.4 seg/veh
			PM	C	21.6 seg/veh		
		Proyecto	AM	B	18.6 seg/veh	PM	3.4 seg/veh
			PM	C	25.0 seg/veh		



#	Intersección	Escenario	Periodo	Nivel de Servicio	Demora Promedio	Demora Actual vs Proyecto	
9	Alfonso Reyes - Genaro Garza García	Actual	AM	B	13.8 seg/veh	AM	-6.7 seg/veh
			PM	C	27.2 seg/veh		
		Proyecto	AM	A	7.1 seg/veh	PM	-10.3 seg/veh
			PM	B	16.9 seg/veh		
10	Alfonso Reyes - Matamoros	Actual	AM	A	6.5 seg/veh	AM	0.0 seg/veh
			PM	A	5.9 seg/veh		
		Proyecto	AM	A	6.5 seg/veh	PM	0.1 seg/veh
			PM	A	6.0 seg/veh		
11	Alfonso Reyes - Santa Bárbara	Actual	AM	A	2.4 seg/veh	AM	0.6 seg/veh
			PM	A	2.8 seg/veh		
		Proyecto	AM	A	3.0 seg/veh	PM	1.4 seg/veh
			PM	A	4.2 seg/veh		
12	Alfonso Reyes - Guillermo Prieto	Actual	AM	B	12.5 seg/veh	AM	0.0 seg/veh
			PM	B	16.6 seg/veh		
		Proyecto	AM	B	12.5 seg/veh	PM	0.3 seg/veh
			PM	B	16.9 seg/veh		
13	Alfonso Reyes - Neil Armstrong	Actual	AM	B	12.5 seg/veh	AM	2.4 seg/veh
			PM	B	14.1 seg/veh		
		Proyecto	AM	B	14.9 seg/veh	PM	-2.9 seg/veh
			PM	B	11.2 seg/veh		
14	Alfonso Reyes - Las Olimpiadas	Actual	AM	B	13.7 seg/veh	AM	0.0 seg/veh
			PM	B	18.6 seg/veh		
		Proyecto	AM	B	13.7 seg/veh	PM	0.2 seg/veh
			PM	B	18.8 seg/veh		
15	Alfonso Reyes - Río Suchiate	Actual	AM	B	15.1 seg/veh	AM	-7.3 seg/veh
			PM	B	11.8 seg/veh		
		Proyecto	AM	A	7.8 seg/veh	PM	-2.7 seg/veh
			PM	A	9.1 seg/veh		
16	Alfonso Reyes - Lomas del Valle	Actual	AM	E	65.7 seg/veh	AM	-38.0 seg/veh
			PM	E	56.8 seg/veh		
		Proyecto	AM	C	27.7 seg/veh	PM	-28.1 seg/veh
			PM	C	28.7 seg/veh		



#	Intersección	Escenario	Periodo	Nivel de Servicio	Demora Promedio	Demora Actual vs Proyecto	
17	Lomas del Valle - Río Pílon	Actual	AM	A	1.1 seg/veh	AM	2.9 seg/veh
			PM	A	1.2 seg/veh		
		Proyecto	AM	A	4.0 seg/veh	PM	2.0 seg/veh
			PM	A	3.2 seg/veh		
18	Lomas del Valle - Laredo	Actual	AM	A	2.1 seg/veh	AM	0.4 seg/veh
			PM	A	1.7 seg/veh		
		Proyecto	AM	A	2.5 seg/veh	PM	0.7 seg/veh
			PM	A	2.4 seg/veh		
19	Alfonso Reyes - Sierra Azul	Actual	AM	B	12.0 seg/veh	AM	0.0 seg/veh
			PM	B	11.1 seg/veh		
		Proyecto	AM	B	12.0 seg/veh	PM	1.4 seg/veh
			PM	B	12.5 seg/veh		
20	Alfonso Reyes - Bosques del Valle	Actual	AM	B	16.3 seg/veh	AM	2.5 seg/veh
			PM	C	25.2 seg/veh		
		Proyecto	AM	B	18.8 seg/veh	PM	5.7 seg/veh
			PM	C	30.9 seg/veh		
21	Alfonso Reyes - Jerónimo Siller	Actual	AM	C	27.5 seg/veh	AM	-6.3 seg/veh
			PM	E	61.4 seg/veh		
		Proyecto	AM	C	21.2 seg/veh	PM	-32.6 seg/veh
			PM	C	28.8 seg/veh		
22	Alfonso Reyes - Av. Gómez Morín	Actual	AM	E	57.0 seg/veh	AM	-16.0 seg/veh
			PM	D	51.0 seg/veh		
		Proyecto	AM	D	41.0 seg/veh	PM	18.0 seg/veh
			PM	E	69.0 seg/veh		

La nueva ciclovía generará un bajo impacto en la vialidad del Alfonso Reyes, la mayor parte del corredor presentará niveles de servicio y demoras similares a las actuales. Algunos habitantes de la zona, particularmente los que viven en el sector La Cima, Villa Montaña, Prados de la Sierra, Lomas del Valle y Jerónimo Siller, deberán realizar un recorrido adicional para el destino norte o sur de Alfonso Reyes, estos recorridos no son mayores a los 450 metros y no representa un gran impacto, tanto en demora como en gasto de combustible.



La tabla a continuación presenta los niveles de servicio promedio obtenidos para el corredor Alfonso Reyes, desde Jiménez a Gómez Morín. Se indica; para cada escenario analizado, las demoras totales, tiempos de recorrido, velocidad y nivel de servicio promedio. Estos datos se obtienen del análisis para el corredor por medio del software Synchro y el manual HCM.

Como se puede observar, se esperan mejoras en los recorridos de PTE a OTE, donde se tienen reducciones de 41 seg a 150 segundos. Para el recorrido de OTE a PTE, se pronostican pocos cambios, sólo se aumenta el tiempo de recorrido en 14 segundos, lo cual es considerado como un mínimo impacto.

ALFONSO REYES - TURNO AM				
SENTIDO DE CIRCULACION	DATOS HCM	ACTUAL	PROYECTO	DIFERENCIA ACTUAL VS PROYECTO
Jimenez - GM PTE a OTE	NIVEL DE SERVICIO	D	D	SIN CAMBIO
	DEMORA	456.1 seg	305.7 seg	-150.4 seg
	TIEMPO RECORRIDO	919.6 seg	769.2 seg	-150.4 seg
	VELOCIDAD ARTERIA	22.4 km/h	26.8 km/h	4.4 km/h
GM - Jiménez OTE a PTE	NIVEL DE SERVICIO	C	C	SIN CAMBIO
	DEMORA	232.8 seg	247.1 seg	14.3 seg
	TIEMPO RECORRIDO	698.9 seg	713.2 seg	14.3 seg
	VELOCIDAD ARTERIA	29.7 km/h	29.1 km/h	-0.6 km/h

ALFONSO REYES - TURNO PM				
SENTIDO DE CIRCULACION	DATOS HCM	ACTUAL	PROYECTO	DIFERENCIA ACTUAL VS PROYECTO
Jimenez - GM PTE a OTE	NIVEL DE SERVICIO	D	D	SIN CAMBIOS
	DEMORA	431.7 seg	390.0 seg	-41.7 seg
	TIEMPO RECORRIDO	895.2 seg	853.5 seg	-41.7 seg
	VELOCIDAD ARTERIA	23.0 km/h	24.2 km/h	1.2 km/h
GM - Jiménez OTE a PTE	NIVEL DE SERVICIO	D	D	SIN CAMBIOS
	DEMORA	297.4 seg	293.9 seg	-3.5 seg
	TIEMPO RECORRIDO	763.5 seg	760.0 seg	-3.5 seg
	VELOCIDAD ARTERIA	27.2 km/h	27.3 km/h	0.1 km/h



Dado que el Municipio de San Pedro Garza García pretende construir, como primera etapa, el tramo de ciclovía ubicado entre la Plaza Nativa (Int. 1) y la calle Las Olimpiadas (Int. 14), se realiza a continuación el análisis comparativo de niveles de servicios, demoras, tiempos de recorrido y velocidades para este tramo y sus turnos matutino y vespertino. Cabe mencionar que el Municipio de San Pedro Garza García cuenta ya con un proyecto ejecutivo para este tramo, el cual se pretende implementar durante el último periodo del año 2021.

ALFONSO REYES - TURNO AM				
SENTIDO DE CIRCULACION	DATOS HCM	ACTUAL	PROYECTO	DIFERENCIA ACTUAL VS PROYECTO
Jimenez - Las Olimpiadas PTE a OTE	NIVEL DE SERVICIO	D	D	SIN CAMBIO
	DEMORA	162.8 seg	168.3 seg	5.5 seg
	TIEMPO RECORRIDO	413.0 seg	418.5 seg	5.5 seg
	VELOCIDAD ARTERIA	26.6 km/h	26.2 km/h	-0.4 km/h
Las Olimpiadas - Jiménez OTE a PTE	NIVEL DE SERVICIO	C	C	SIN CAMBIO
	DEMORA	112.8 seg	112.8 seg	0.0 seg
	TIEMPO RECORRIDO	364.9 seg	366.0 seg	1.1 seg
	VELOCIDAD ARTERIA	30.4 km/h	30.4 km/h	0.0 km/h

ALFONSO REYES - TURNO PM				
SENTIDO DE CIRCULACION	DATOS HCM	ACTUAL	PROYECTO	DIFERENCIA ACTUAL VS PROYECTO
Jimenez - Las Olimpiadas PTE a OTE	NIVEL DE SERVICIO	C	C	SIN CAMBIOS
	DEMORA	125.1 seg	106.1 seg	-19.0 seg
	TIEMPO RECORRIDO	375.3 seg	356.3 seg	-19.0 seg
	VELOCIDAD ARTERIA	29.2 km/h	30.8 km/h	1.6 km/h
Las Olimpiadas - Jiménez OTE a PTE	NIVEL DE SERVICIO	D	D	SIN CAMBIOS
	DEMORA	148.4 seg	139.3 seg	-9.1 seg
	TIEMPO RECORRIDO	400.5 seg	390.5 seg	-10.0 seg
	VELOCIDAD ARTERIA	27.7 km/h	28.3 km/h	0.6 km/h

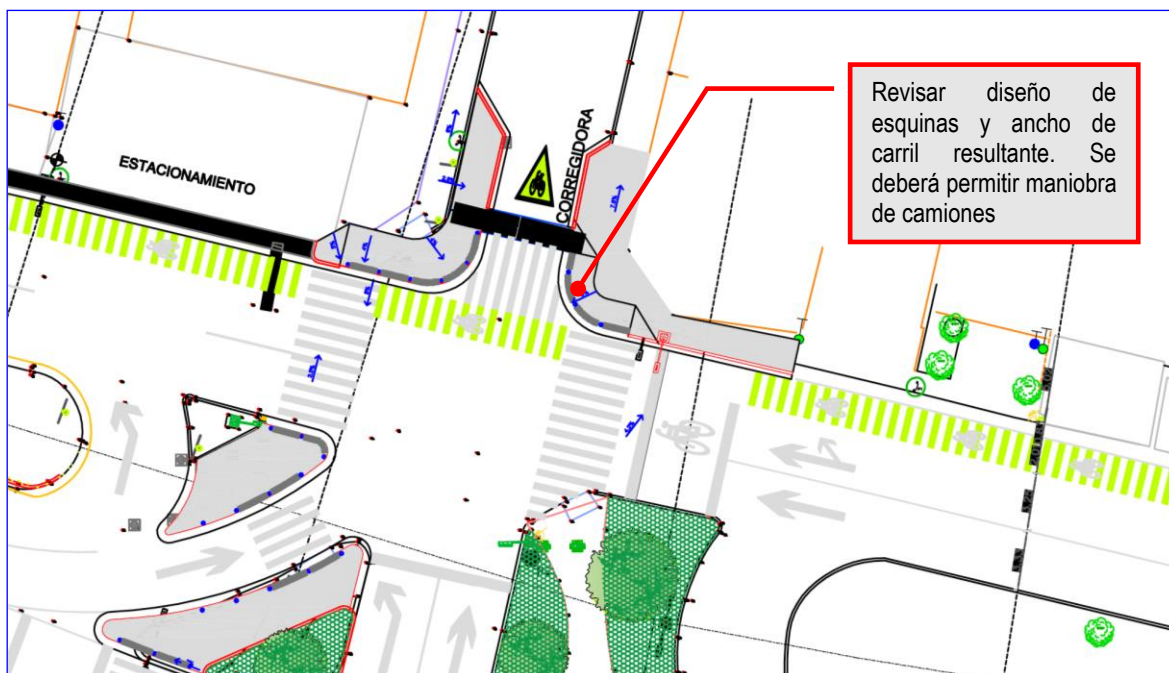
Considerando la tabla anterior, se pronostica que la ciclovía propuesta para este tramo no impacta a la operación actual de Alfonso Reyes, se mantienen todos los datos relacionados a niveles de servicio y demoras, los cambios indicados (DIFERENCIA ACTUAL VS PROYECTO) son mínimos.



No obstante lo anterior mencionado, se recomiendan realizar los siguientes cambios para mitigar parte del impacto que esta nueva ciclovía tendrá dentro de su zona de influencia;

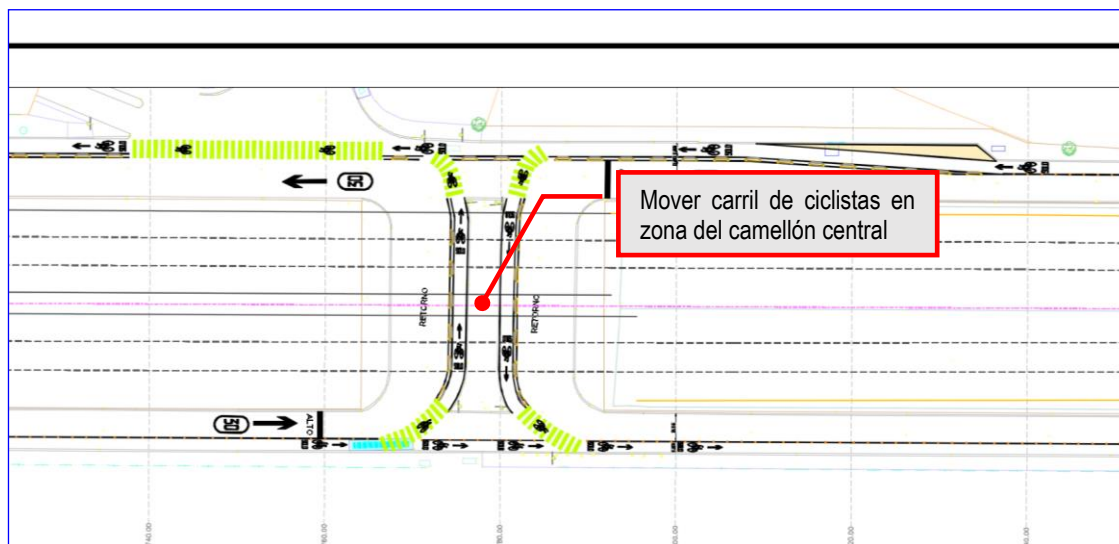
- Se deberán revisar los giros de los vehículos de carga y de pasajeros en las intersecciones rediseñadas. Se observan reducciones en los radios de giro y en los carriles los cuales pueden ser un obstáculo para vehículos medianos o grandes, tal es el caso del cruce de Alfonso Reyes y Jiménez, el cual es comúnmente utilizado por camiones urbanos y vehículos comerciales que tienen o tendrán como destino las plazas comerciales de Nativa o Las Sendas (en construcción).

Para todas las calles donde se proyecta una reducción en su sección vial ampliando las esquinas de las banquetas, se deberá revisar las maniobras de camiones de transporte urbano o comerciales. La calle de Corregidora, altamente utilizada por vehículos de gran tamaño, presenta un diseño el cual podrá ser un limitante para las maniobras, se recomienda analizar tomando como base el vehículo de diseño según vialidad.



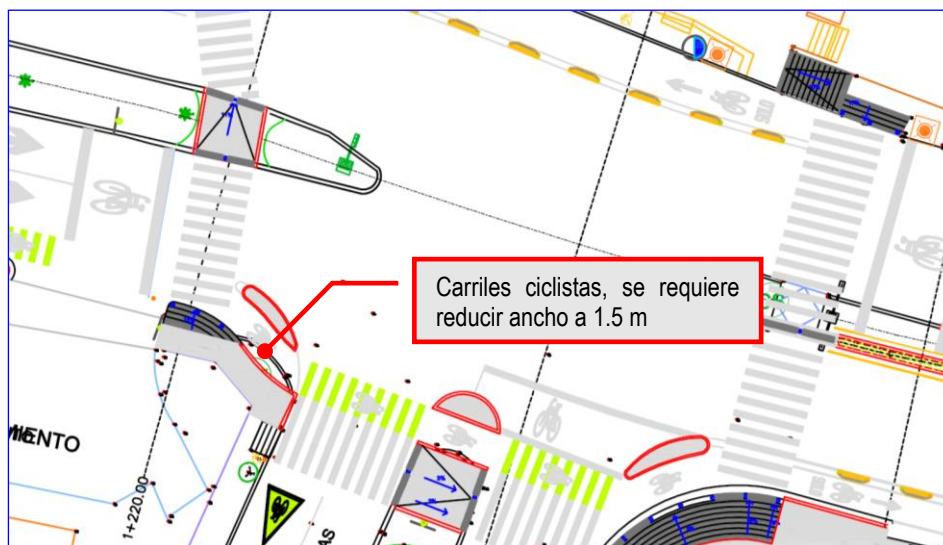


- Los retornos bajo el paso a desnivel de Plaza Nativia limitan los giros de camiones de transporte urbano y de carga, se recomienda mantener el diseño actual y colocar el carril de bicicletas dentro del camellón central del cruce.



Asimismo, se recomiendan mantener las señales de alto tal y como se tienen actualmente. El diseño propuesto será pocas veces respetado por los conductores.

- Para todos los cruces donde las esquinas incluyen una pequeña isleta protectora para ciclistas, se recomienda reducir a lo mínimo aceptable el ancho del carril de ciclistas, lo cual evitaría que los conductores, por descuido, circulen dentro de este espacio. Se tienen isletas las cuales protegen un carril de 2 metros, suficiente para un vehicular mediano, se recomienda anchos menores a los 1.5 metros.

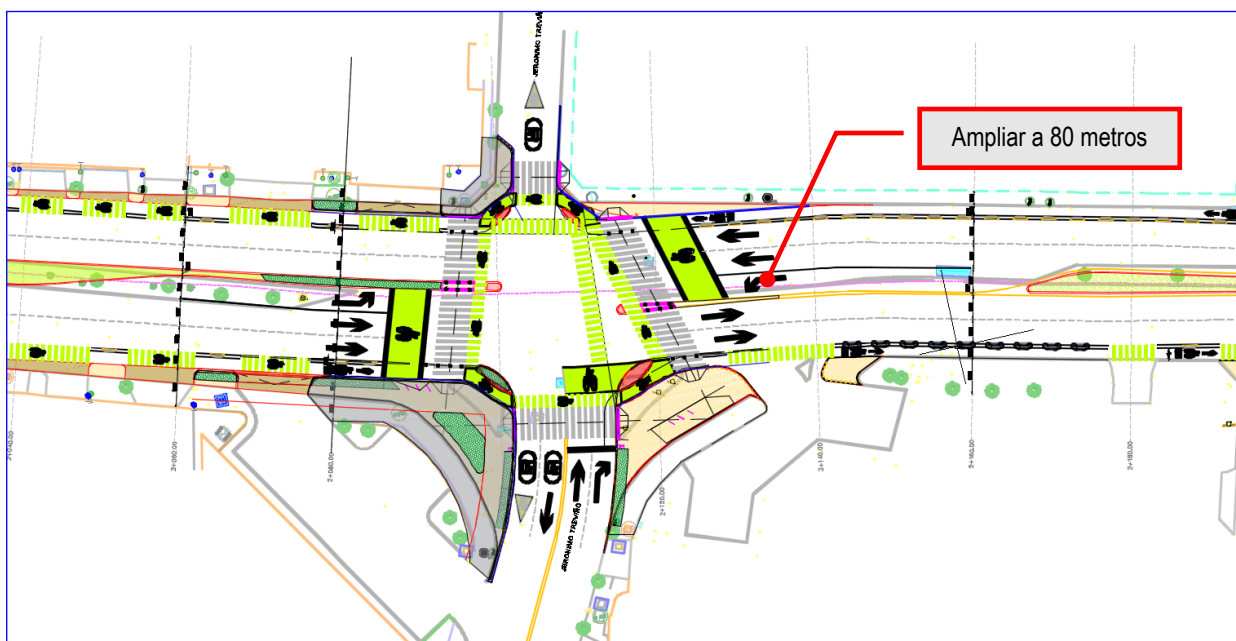




- El Colegio Himalaya impacta significativamente, por un corto periodo, a la operación del cruce de Alfonso Reyes con Las Sendas, es común que un carril de circulación de Alfonso Reyes presente una baja velocidad durante el proceso de entrega o recepción de alumnos.

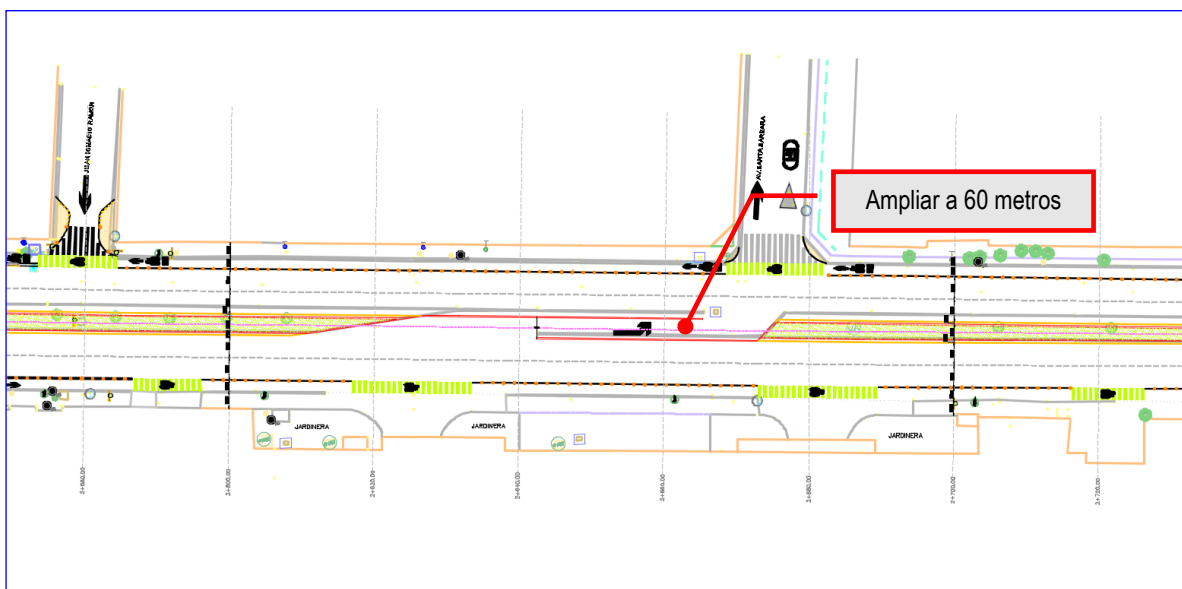
Es recomendable que durante los horarios pico de la mañana y de medio día se tenga constante vigilancia por parte de la Dirección de Policía Vía municipal para agilizar el flujo poniente-oriental del cruce. Con la reducción a 2 carriles de circulación para el sentido poniente-oriental se tendrán problemas viales para el conductor de paso.

- Para el cruce de Alfonso Reyes con Montefalco se recomienda ampliar el carril de vuelta izquierda hacia el sur, este se requiere con un mínimo de 80 metros para evitar obstrucciones al flujo de paso oriente-poniente de Alfonso Reyes.





- Para el cruce de Alfonso Reyes con Santa Bárbara se recomienda ampliar el carril de vuelta izquierda hacia el norte, este se requiere con un mínimo de 60 metros para evitar obstrucciones al flujo de paso poniente-oriental de Alfonso Reyes.



- Las vueltas izquierdas canceladas a lo largo del corredor obligan a algunos conductores a utilizar rutas alternas, tal es el caso de las cancelaciones de las vueltas izquierdas hacia Lomas del Valle, donde el conductor tendrá que utilizar calles como Laredo o Río Pílon. Es necesario colocar señalética para orientar a estos conductores hacia las nuevas rutas, se recomienda colocar señalamiento elevado dentro de la zona cercana a Neil Armstrong, Lomas del Valle y Río Suchiate.
- Se deberá analizar la instalación de semáforos exclusivos para ciclistas en las intersecciones principales, en los cruces donde se tenga un elevado volumen vehicular de vuelta derecha que pueda bloquear con el flujo de paso ciclista, tal es el caso de vueltas derechas de Alfonso Reyes hacia las calles Jimenez, Matamoros, Lomas del Valle, Bosques del Valle, Jerónimo Siller y/o Gómez Morín. Este semáforo deberá tener su fase propia y afectaría negativamente a la eficiencia vehicular del cruce.



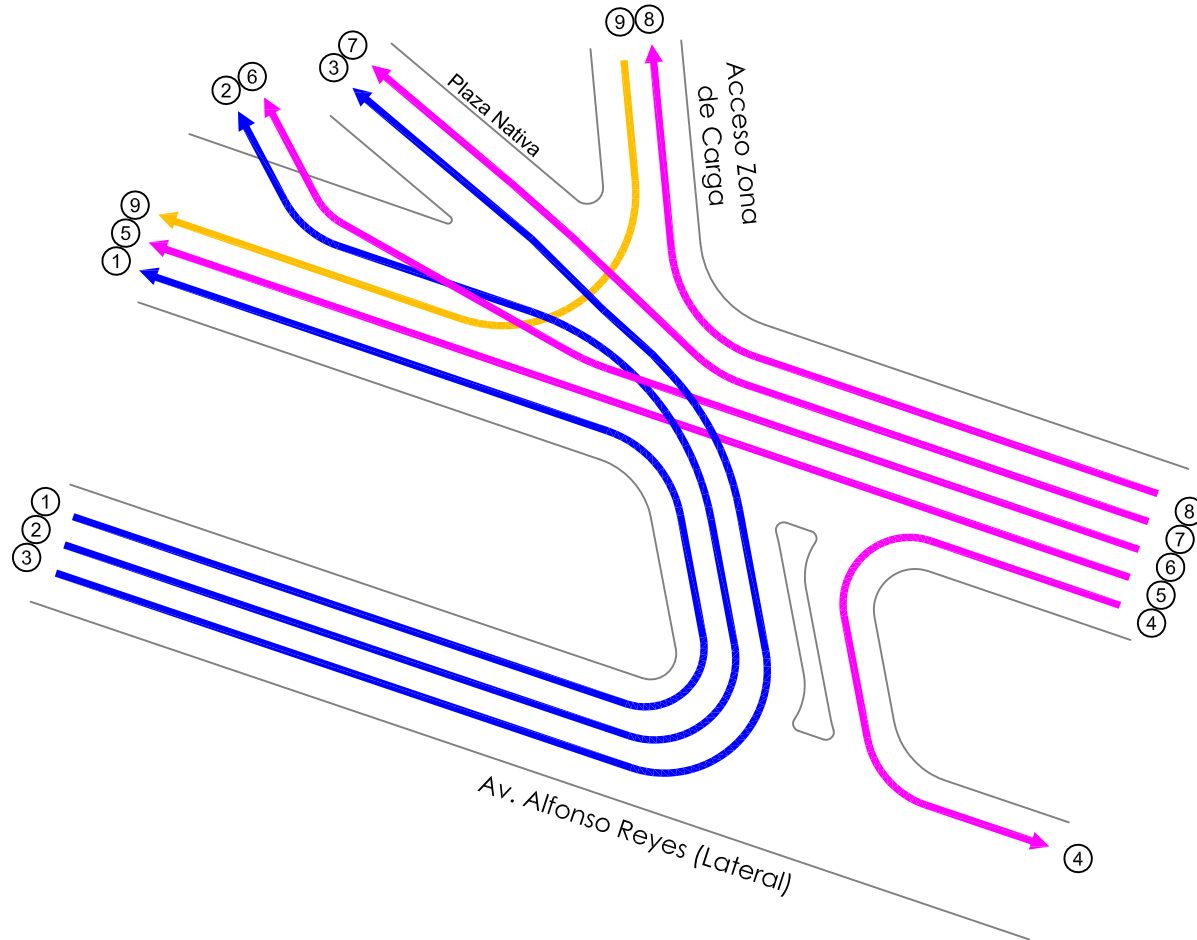
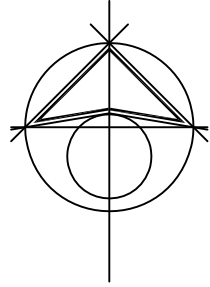
En un futuro, con la inminente urbanización de la zona poniente del municipio de San Pedro Garza García y el crecimiento del fraccionamiento Valle Poniente (Santa Catarina) se tendrán mayores flujos vehiculares sobre Alfonso Reyes, lo cual resultará en mayores demoras y menores niveles de servicio para sus intersecciones. Es importante analizar las densidades propuestas a la zona urbanizable del poniente del municipio, se requiere minimizar el impacto de estos futuros desarrollos tanto al corredor en estudio como a sus intersecciones aledañas.

El proyecto de Ciclovía Alfonso Reyes, del municipio de San Pedro Garza García es necesario, cuenta con un diseño adecuado para el ciclista y permite su circulación de forma segura, la construcción de esta ciclovía resulta ser de bajo impacto vial. Se podría considerar a Alfonso Reyes como una de las vías con mayor número de ciclistas de la zona metropolitana, es indispensable crear los espacios para que los habitantes del municipio circulen de forma segura y eficiente utilizando ese medio de transporte.

ESTUDIO TÉCNICO VIAL

FIGURA 1

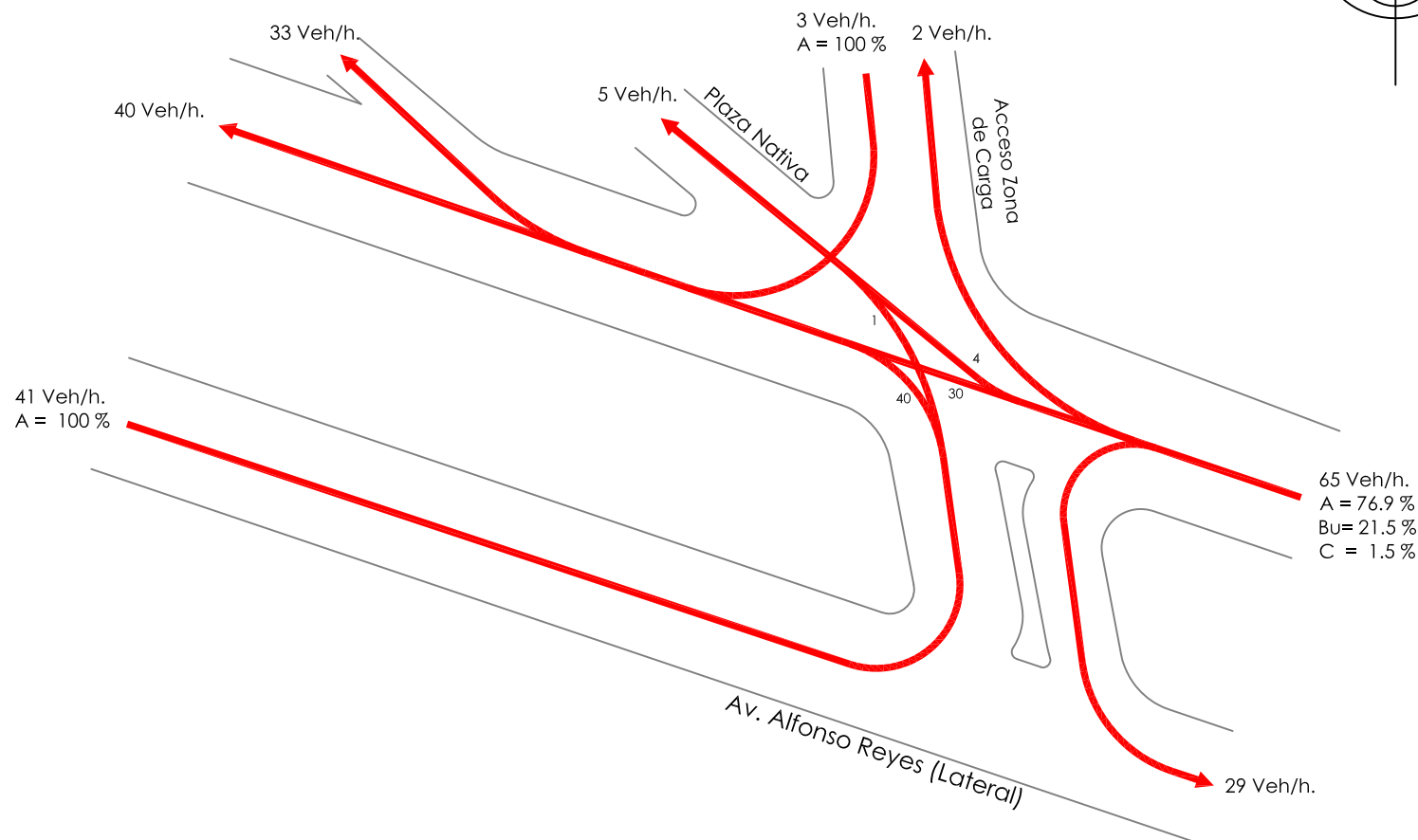
MOVIMIENTOS DIRECCIONALES
VEHÍCULOS Y CICLISTAS



ESTUDIO TÉCNICO VIAL

FIGURA 2

VOLUMENES VEHICULARES
Situación Actual



Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Jueves 12 de Agosto de 2021	08:15 - 09:15	A	86.2 %
PERÍODO	VOLUMEN TOTAL	Bu	
07:00 - 10:00	109 veh/hr	C	0.9 %

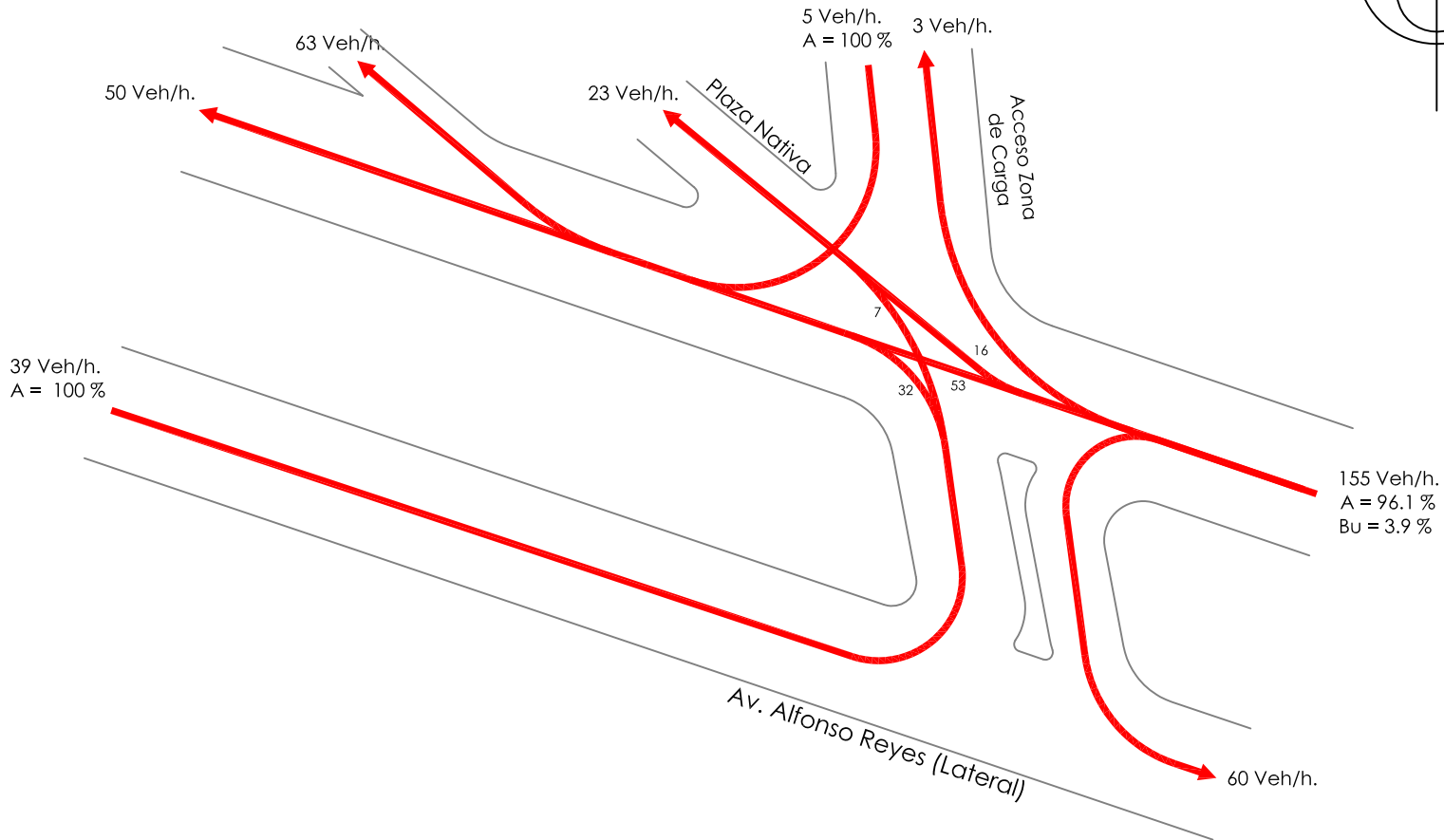
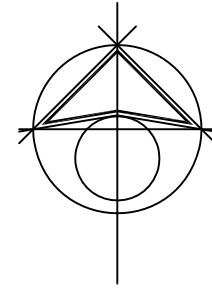
ETV- SP - 217 - AGO/21

SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 3

VOLUMENES VEHICULARES
Situación Actual



Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Jueves 12 de Agosto de 2021	13:30 - 14:30	A	96.5 %
PERÍODO	VOLUMEN TOTAL	Bu	
12:00 - 15:00	199 veh/hr	C	0.5 %

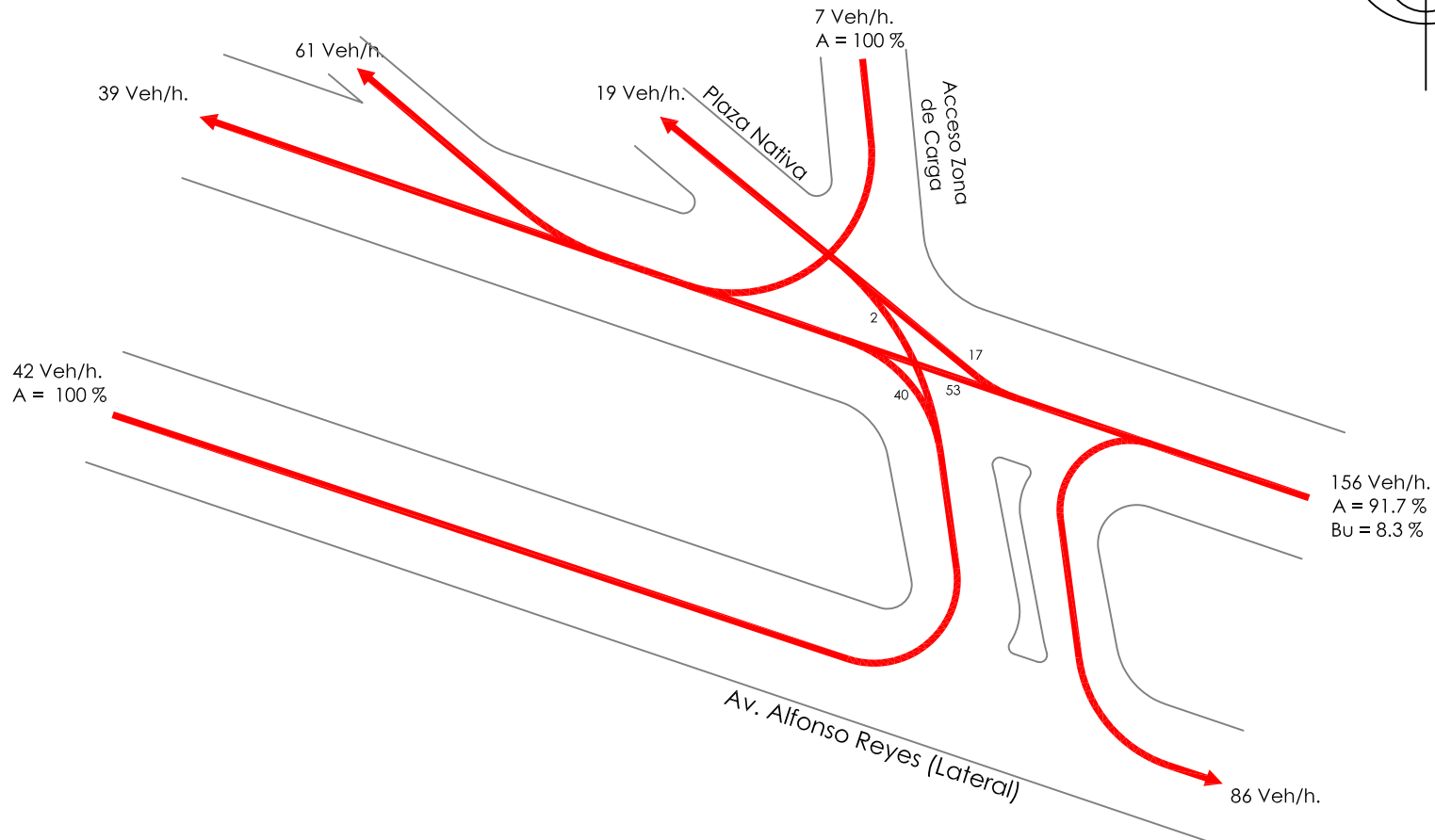
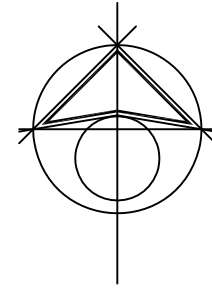
ETV- SP - 217 - AGO/21

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ESTUDIO TÉCNICO VIAL

FIGURA 4

VOLUMENES VEHICULARES
Situación Actual



Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Jueves 12 de Agosto de 2021	18:15 - 19:15	A	93.7 %
PERÍODO	VOLUMEN TOTAL	Bu	
17:00 - 20:00	205 veh/hr	C	0.0 %

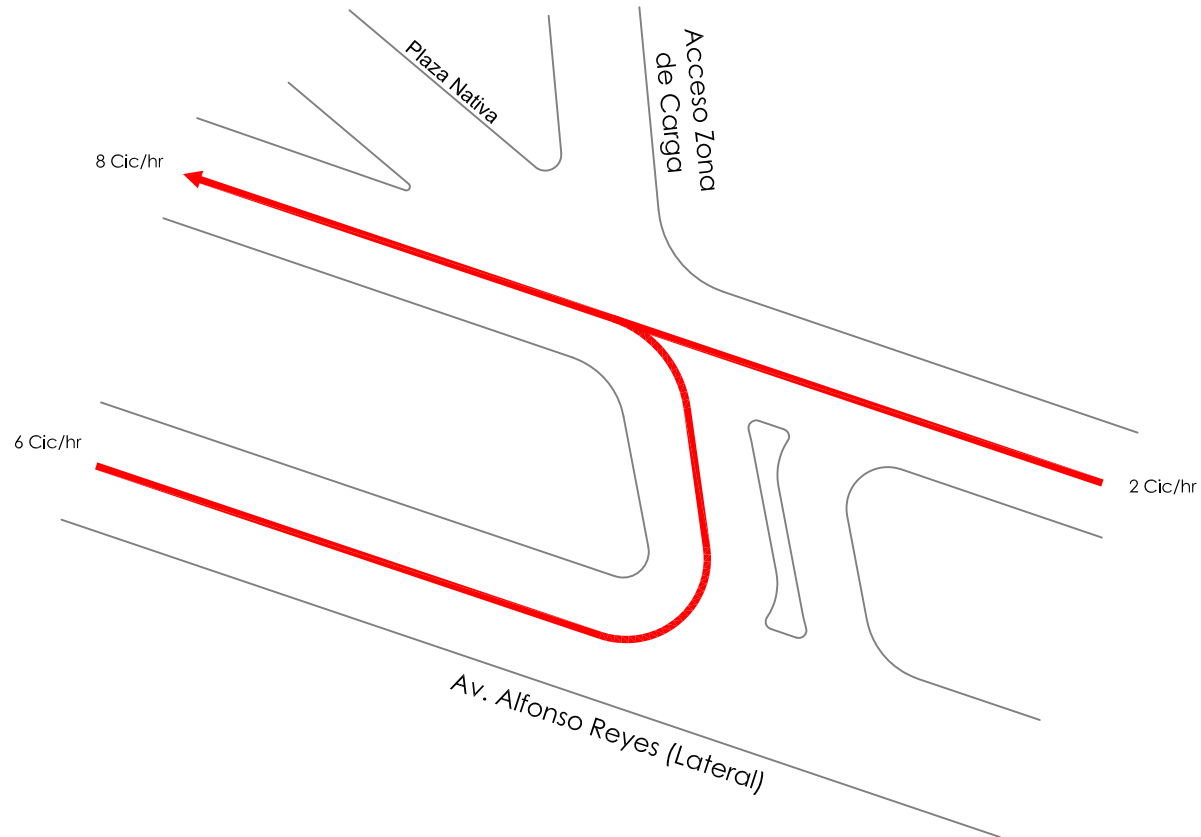
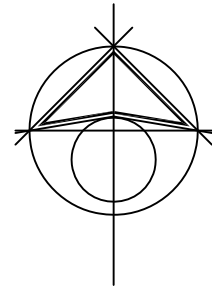
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FIGURA 5

VOLUMENES CICLISTA



Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Mitras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO
Jueves 12 de Agosto de 2021	08:15 - 09:15
PERÍODO	VOLUMEN TOTAL
07:00 - 10:00	8 Cicl/h.

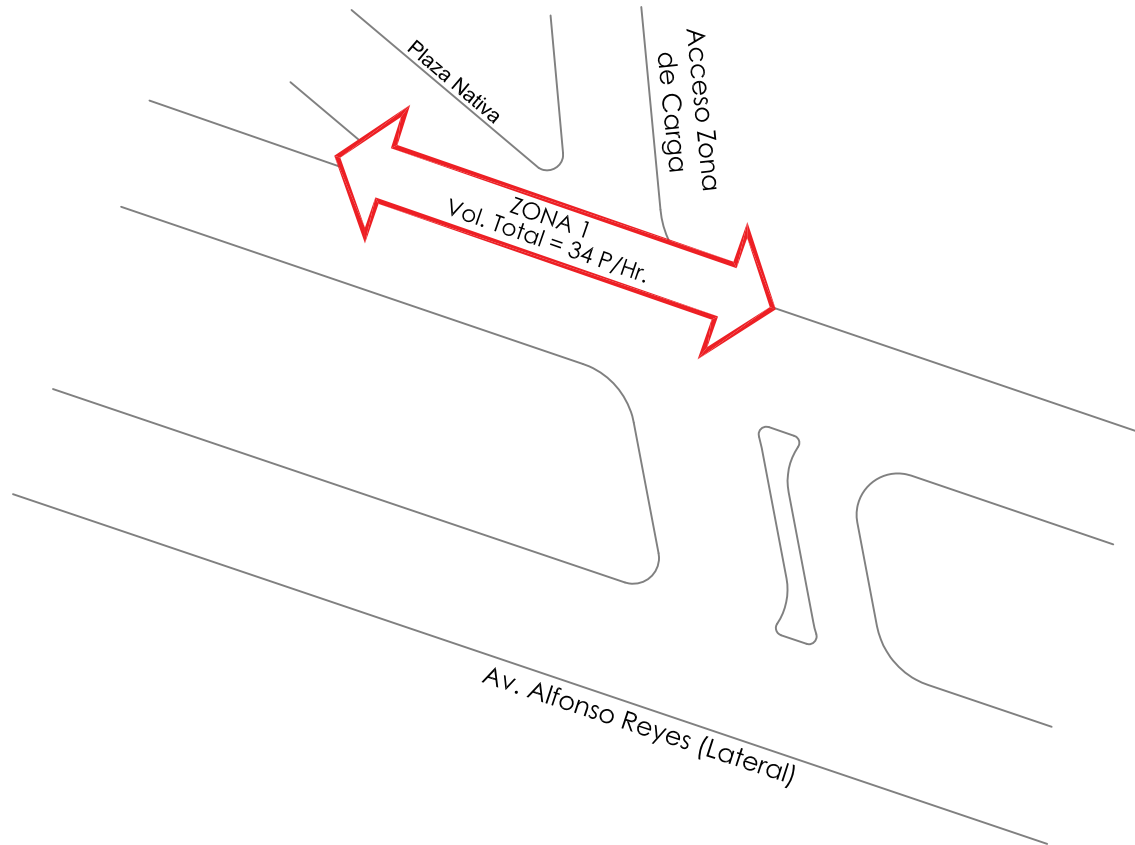
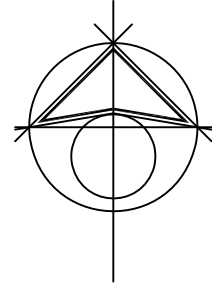
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ESTUDIO TÉCNICO VIAL

FIGURA 6

VOLUMENES PEATONALES



FECHA

Jueves 12 de Agosto de 2021

PERÍODO

17:00 - 20:00

HORA PICO

17:00 - 18:00

VOLUMEN TOTAL

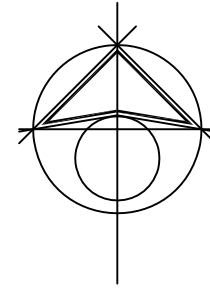
34 P/Hr.

ETV- SP - 217 - AGO/21

SIN ESCALA



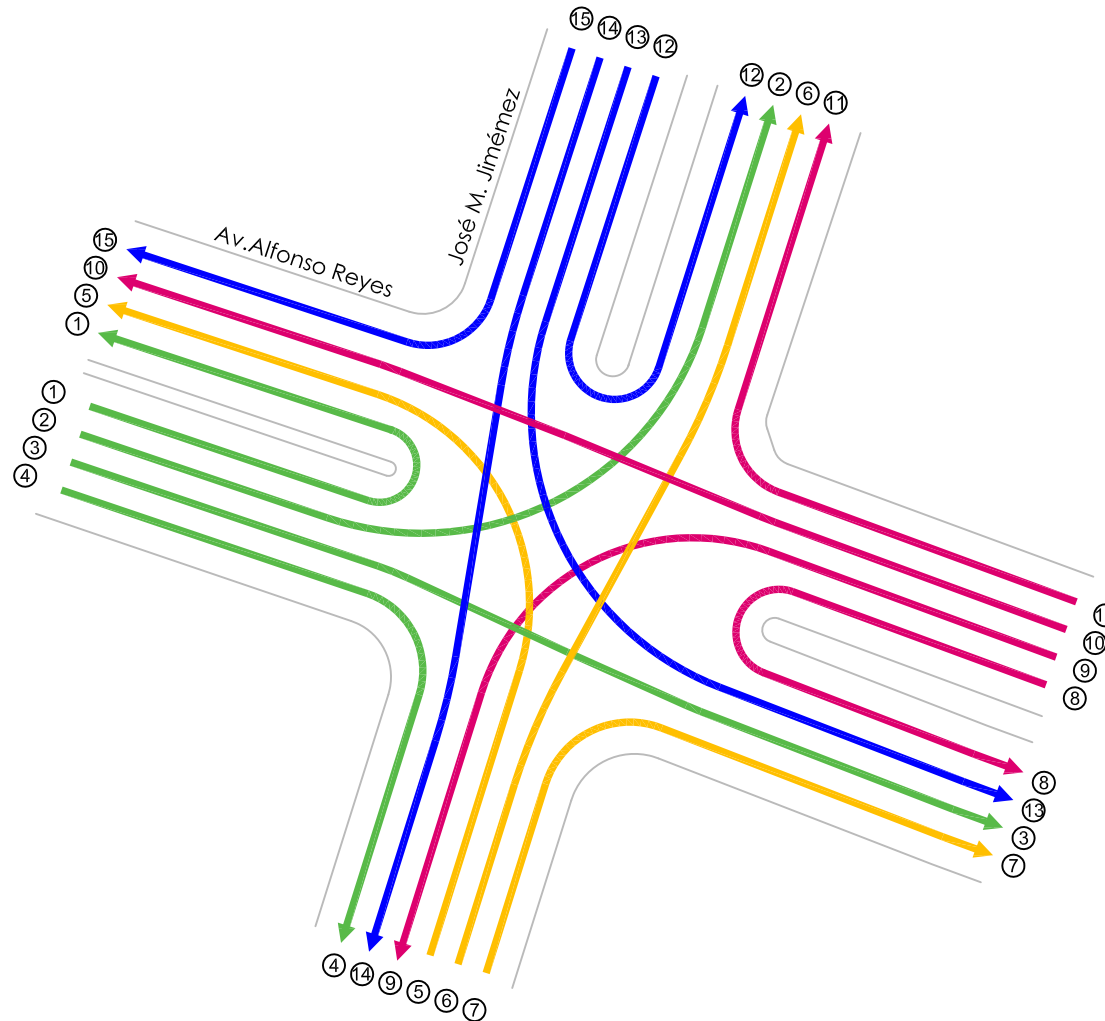
Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700



ESTUDIO TÉCNICO VIAL

FIGURA 7

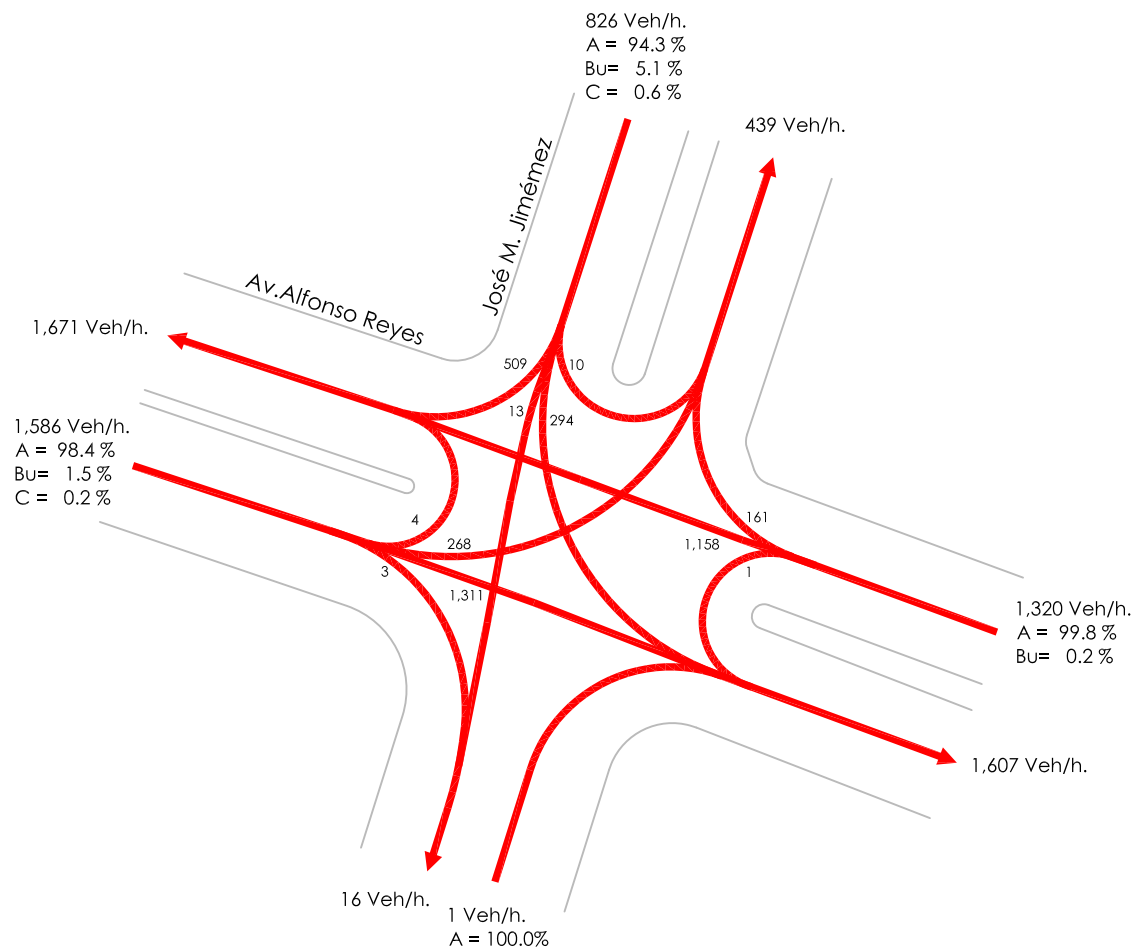
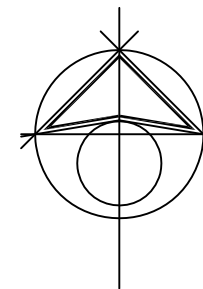
MOVIMIENTOS DIRECCIONALES
VEHÍCULOS Y CICLISTAS



ESTUDIO TÉCNICO VIAL

FIGURA 8

VOLUMENES VEHICULARES
Situación Actual



Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Viernes 21 de Febrero de 2020	07:15 - 08:15	A	98.0 %
PERÍODO	VOLUMEN TOTAL	Bu	
07:00 - 10:00	3,733 Veh/hr	C	0.2 %

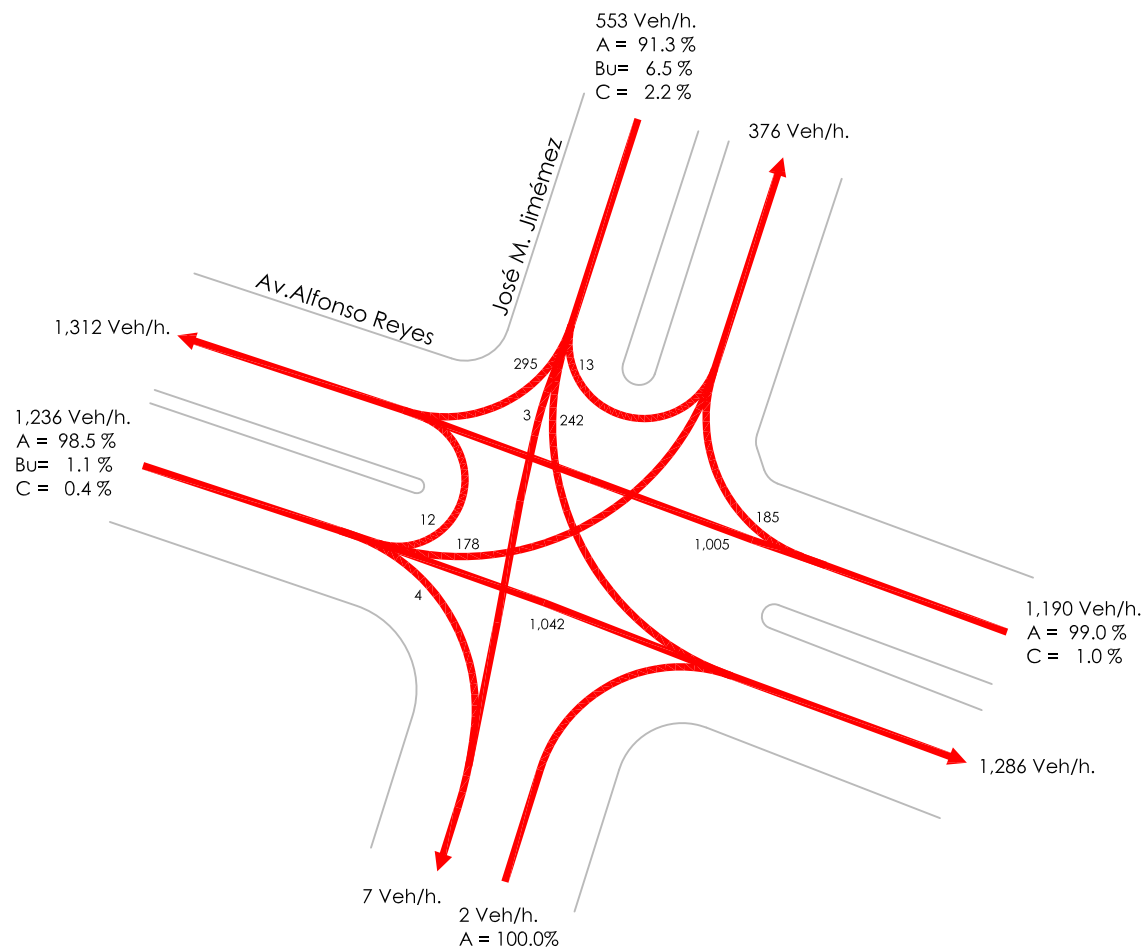
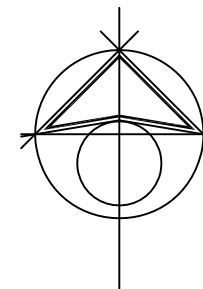
ETV- SP - 217 - AGO/21

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ESTUDIO TÉCNICO VIAL

FIGURA 9

VOLUMENES VEHICULARES
Situación Actual



FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Viernes 21 de Febrero de 2020	12:45 - 13:45	A	97.4 %
PERÍODO	VOLUMEN TOTAL	Bu	
12:00 - 15:00	2,981 Veh/hr	C	1.0 %

ETV- SP - 217 - AGO/21

SIN ESCALA

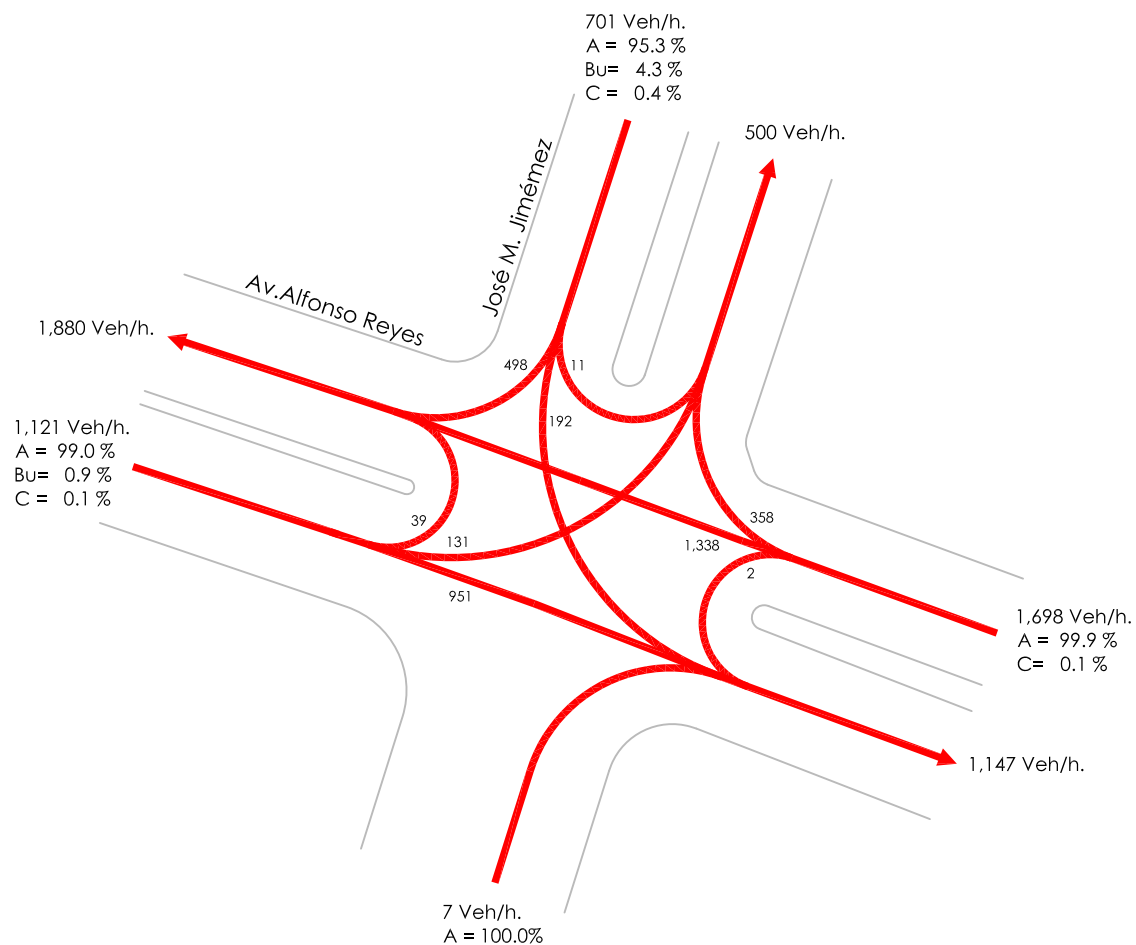
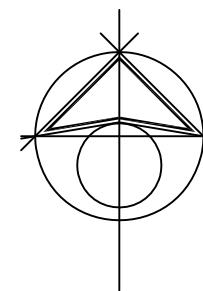


Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

ESTUDIO TÉCNICO VIAL

FIGURA 10

VOLUMENES VEHICULARES
Situación Actual



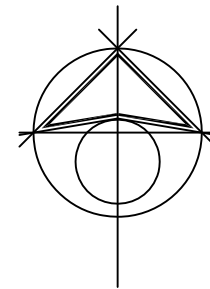
FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Viernes 21 de Febrero de 2020	18:30 - 19:30	A	98.7 %
PERÍODO	VOLUMEN TOTAL	Bu	
17:00 - 20:00	3,527 Veh/hr	C	0.2 %

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SIN ESCALA



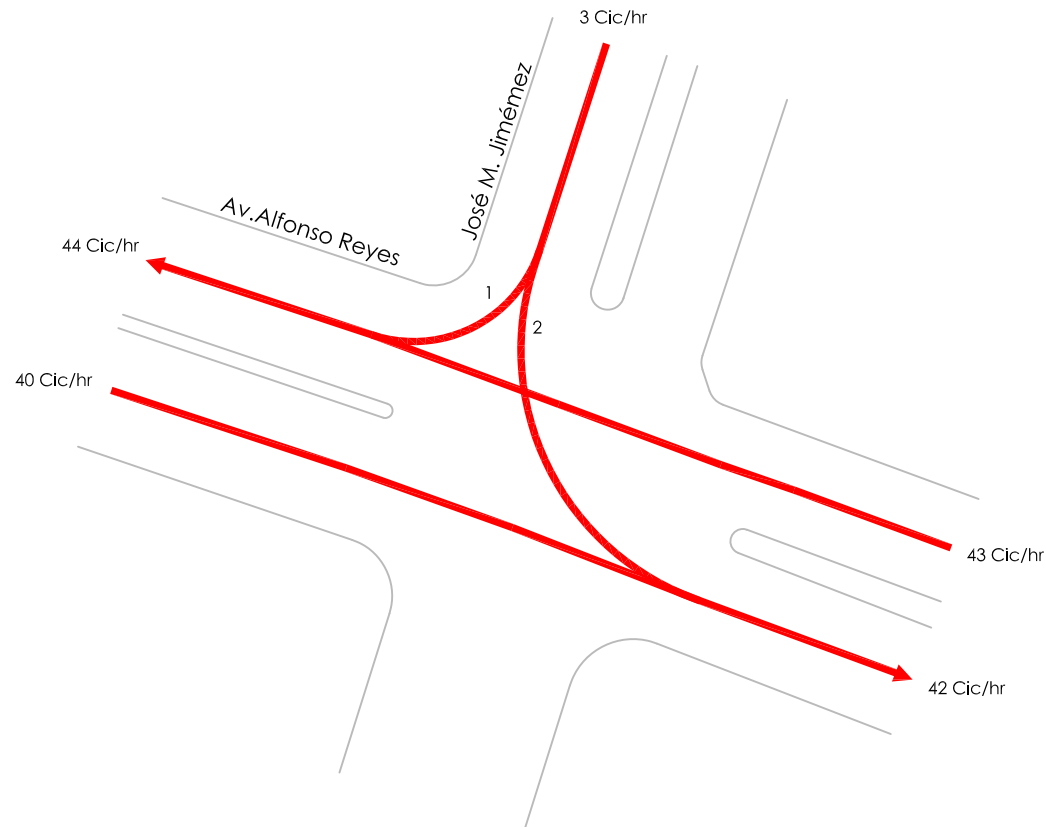
Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700



ESTUDIO TÉCNICO VIAL

FIGURA 11

VOLUMENES CICLISTA



Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Mitras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO
Viernes 22 de Mayo de 2020.	18:15 - 19:15
PERÍODO	VOLUMEN TOTAL
18:00 - 20:00	85 Cicl/h.

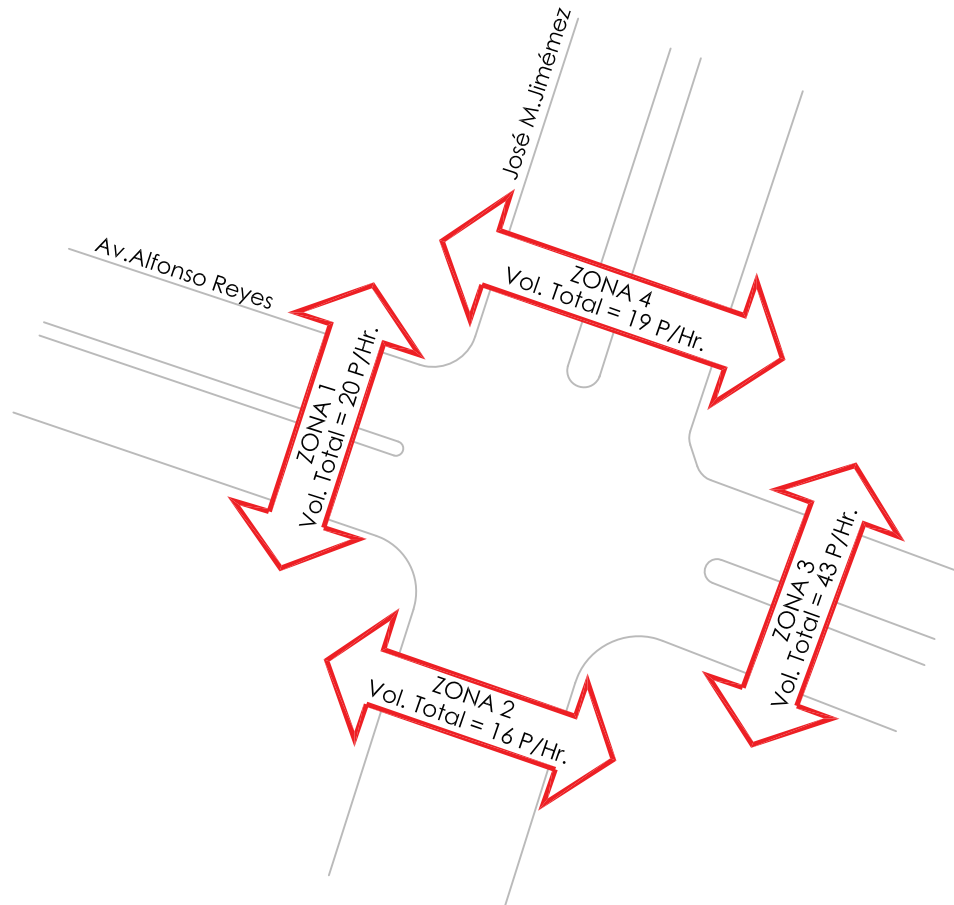
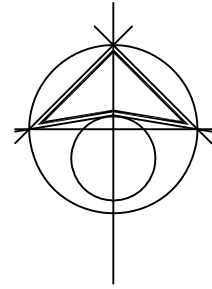
ETV- SP - 217 - AGO/21

SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 12

VOLUMENES PEATONALES



FECHA

Viernes 21 de Febrero de 2,020

PERÍODO

17:00 - 20:00

HORA PICO

17:30 - 18:30

VOLUMEN TOTAL

98 P/Hr.

ETV- SP - 217 - AGO/21

SIN ESCALA

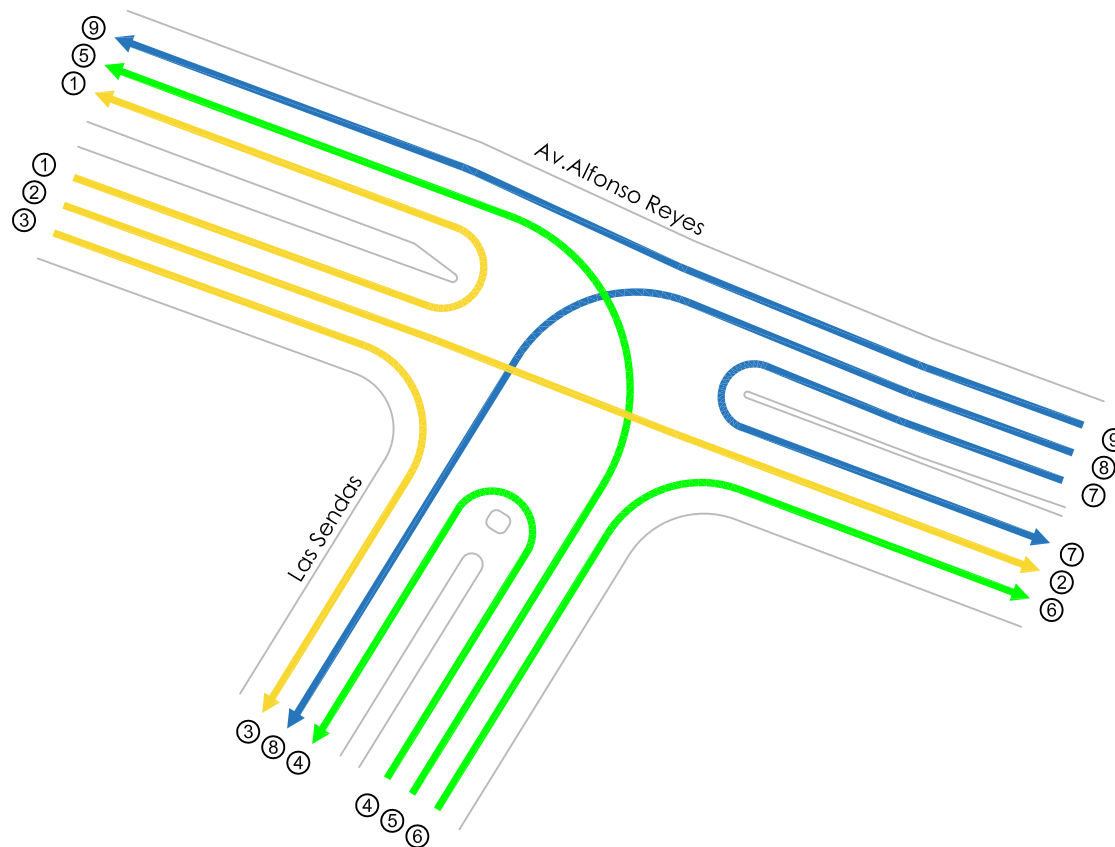
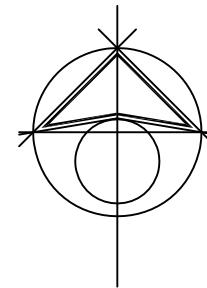


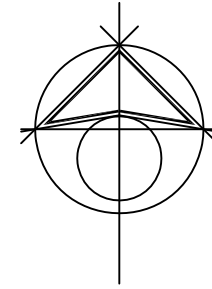
Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

ESTUDIO TÉCNICO VIAL

FIGURA 13

MOVIMIENTOS DIRECCIONALES
VEHÍCULOS Y CICLISTAS

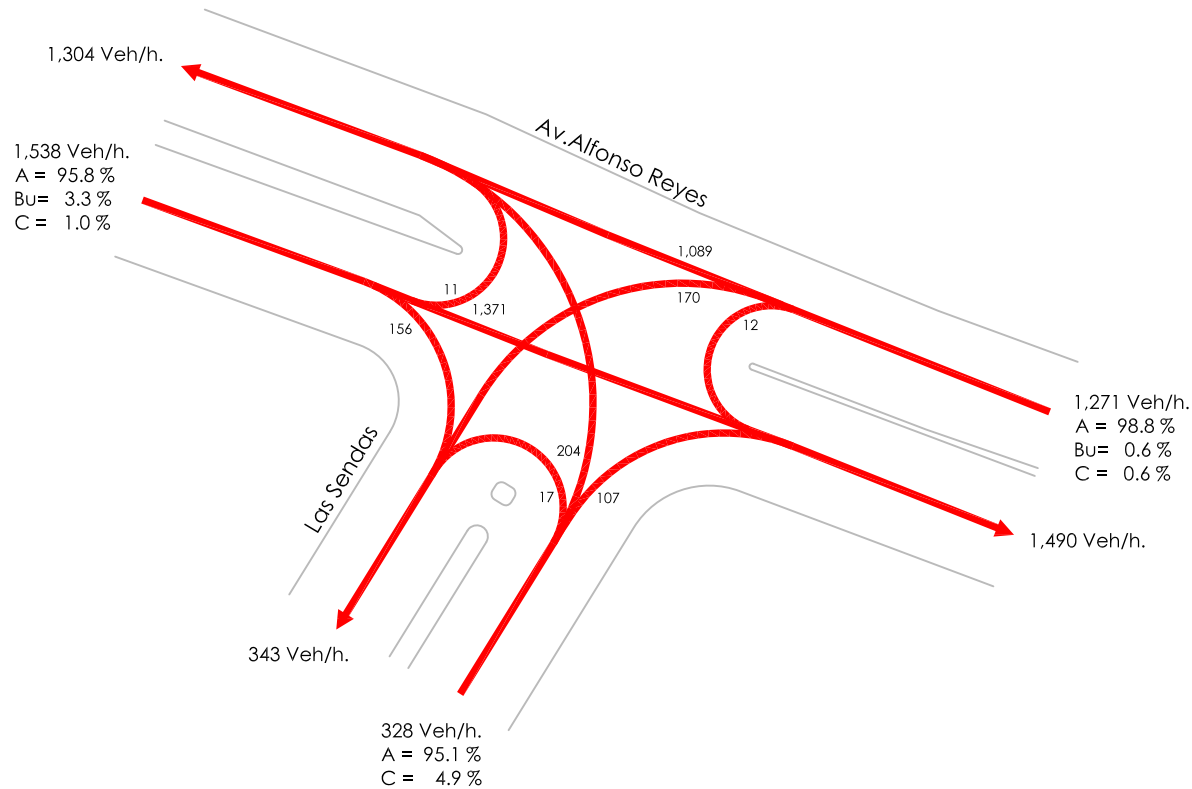




ESTUDIO TÉCNICO VIAL

FIGURA 14

VOLUMENES VEHICULARES
Situación Actual



Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

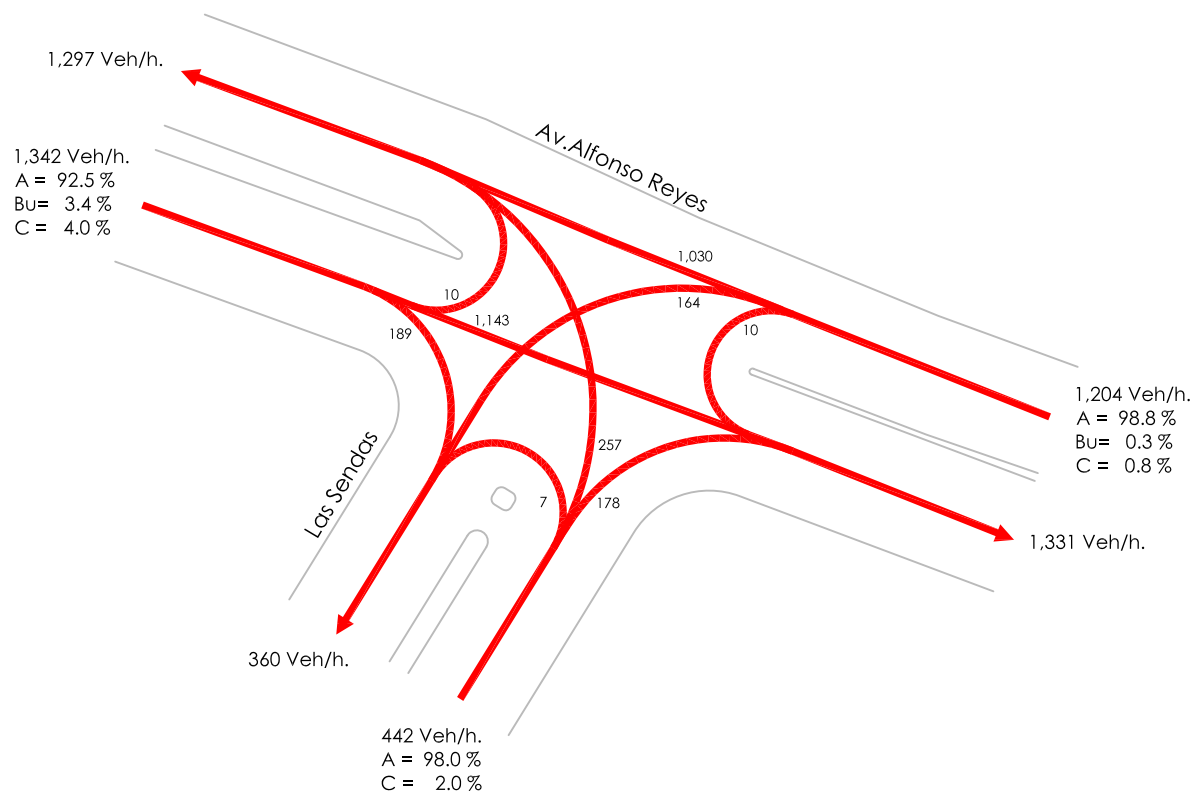
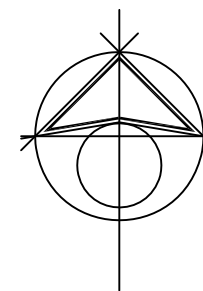
FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Viernes 21 de Febrero de 2020	08:00 - 09:00	A	96.9 %
PERÍODO	VOLUMEN TOTAL	Bu	
07:00 - 10:00	3,137 Veh/hr	C	1.2 %

ETV- SP - 217 - AGO/21
SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 15

VOLUMENES VEHICULARES
Situación Actual

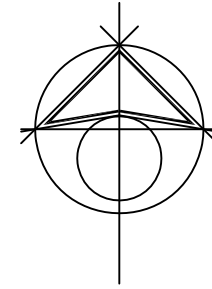


Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Viernes 21 de Febrero de 2020	13:00 - 14:00	A	95.9 %
PERÍODO	VOLUMEN TOTAL	Bu	
12:00 - 15:00	2,988 Veh/hr	C	2.4 %

ETV- SP - 217 - AGO/21

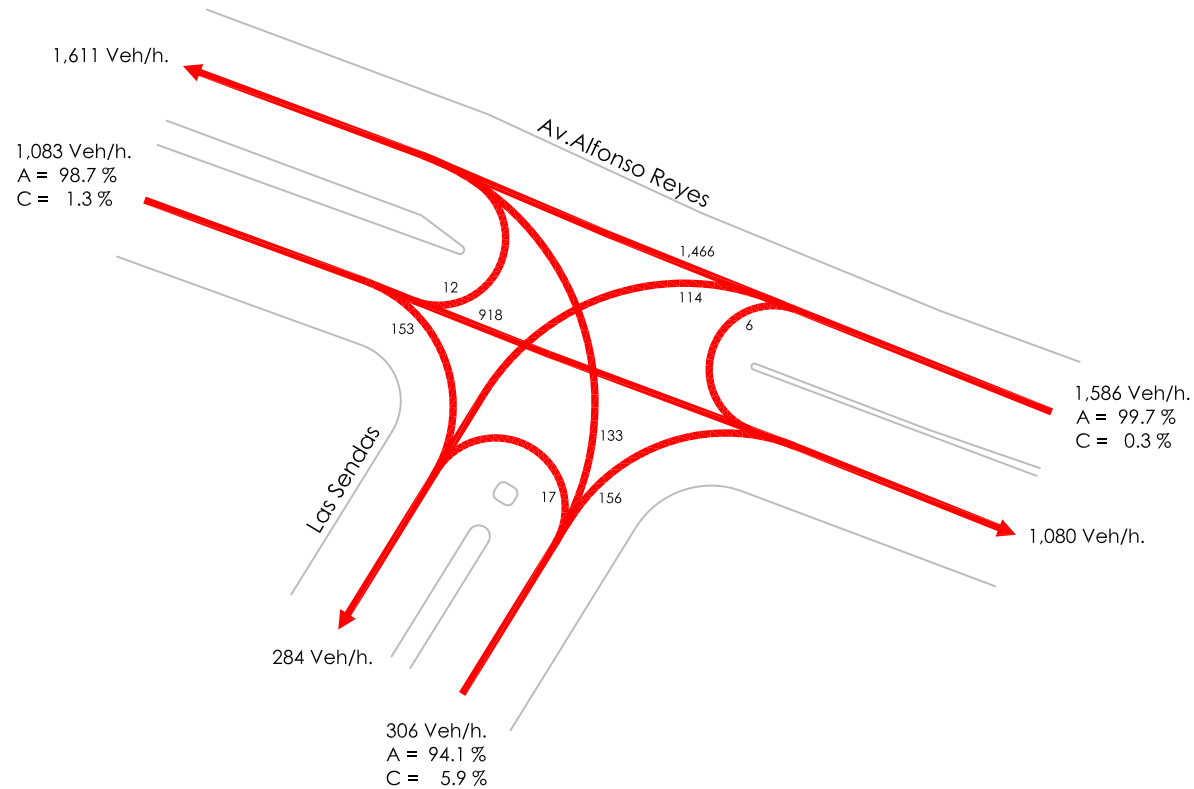
SIN ESCALA



ESTUDIO TÉCNICO VIAL

FIGURA 16

VOLUMENES VEHICULARES
Situación Actual



Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Viernes 21 de Febrero de 2020	18:30 - 19:30	A	98.8 %
PERÍODO	VOLUMEN TOTAL	Bu	0.0 %
17:00 - 20:00	2,975 Veh/hr	C	1.2 %

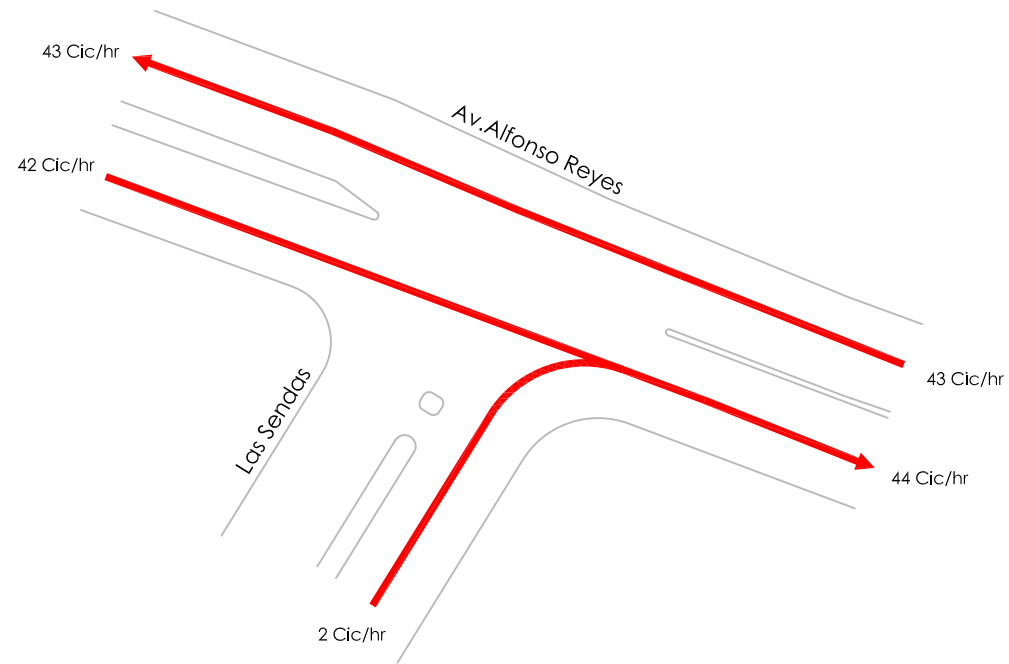
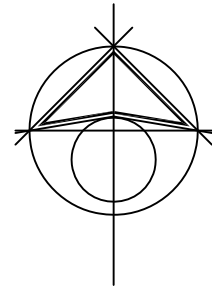
ETV- SP - 217 - AGO/21

SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 17

VOLUMENES CICLISTA



Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Mitras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA

Viernes 22 de Mayo de 2020.

HORA PICO

18:15 - 19:15

PERÍODO

18:00 - 20:00

VOLUMEN TOTAL

87 Cicl/h.

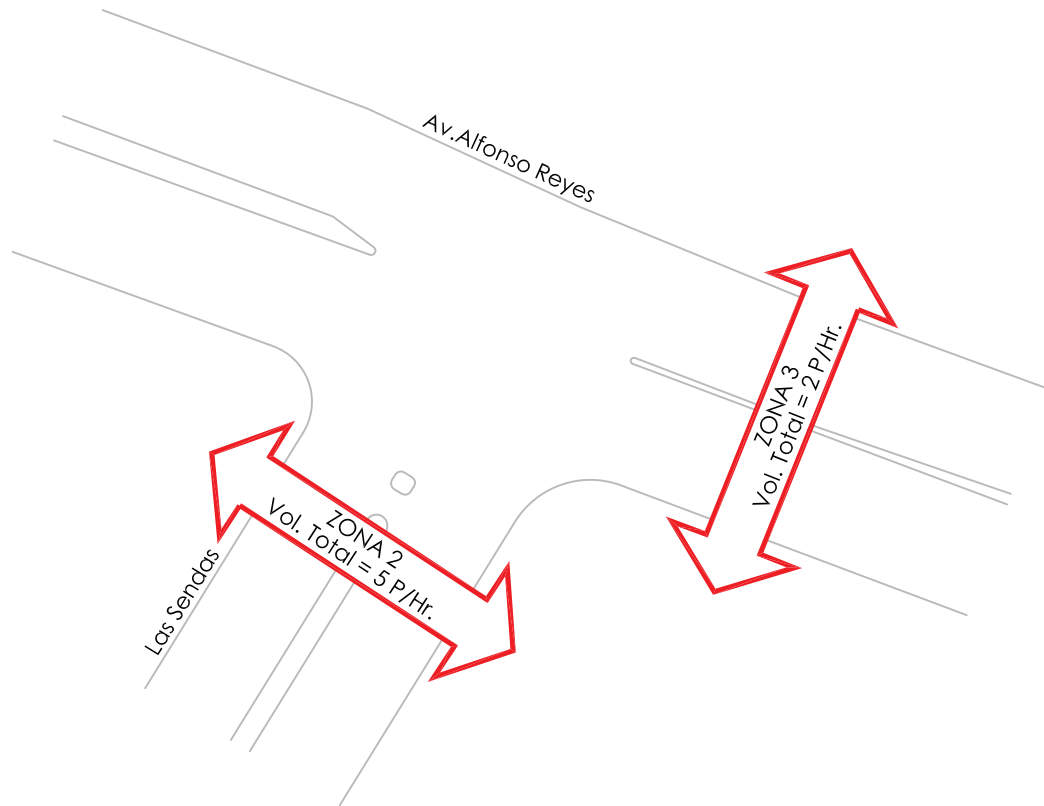
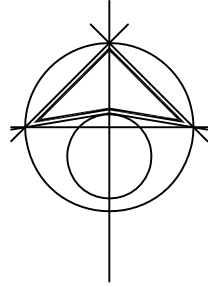
ETV- SP - 217 - AGO/21

SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 18

VOLUMENES PEATONALES



FECHA

Viernes 21 de Febrero de 2,020

PERÍODO

07:00 - 10:00

HORA PICO

07:00 - 08:00

VOLUMEN TOTAL

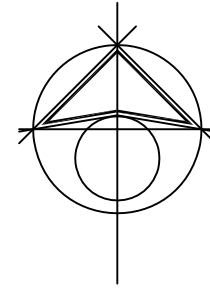
7 P/Hr.

ETV- SP - 217 - AGO/21

SIN ESCALA



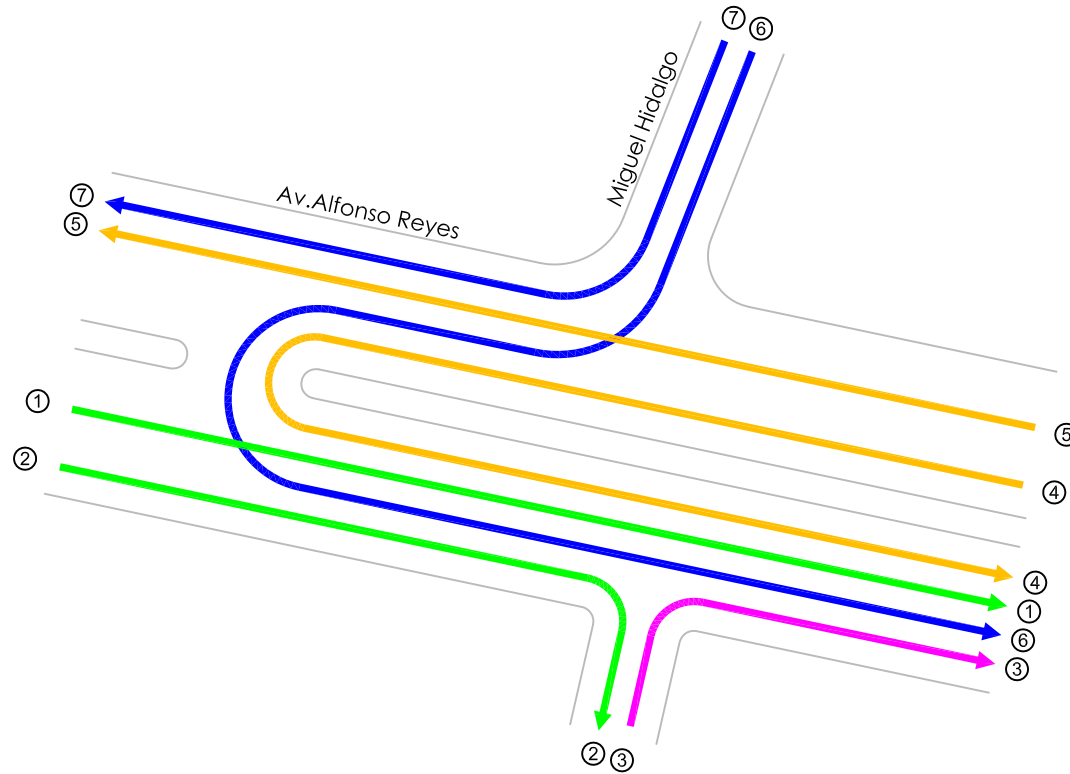
Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700



ESTUDIO TÉCNICO VIAL

FIGURA 19

MOVIMIENTOS DIRECCIONALES
VEHÍCULOS Y CICLISTAS

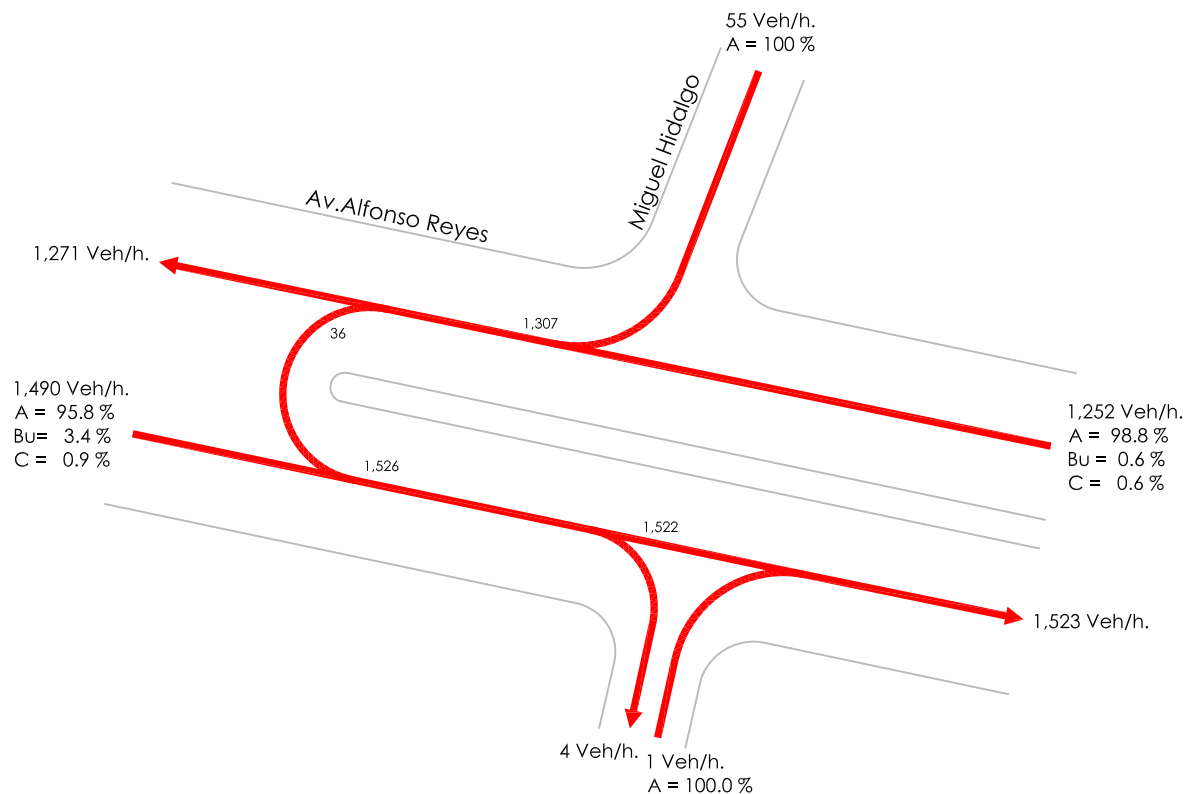
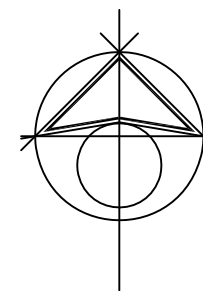


Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

ESTUDIO TÉCNICO VIAL

FIGURA 20

VOLUMENES VEHICULARES
Situación Actual



Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

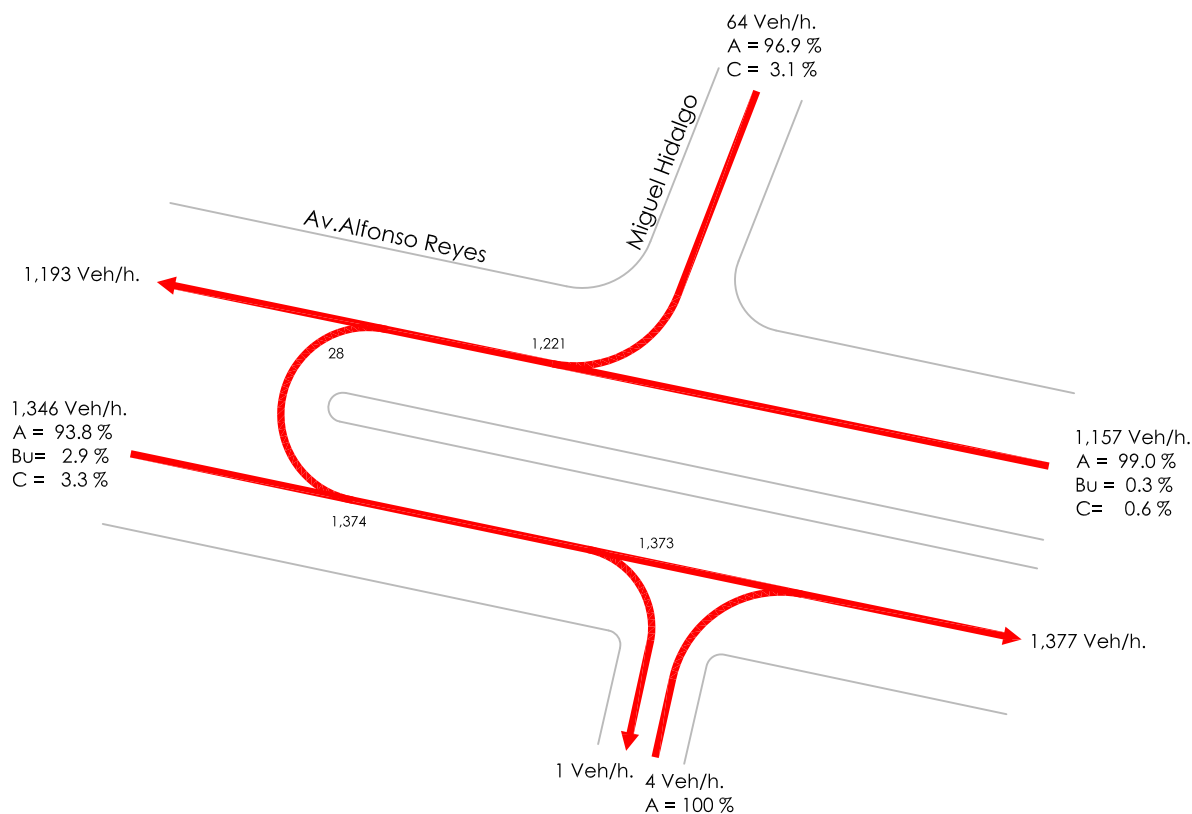
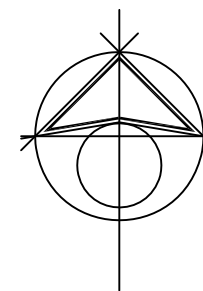
FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Jueves 12 de Agosto de 2021	08:00 - 09:00	A	97.2 %
PERÍODO	VOLUMEN TOTAL	Bu	
07:00 - 10:00	2,798 Veh/hr	C	0.8 %

ETV- SP - 217 - AGO/21
SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 21

VOLUMENES VEHICULARES
Situación Actual

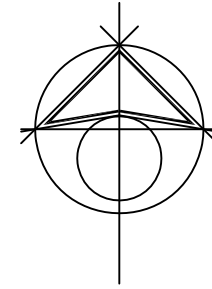


Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Jueves 12 de Agosto de 2021	13:15 - 14:15	A	96.2 %
PERÍODO	VOLUMEN TOTAL	Bu	1.7 %
12:00 - 15:00	2,571 Veh/hr	C	2.1 %

ETV- SP - 217 - AGO/21

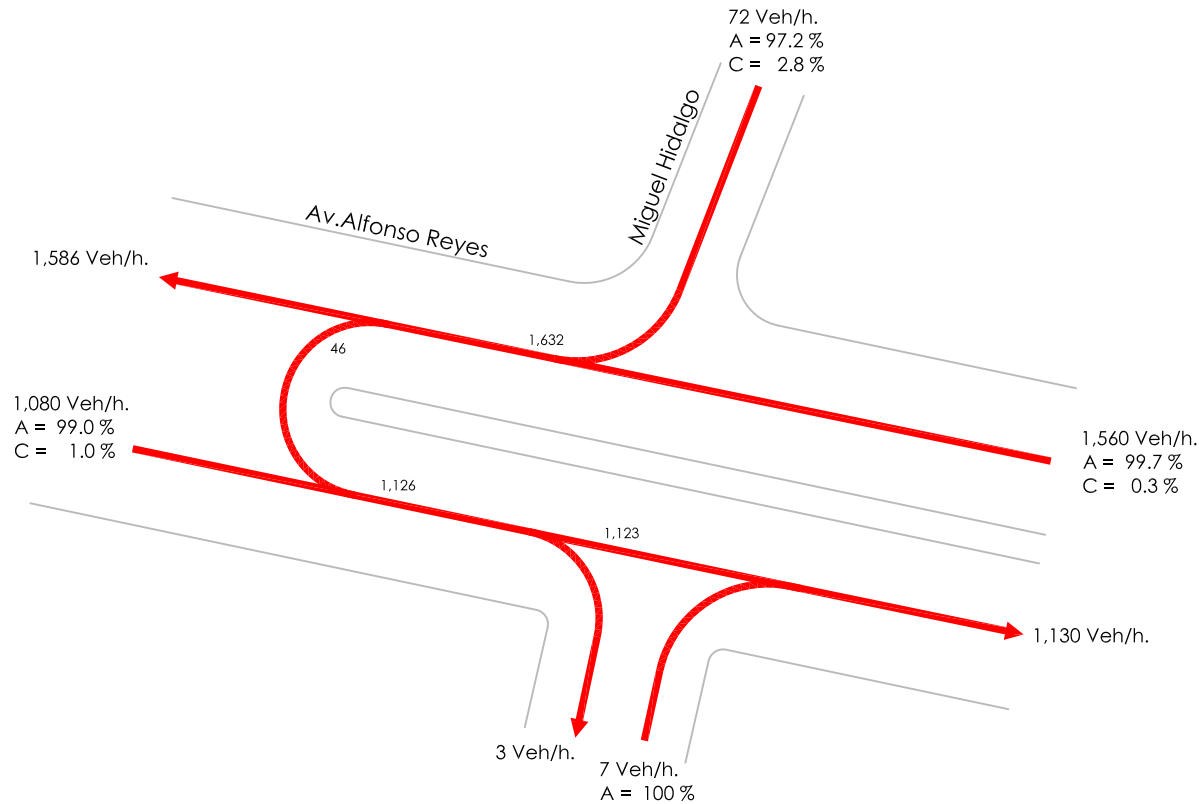
SIN ESCALA



ESTUDIO TÉCNICO VIAL

FIGURA 22

VOLUMENES VEHICULARES
Situación Actual

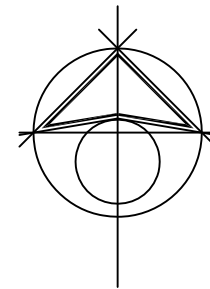


Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Jueves 12 de Agosto de 2021	18:30 - 19:30	A	99.3 %
PERÍODO	VOLUMEN TOTAL	Bu	0.0 %
17:00 - 20:00	2,719 Veh/hr	C	0.7 %

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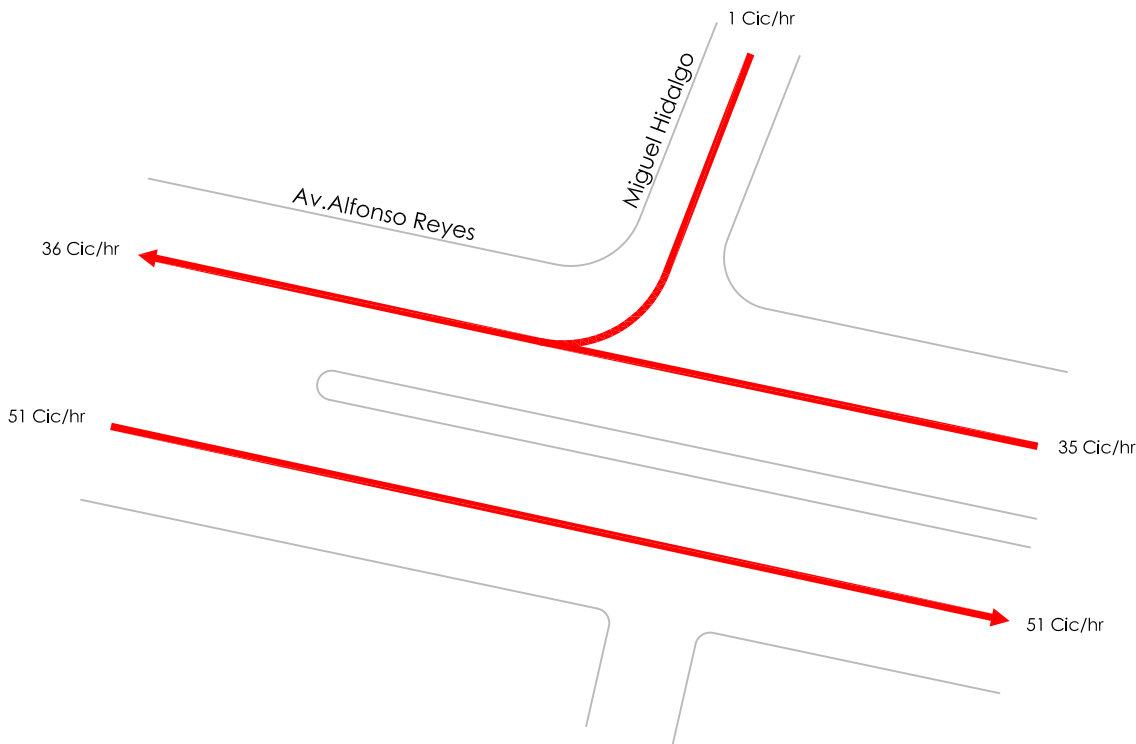
SIN ESCALA



ESTUDIO TÉCNICO VIAL

FIGURA 23

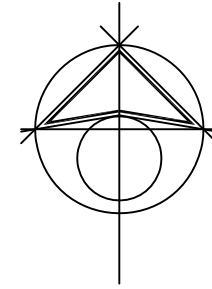
VOLUMENES CICLISTA



Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Mitras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO
Jueves 12 de Agosto de 2021	07:00 - 08:00
PERÍODO	VOLUMEN TOTAL
07:00 - 10:00	87 Cicl/h.

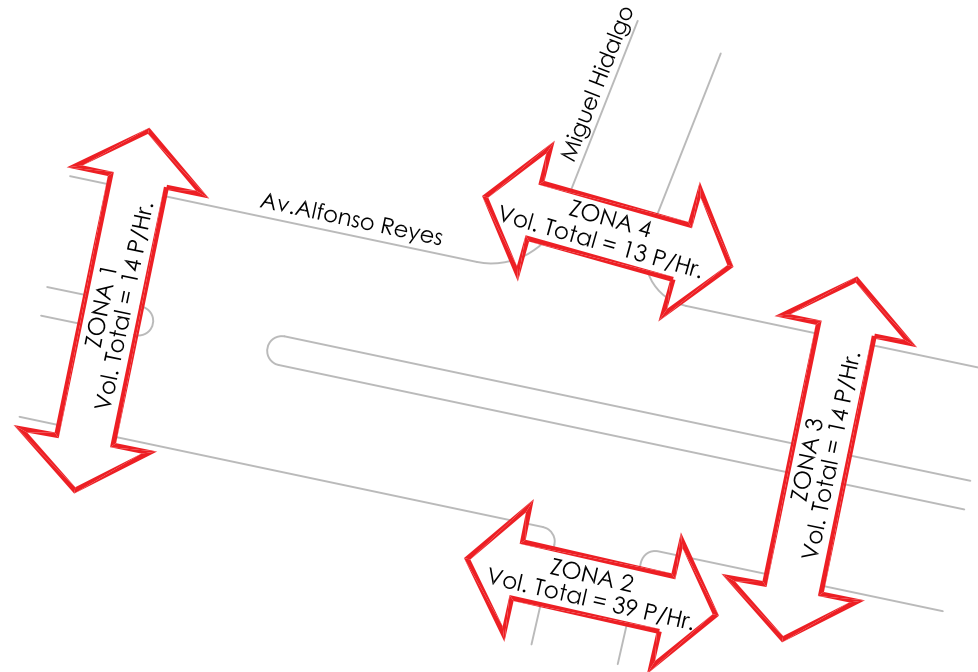
ETV- SP - 217 - AGO/21
SIN ESCALA



ESTUDIO TÉCNICO VIAL

FIGURA 24

VOLUMENES PEATONALES



FECHA

Jueves 12 de Agosto de 2021

PERÍODO

07:00 - 10:00

HORA PICO

07:00 - 08:00

VOLUMEN TOTAL

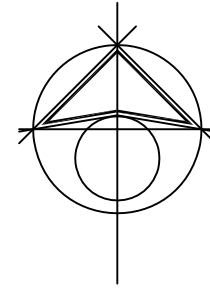
80 P/Hr.

ETV- SP - 217 - AGO/21

SIN ESCALA



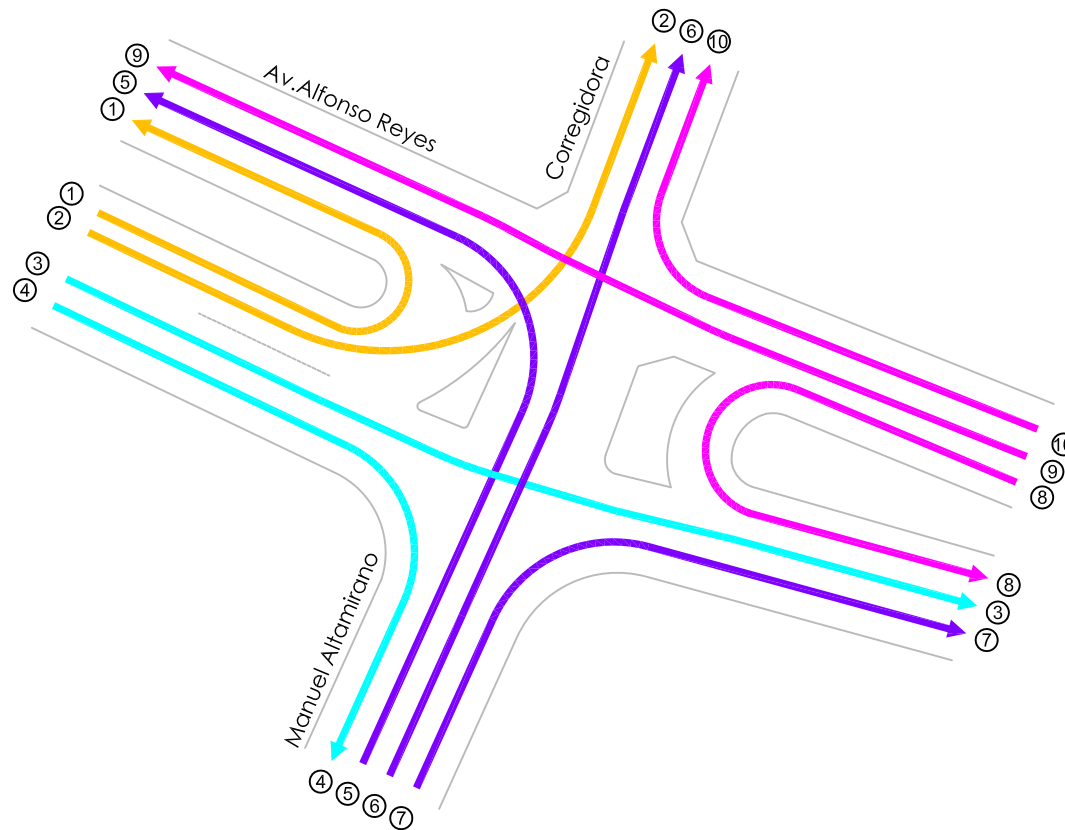
Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

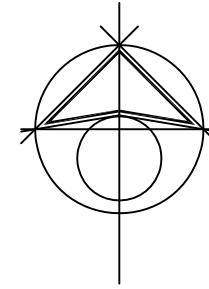


ESTUDIO TÉCNICO VIAL

FIGURA 25

MOVIMIENTOS DIRECCIONALES
VEHÍCULOS Y CICLISTAS

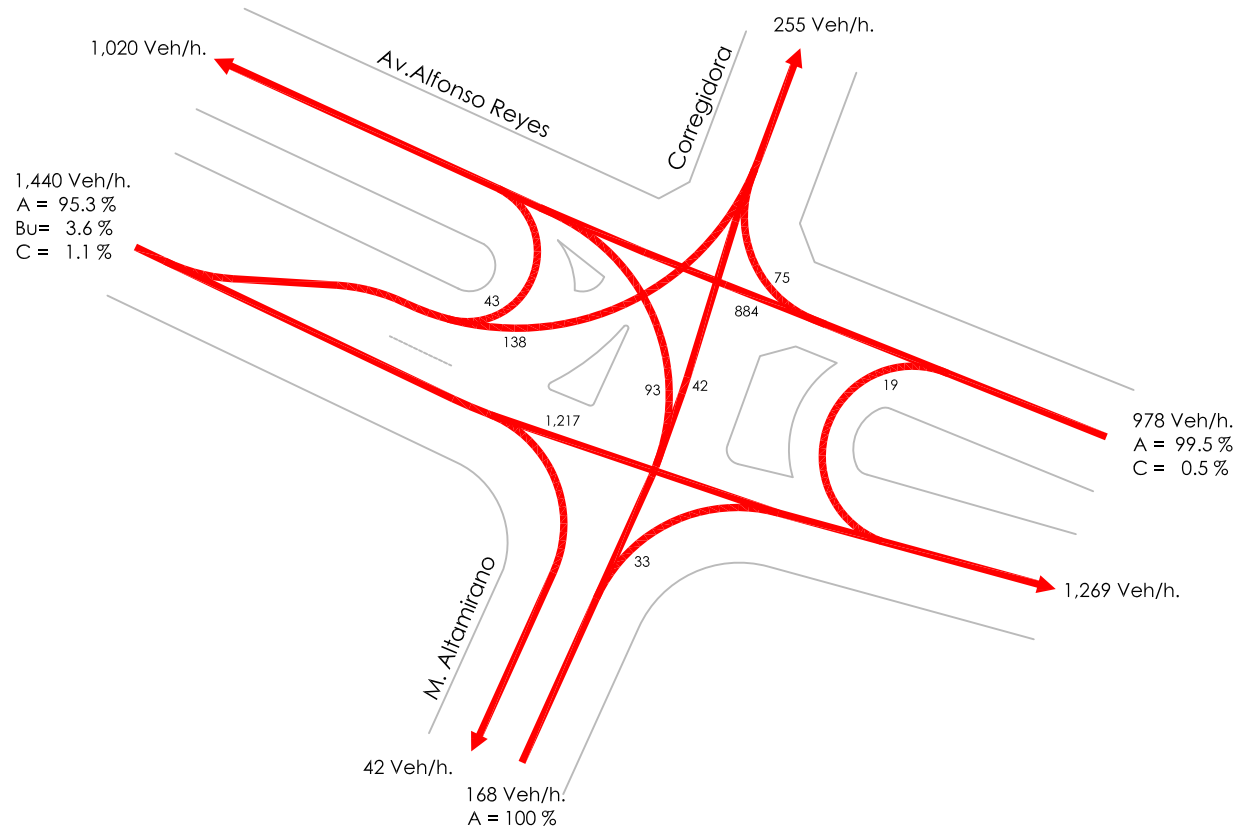




ESTUDIO TÉCNICO VIAL

FIGURA 26

VOLUMENES VEHICULARES
Situación Actual

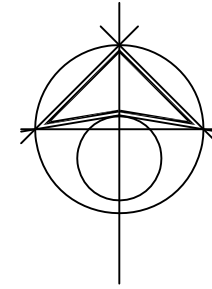


Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Jueves 20 de Febrero de 2020	07:30 - 08:30	A	97.2 %
PERÍODO	VOLUMEN TOTAL	Bu	
07:00 - 10:00	2,586 Veh/hr	C	0.8 %

ETV- SP - 217 - AGO/21

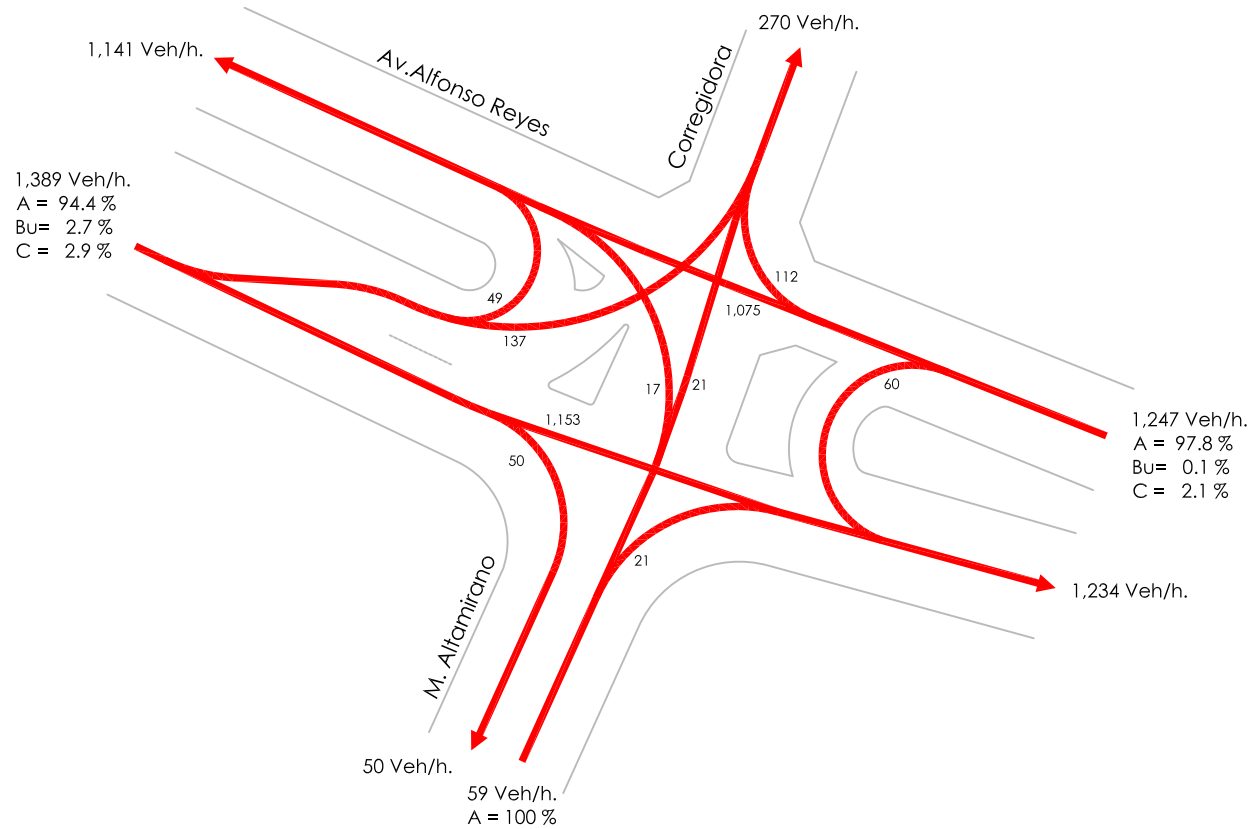
SIN ESCALA



ESTUDIO TÉCNICO VIAL

FIGURA 27

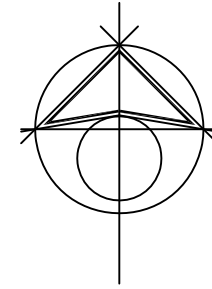
VOLUMENES VEHICULARES
Situación Actual



Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Jueves 20 de Febrero de 2020	13:30 - 14:30	A	96.1 %
PERÍODO	VOLUMEN TOTAL	Bu	
12:00 - 15:00	2,695 Veh/hr	C	2.4 %

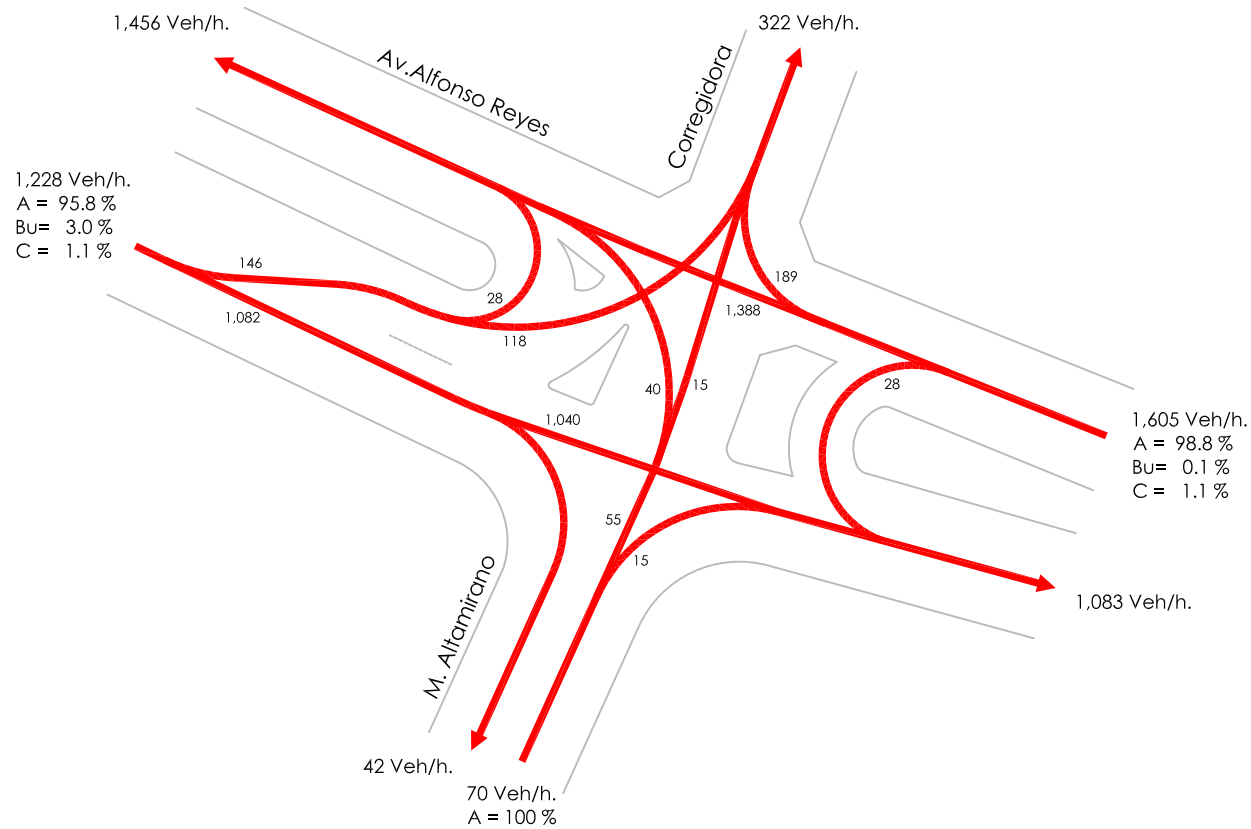
ETV- SP - 217 - AGO/21
SIN ESCALA



ESTUDIO TÉCNICO VIAL

FIGURA 28

VOLUMENES VEHICULARES
Situación Actual



Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

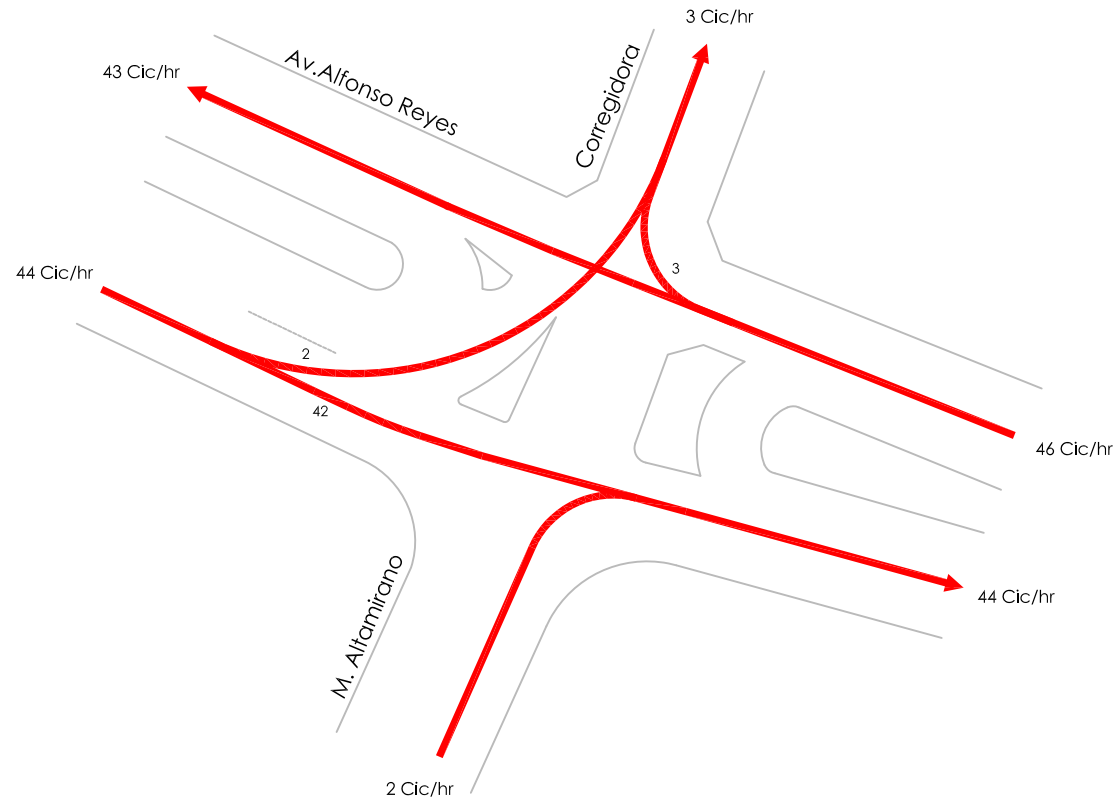
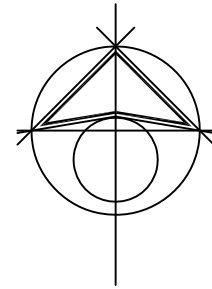
FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Jueves 20 de Febrero de 2020	17:15 - 18:15	A	97.6 %
PERÍODO	VOLUMEN TOTAL	Bu	
17:00 - 20:00	2,903 Veh/hr	C	1.0 %

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FIGURA 29

VOLUMENES CICLISTA



Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Mitras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA

Viernes 22 de Mayo de 2020.

HORA PICO

18:15 - 19:15

PERÍODO

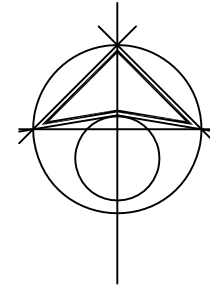
18:00 - 20:00

VOLUMEN TOTAL

92 Cicl/h.

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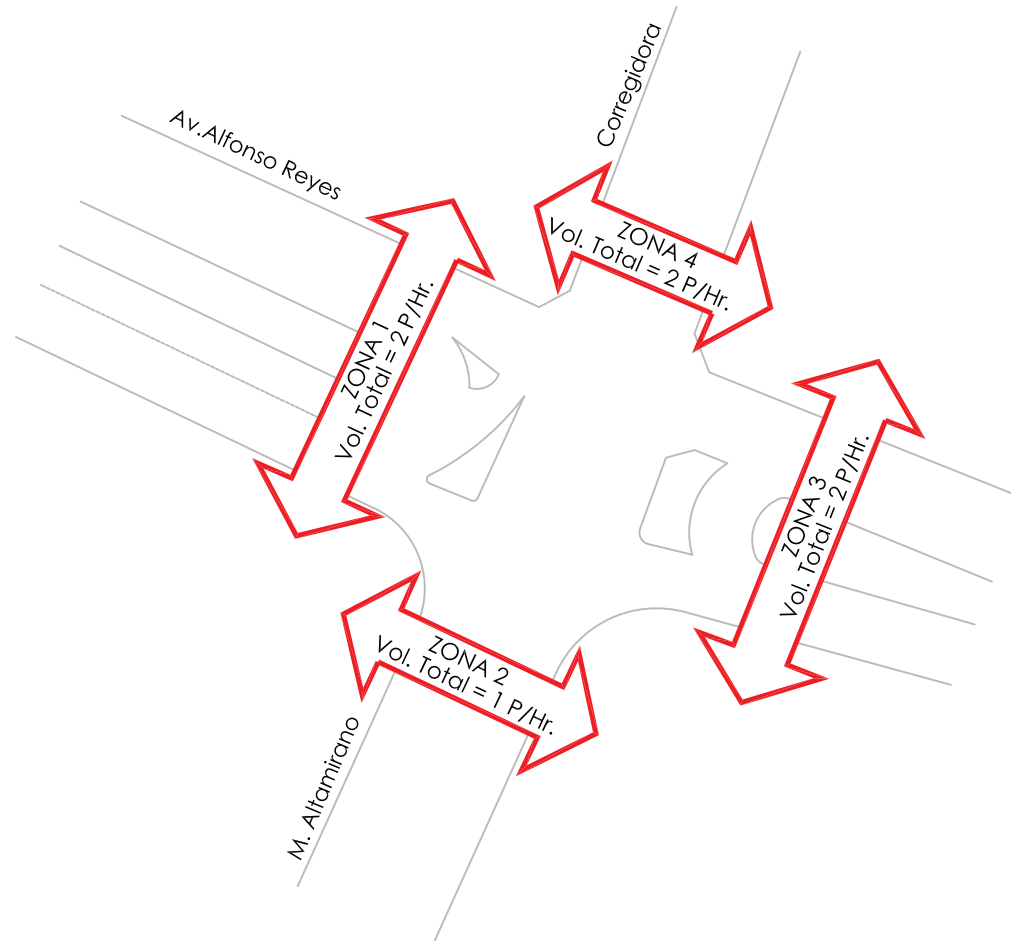
SIN ESCALA



ESTUDIO TÉCNICO VIAL

FIGURA 30

VOLUMENES PEATONALES



FECHA

Jueves 20 de Febrero de 2,020

PERÍODO

17:00 - 20:00

HORA PICO

17:00 - 18:00

VOLUMEN TOTAL

7 P/Hr.

ETV- SP - 217 - AGO/21

SIN ESCALA



Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

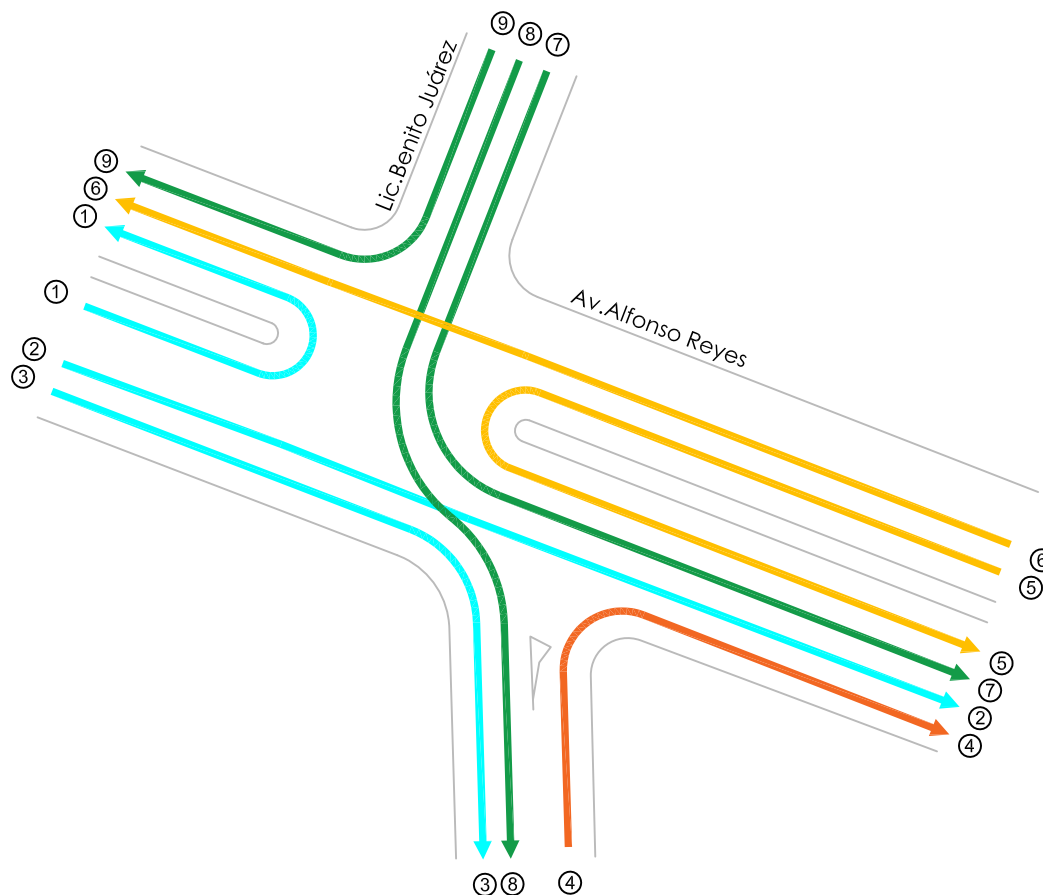
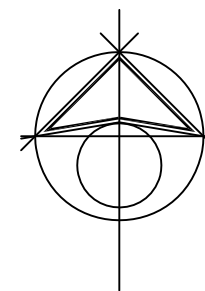


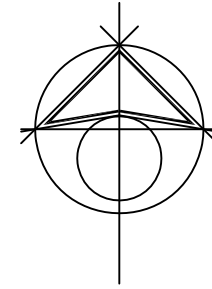
Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

ESTUDIO TÉCNICO VIAL

FIGURA 31

MOVIMIENTOS DIRECCIONALES
VEHÍCULOS Y CICLISTAS

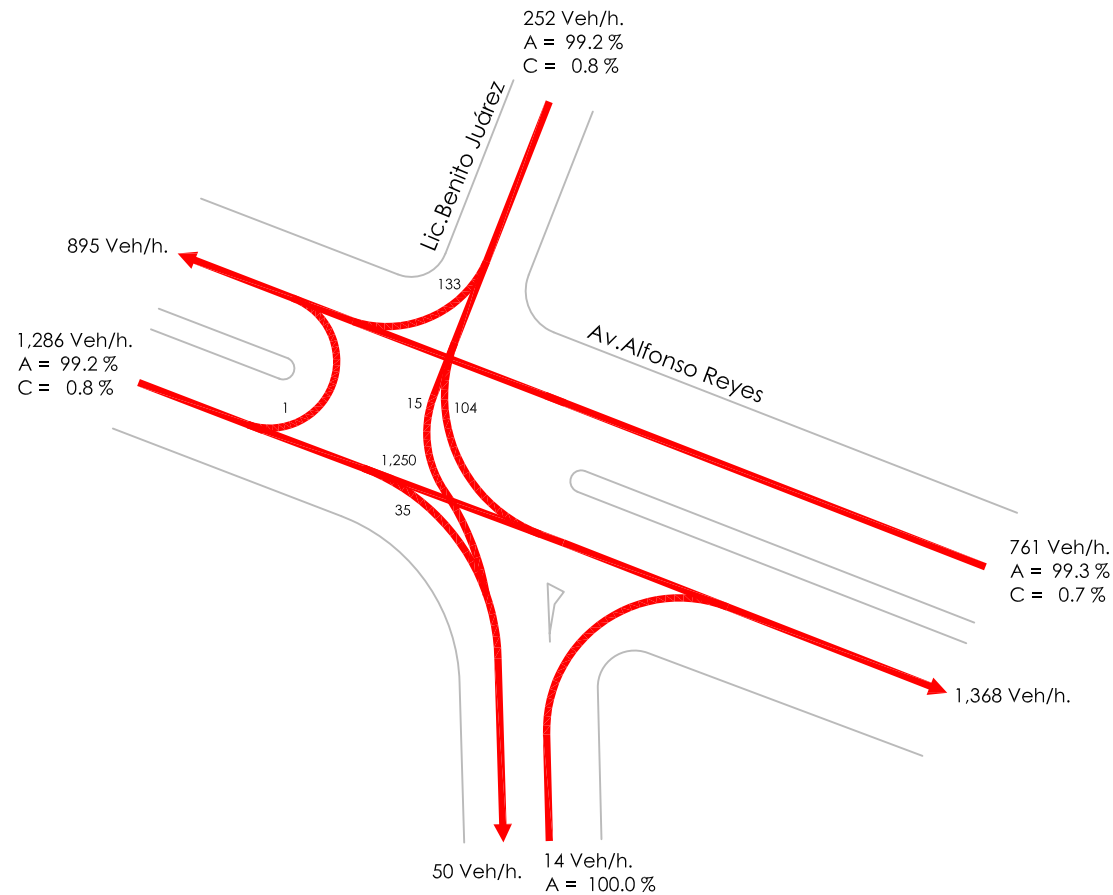




ESTUDIO TÉCNICO VIAL

FIGURA 32

VOLUMENES VEHICULARES
Situación Actual



Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Martes 18 de Febrero de 2020	07:30 - 08:30	A	99.3 %
PERÍODO	VOLUMEN TOTAL	Bu	
07:00 - 10:00	2,313 Veh/hr	C	0.7 %

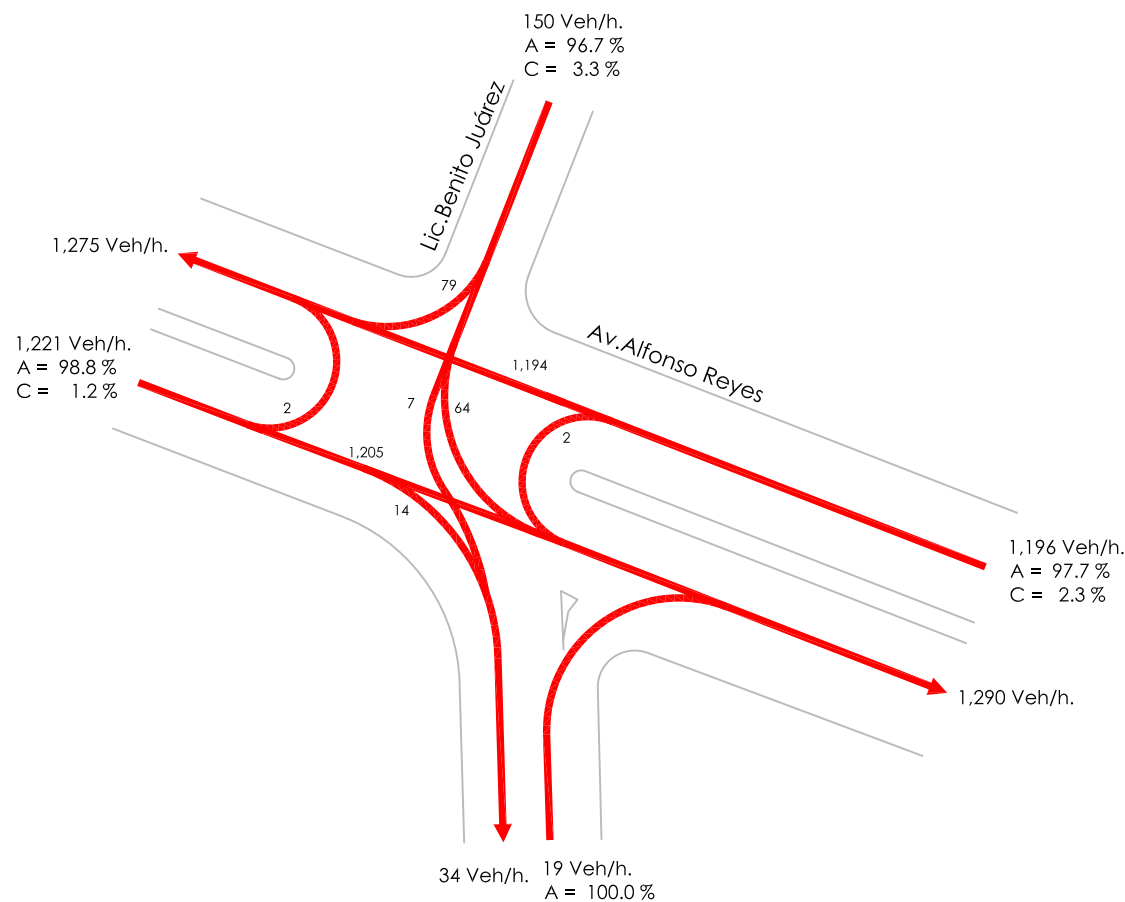
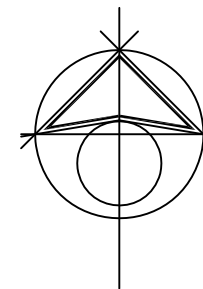
ETV- SP - 217 - AGO/21

SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 33

VOLUMENES VEHICULARES
Situación Actual

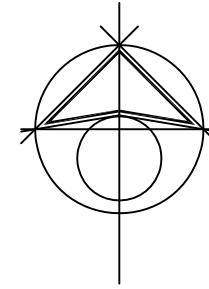


Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Martes 18 de Febrero de 2020	13:30 - 14:30	A	98.2 %
PERÍODO	VOLUMEN TOTAL	Bu	0.0 %
12:00 - 15:00	2,586 Veh/hr	C	1.8 %

ETV- SP - 217 - AGO/21

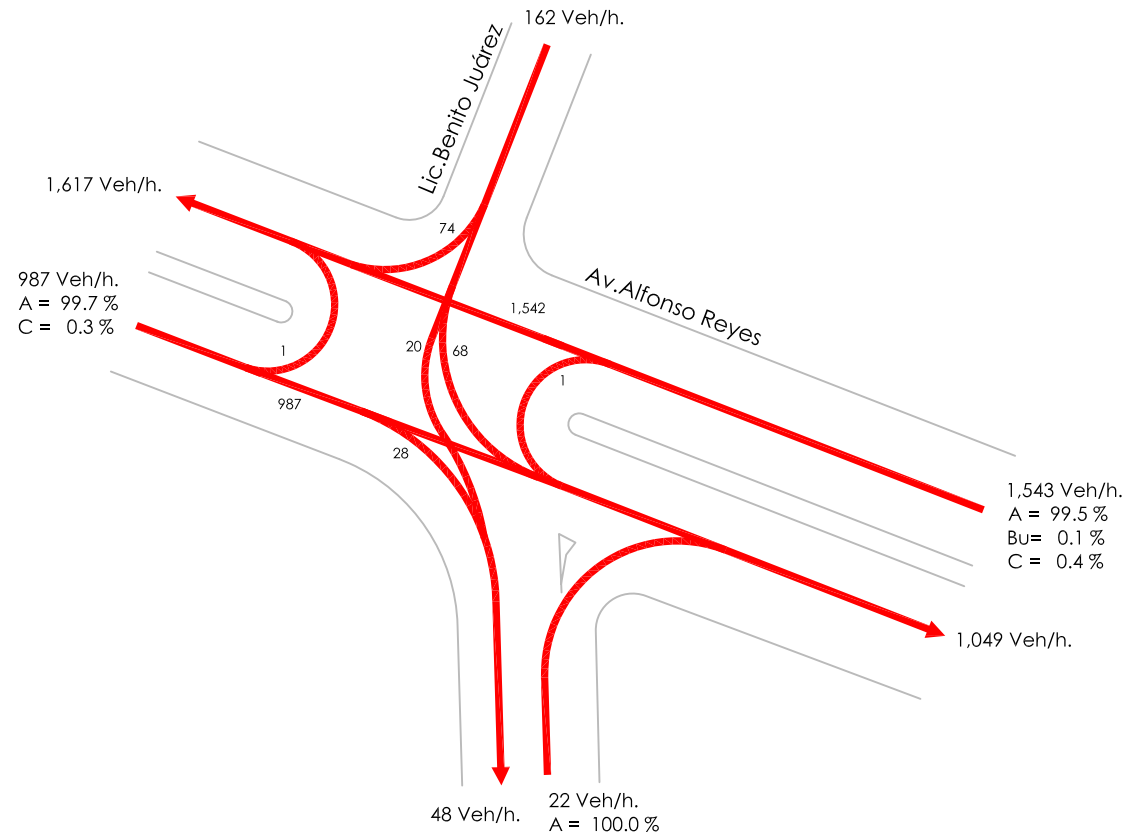
SIN ESCALA



ESTUDIO TÉCNICO VIAL

FIGURA 34

VOLUMENES VEHICULARES
Situación Actual

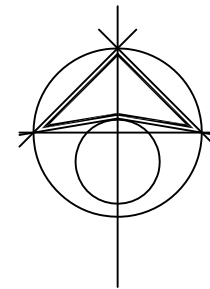


Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Martes 18 de Febrero de 2020	17:15 - 18:15	A	99.6 %
PERÍODO	VOLUMEN TOTAL	Bu	
17:00 - 20:00	2,714 Veh/hr	C	0.4 %

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ESTUDIO TÉCNICO VIAL

FIGURA 35

VOLUMENES CICLISTA



Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Mitras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA

Viernes 22 de Mayo de 2020.

HORA PICO

18:15 - 19:15

PERÍODO

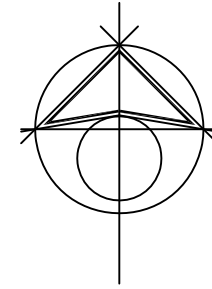
18:00 - 20:00

VOLUMEN TOTAL

90 Cicl/h.

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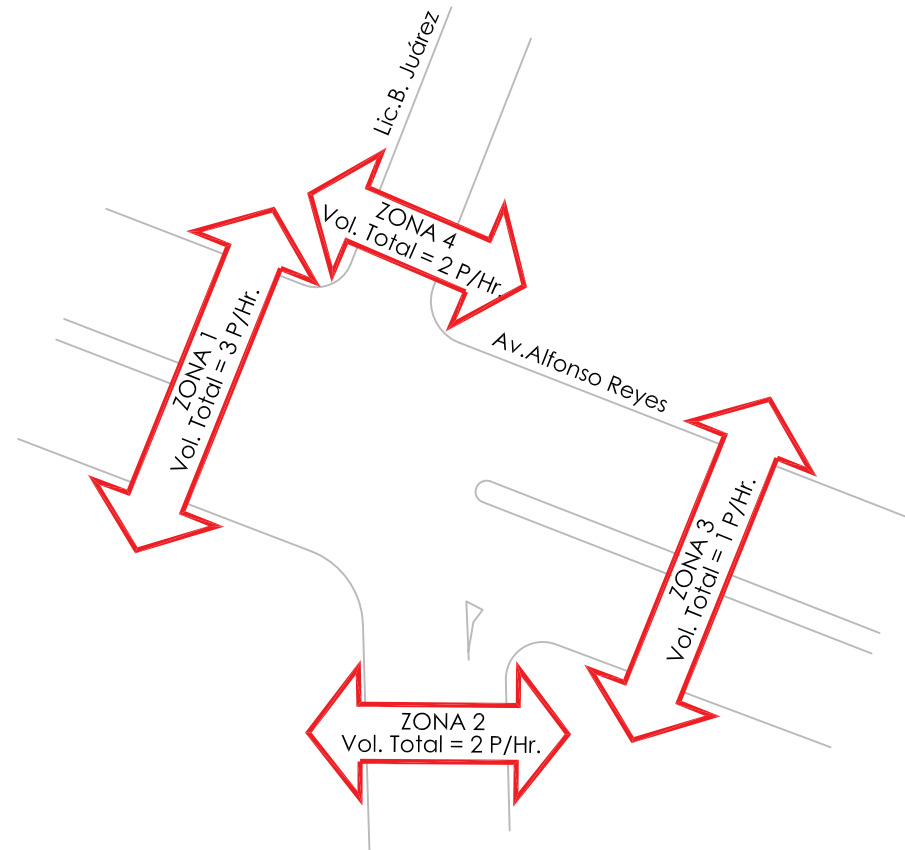
SIN ESCALA



ESTUDIO TÉCNICO VIAL

FIGURA 36

VOLUMENES PEATONALES



FECHA

Martes 18 de Febrero de 2020

PERÍODO

17:00 - 20:00

HORA PICO

17:00 - 18:00

VOLUMEN TOTAL

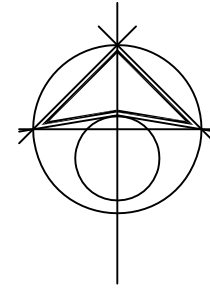
8 P/Hr.

ETV- SP - 217 - AGO/21

SIN ESCALA



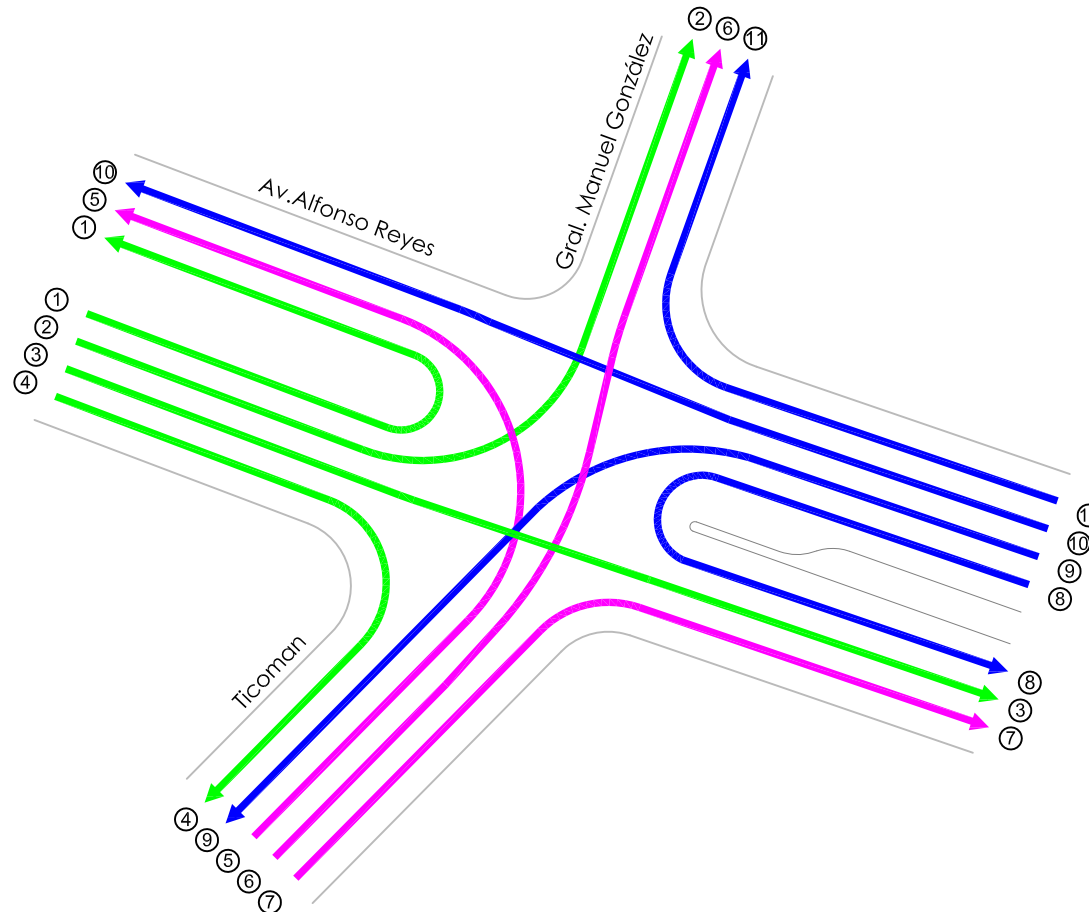
Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700



ESTUDIO TÉCNICO VIAL

FIGURA 37

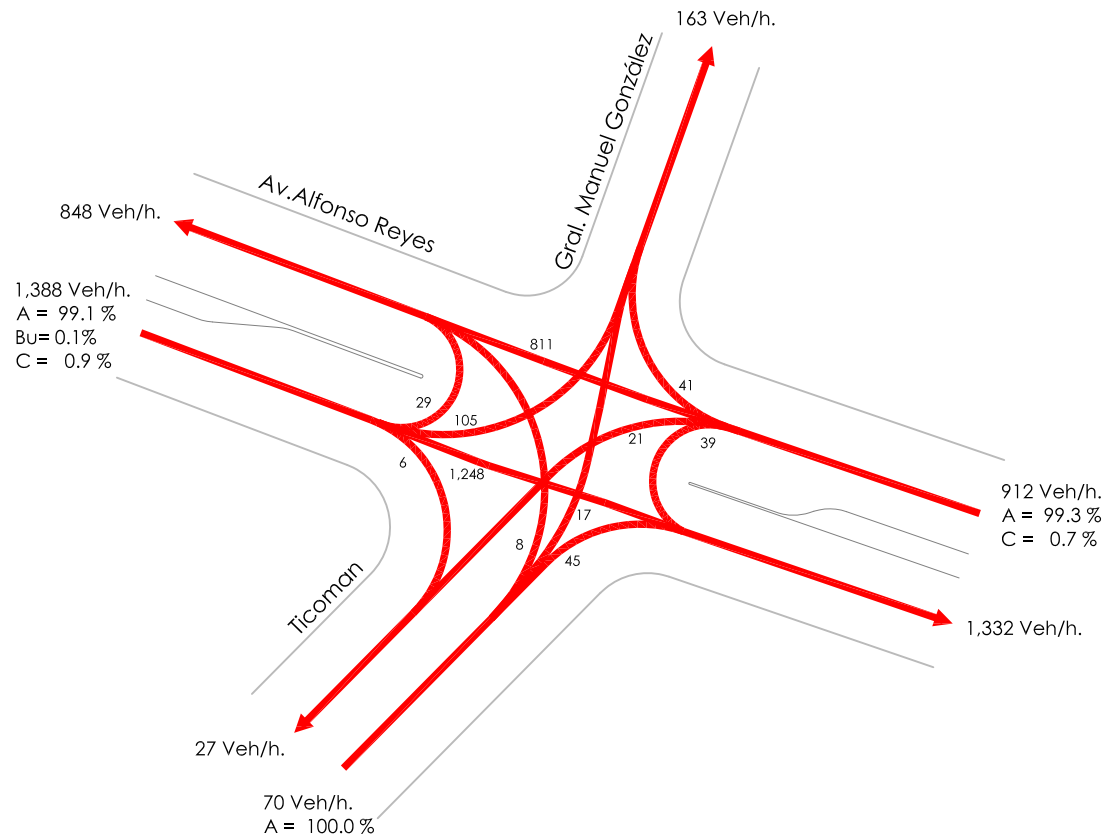
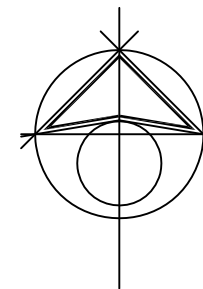
MOVIMIENTOS DIRECCIONALES
VEHÍCULOS Y CICLISTAS



ESTUDIO TÉCNICO VIAL

FIGURA 38

VOLUMENES VEHICULARES
Situación Actual



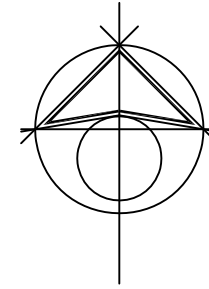
FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Martes 18 de Febrero de 2020	08:00 - 09:00	A	99.2 %
PERÍODO	VOLUMEN TOTAL	Bu	
07:00 - 10:00	2,370 Veh/hr	C	0.8 %

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SIN ESCALA



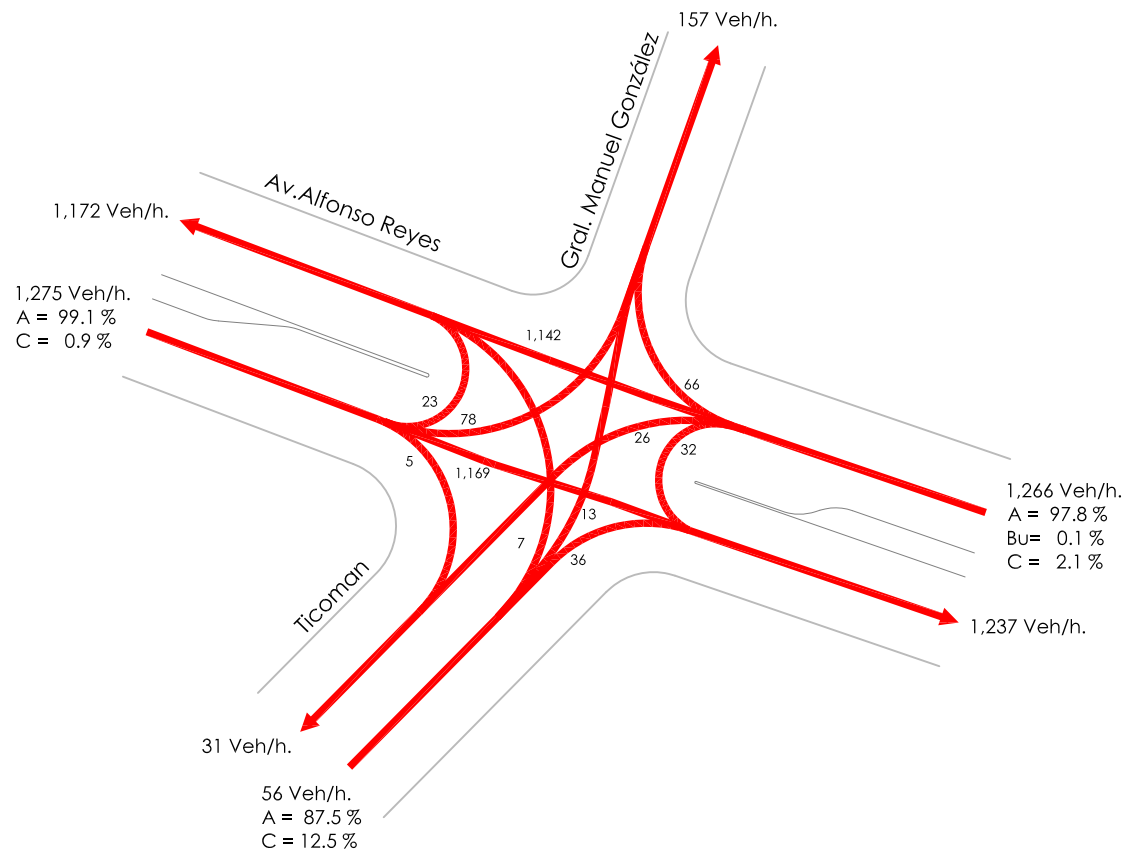
Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700



ESTUDIO TÉCNICO VIAL

FIGURA 39

VOLUMENES VEHICULARES
Situación Actual



Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

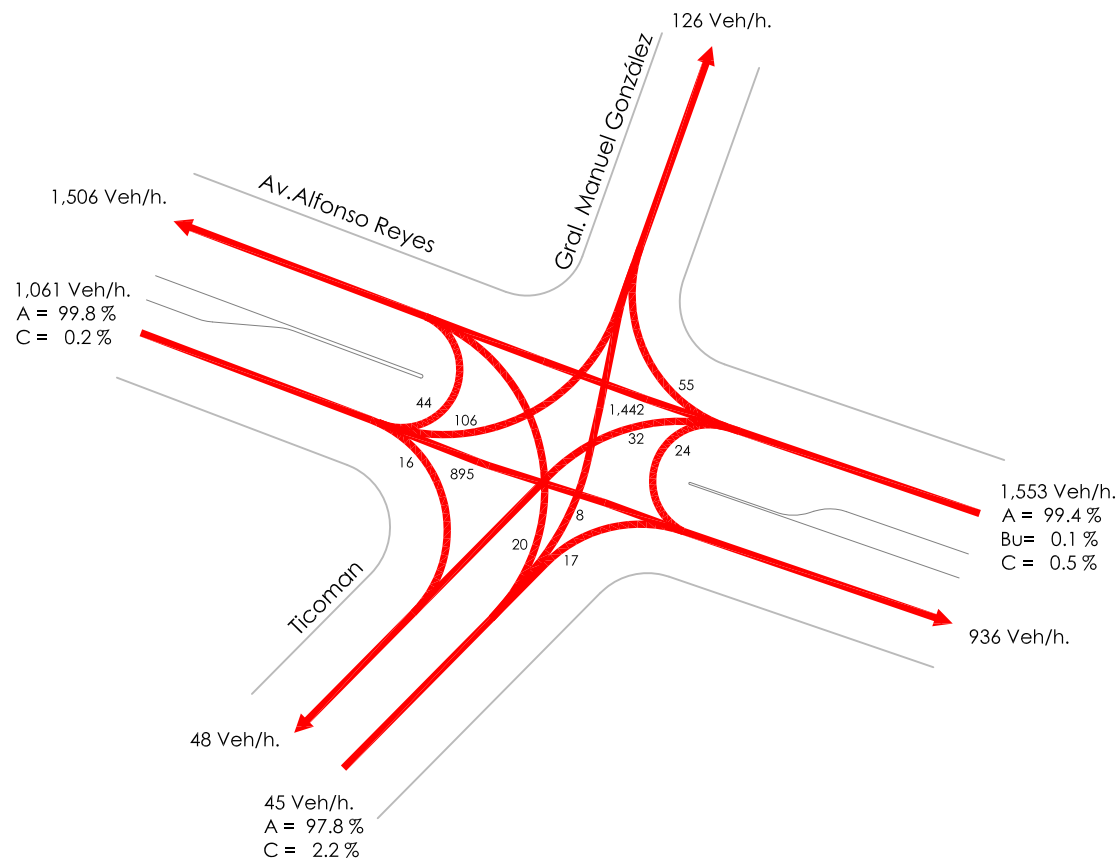
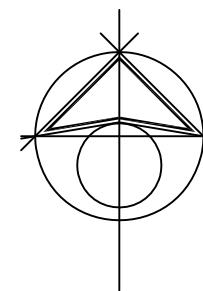
FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Martes 18 de Febrero de 2020	13:30 - 14:30	A	98.2 %
PERÍODO	VOLUMEN TOTAL	Bu	
12:00 - 15:00	2,597 Veh/hr	C	1.8 %

ETV- SP - 217 - AGO/21
SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 40

VOLUMENES VEHICULARES
Situación Actual



Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

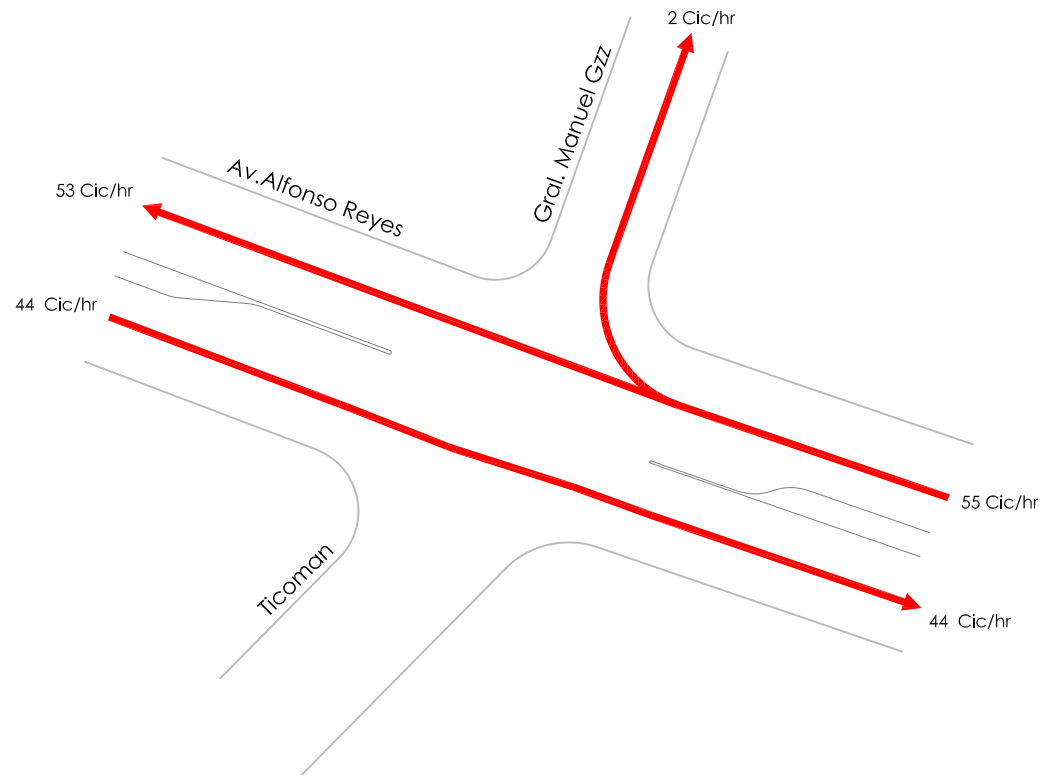
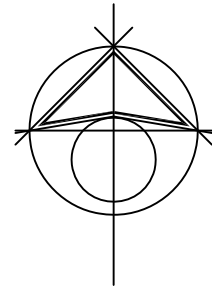
FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Martes 18 de Febrero de 2020	17:15 - 18:15	A	99.5 %
PERÍODO	VOLUMEN TOTAL	Bu	
17:00 - 20:00	2,659 Veh/hr	C	0.4 %

ETV- SP - 217 - AGO/21
SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 41

VOLUMENES CICLISTA



Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Mitras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO
Viernes 22 de Mayo de 2020	18:30 - 19:30
PERÍODO	VOLUMEN TOTAL
18:00 - 20:00	92 Cic/h.

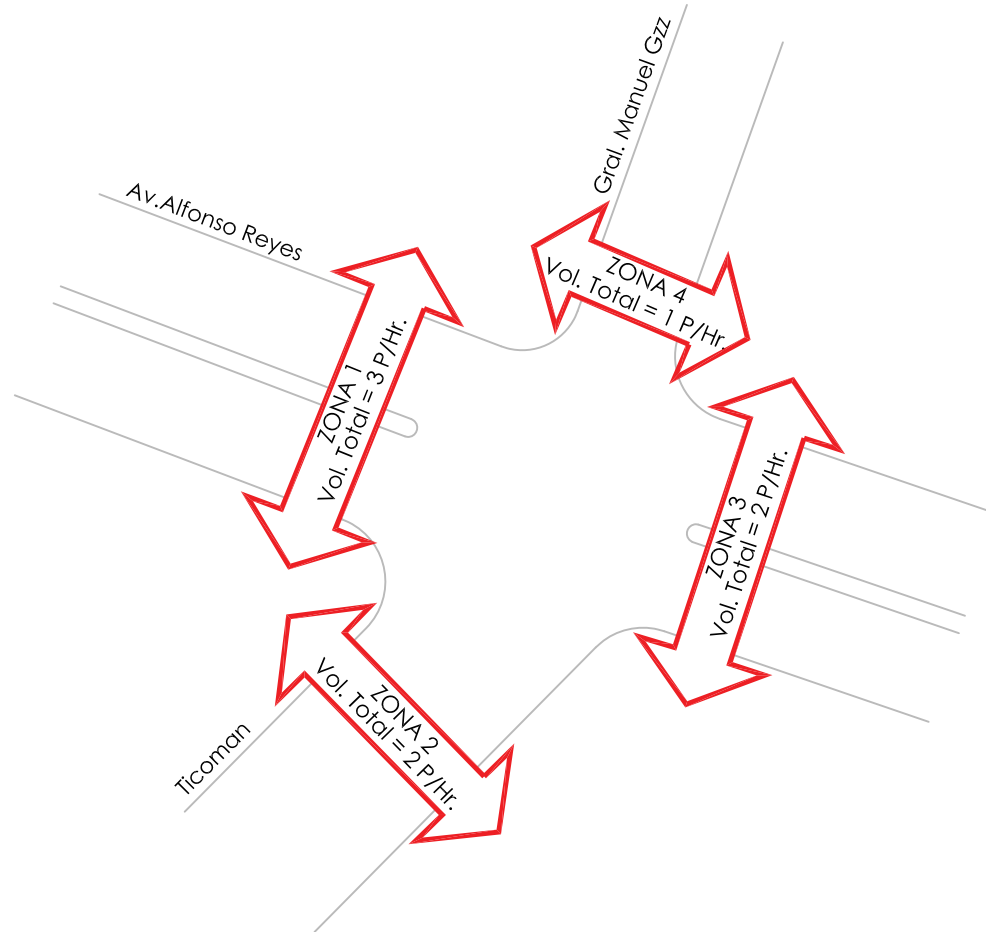
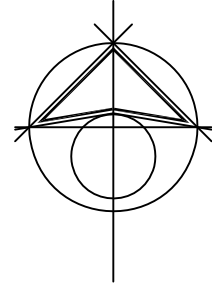
ETV- SP - 217 - AGO/21

SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 42

VOLUMENES PEATONALES



FECHA

Martes 18 de Febrero de 2020

PERÍODO

07:00 - 10:00

HORA PICO

07:00 - 08:00

VOLUMEN TOTAL

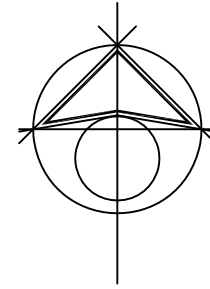
8 P/Hr.

ETV- SP - 217 - AGO/21

SIN ESCALA



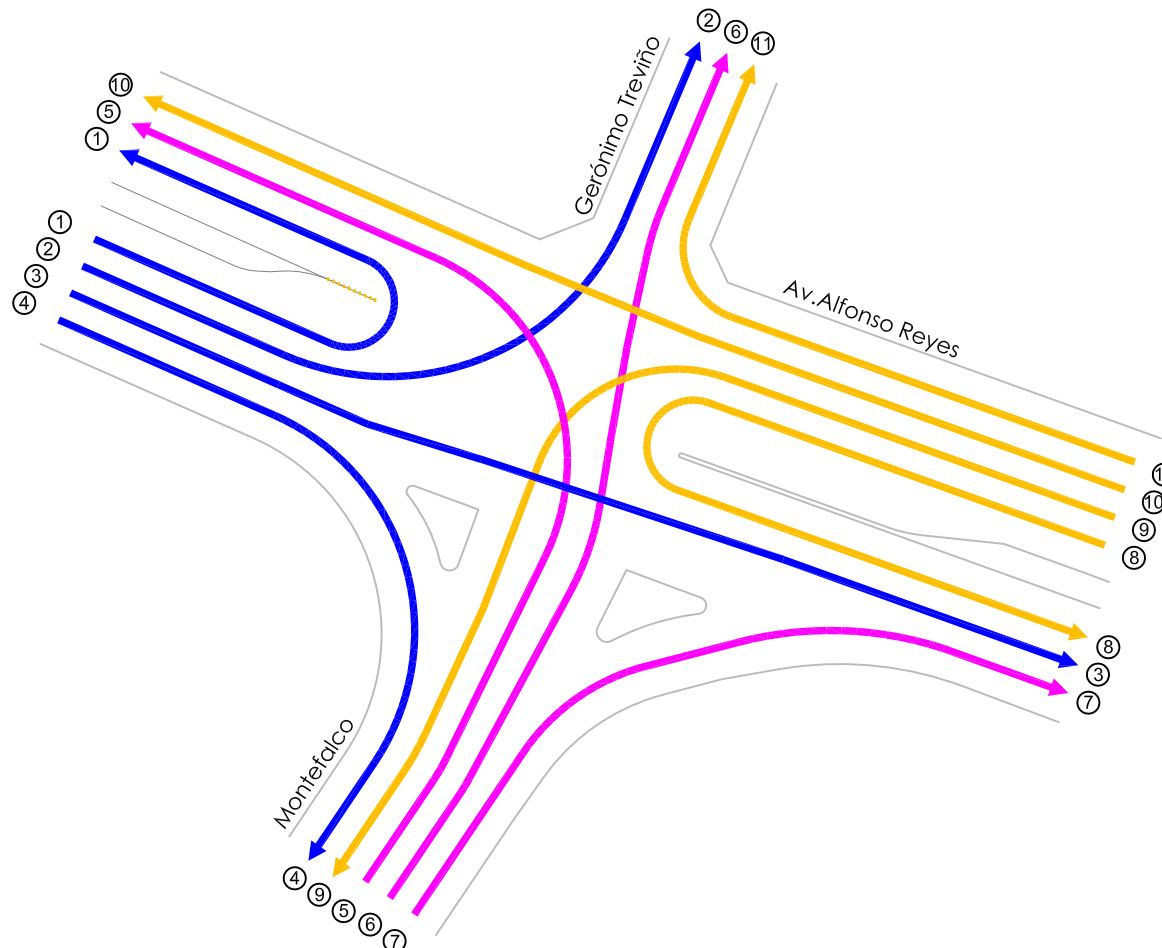
Vargas Torres y Asociados, S.A. de C.V.
Zimapán #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700



ESTUDIO TÉCNICO VIAL

FIGURA 43

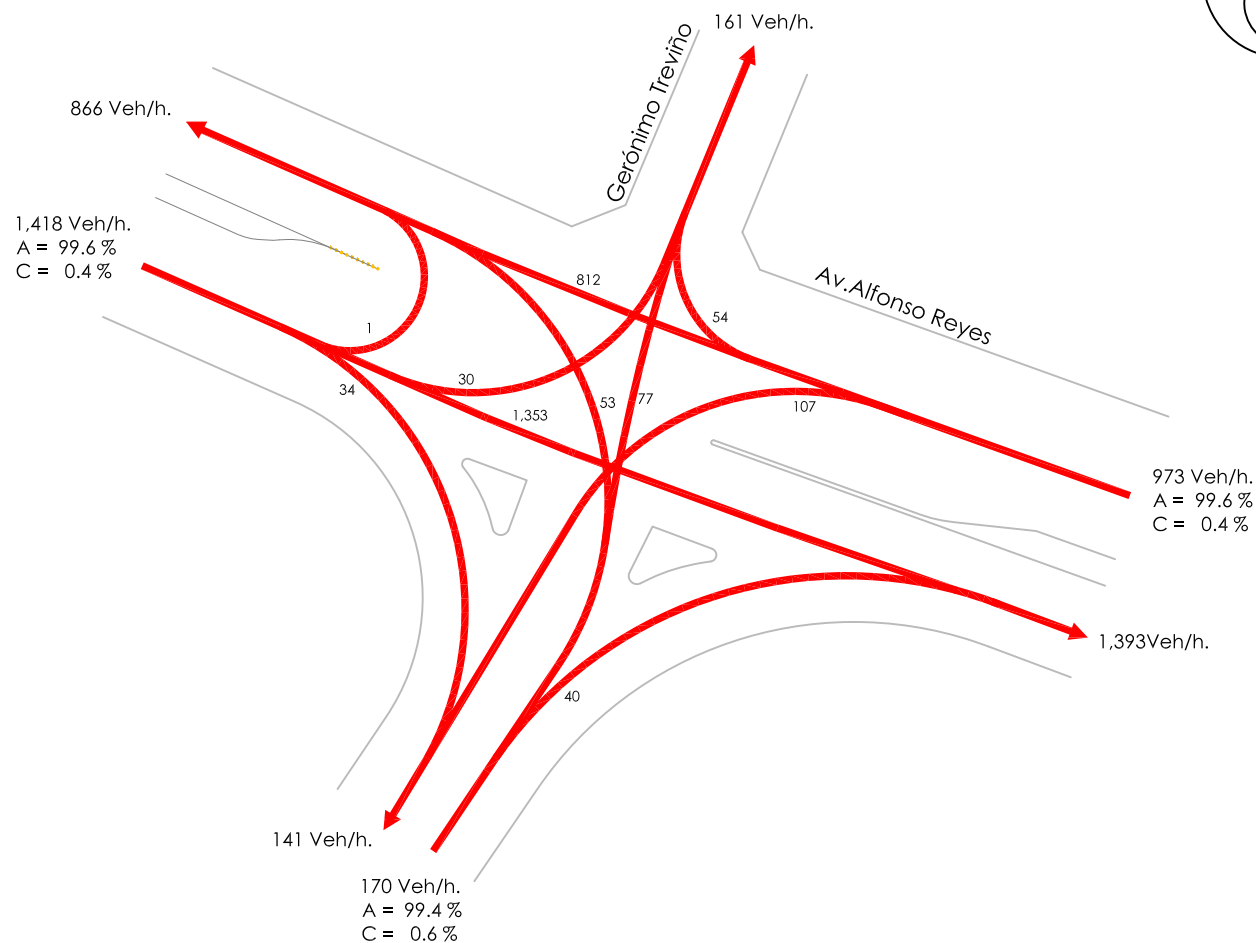
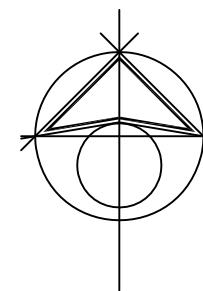
MOVIMIENTOS DIRECCIONALES
VEHÍCULOS Y CICLISTAS



ESTUDIO TÉCNICO VIAL

FIGURA 44

VOLUMENES VEHICULARES
Situación Actual

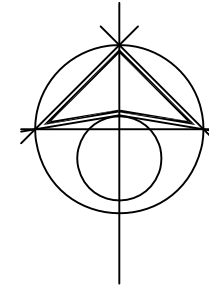


Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Viernes 14 de Febrero de 2020	08:00 - 09:00	A	99.6 %
PERÍODO	VOLUMEN TOTAL	Bu	
07:00 - 10:00	2,561 Veh/hr	C	0.4 %

ETV- SP - 217 - AGO/21

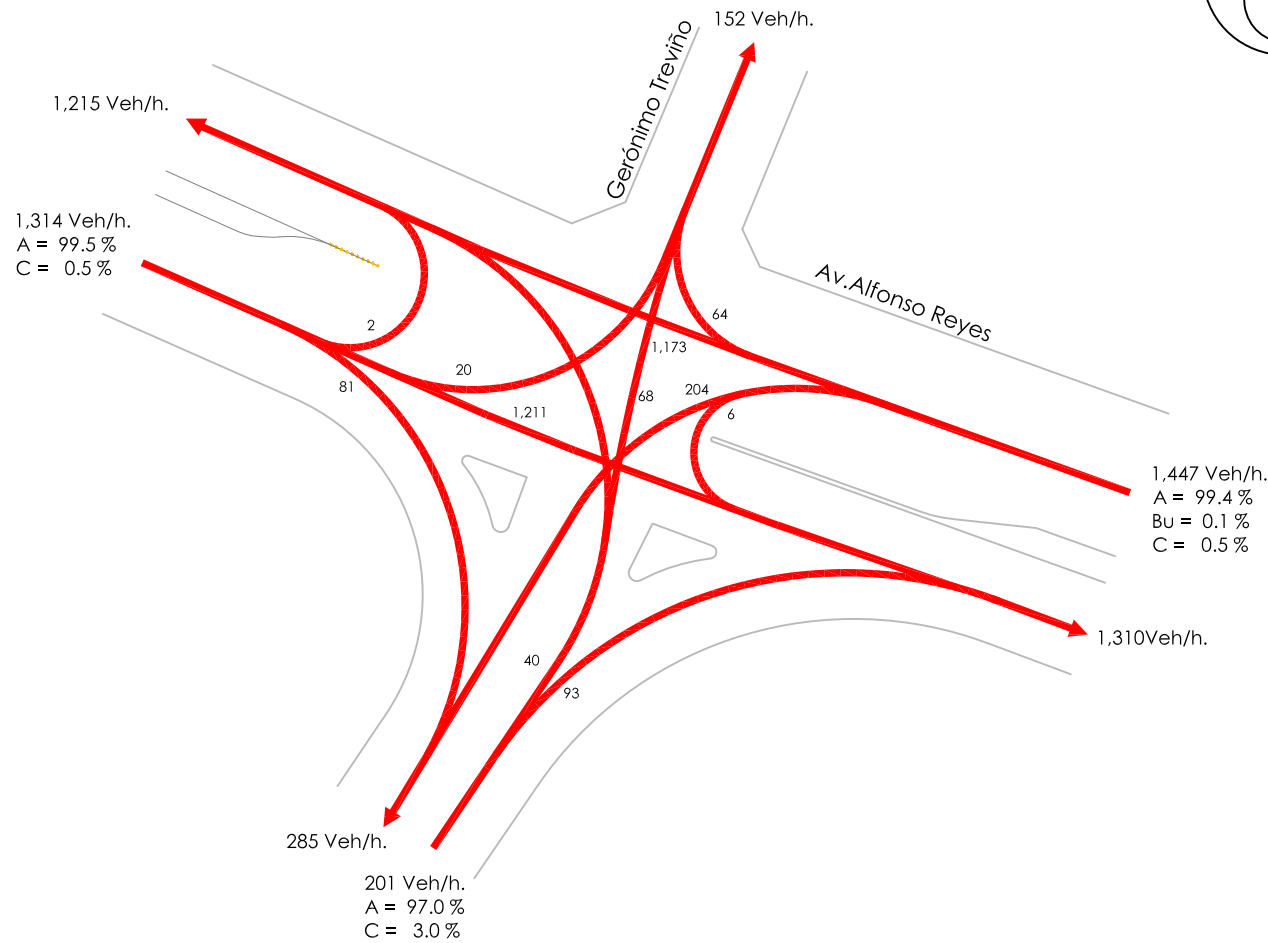
SIN ESCALA



ESTUDIO TÉCNICO VIAL

FIGURA 45

VOLUMENES VEHICULARES
Situación Actual



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Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Viernes 14 de Febrero de 2020	13:30 - 14:30	A	99.3 %
PERÍODO	VOLUMEN TOTAL	Bu	
12:00 - 15:00	2,962 Veh/hr	C	0.6 %

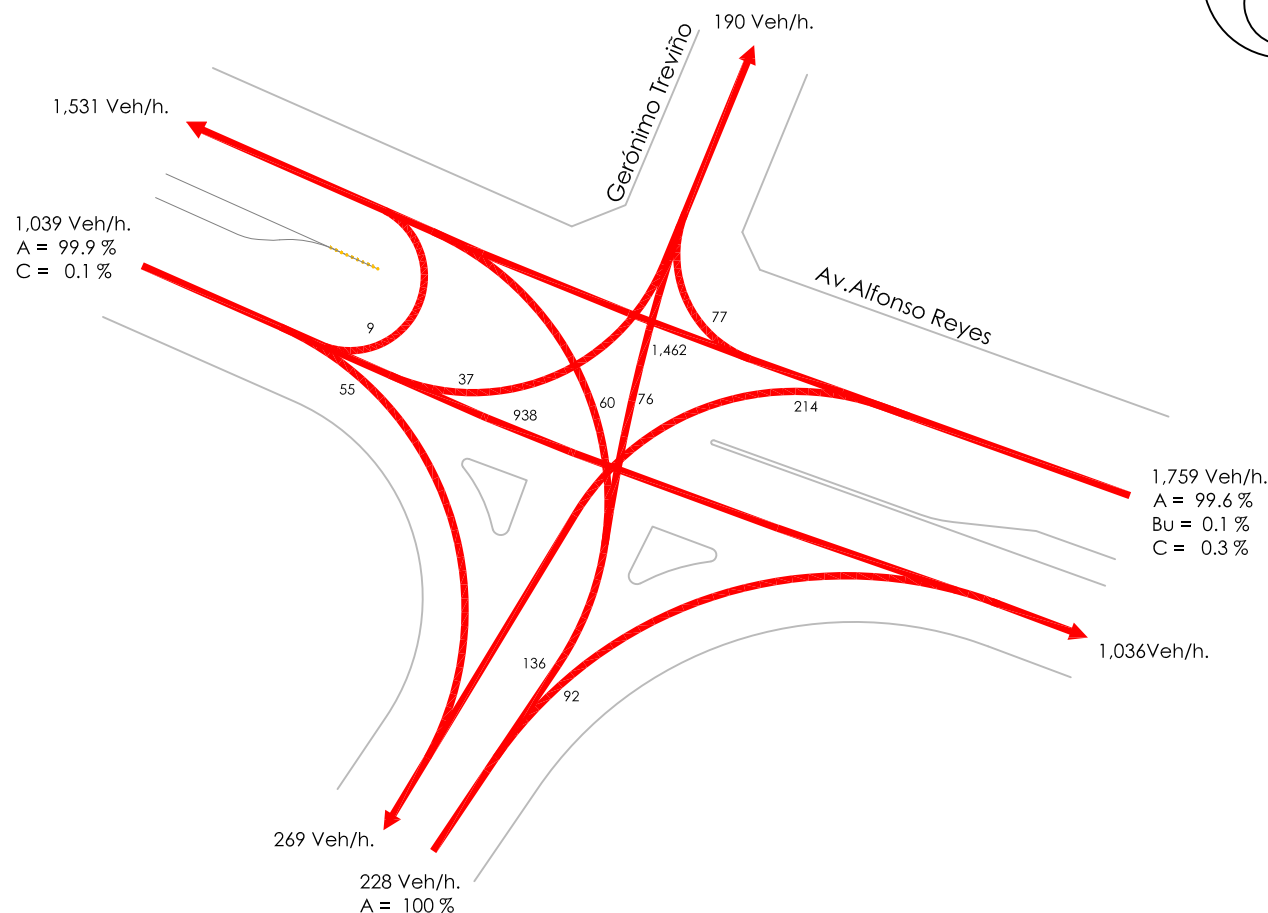
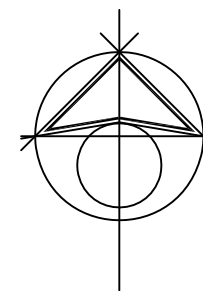
ETV- SP - 217 - AGO/21

SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 46

VOLUMENES VEHICULARES
Situación Actual

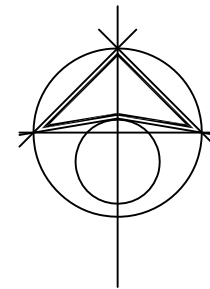


Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Viernes 14 de Febrero de 2020	17:15 - 18:15	A	99.7 %
PERÍODO	VOLUMEN TOTAL	Bu	
17:00 - 20:00	3,026 Veh/hr	C	0.3 %

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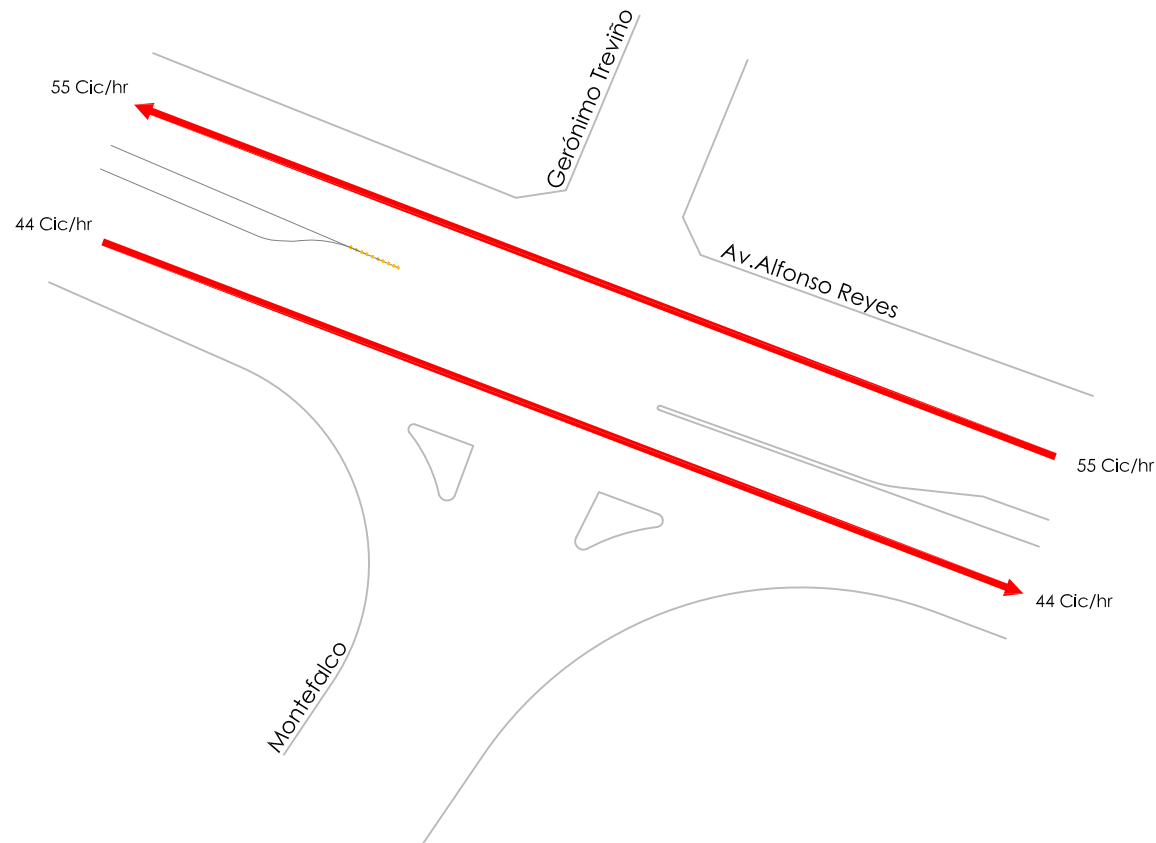
SIN ESCALA



ESTUDIO TÉCNICO VIAL

FIGURA 47

VOLUMENES CICLISTA



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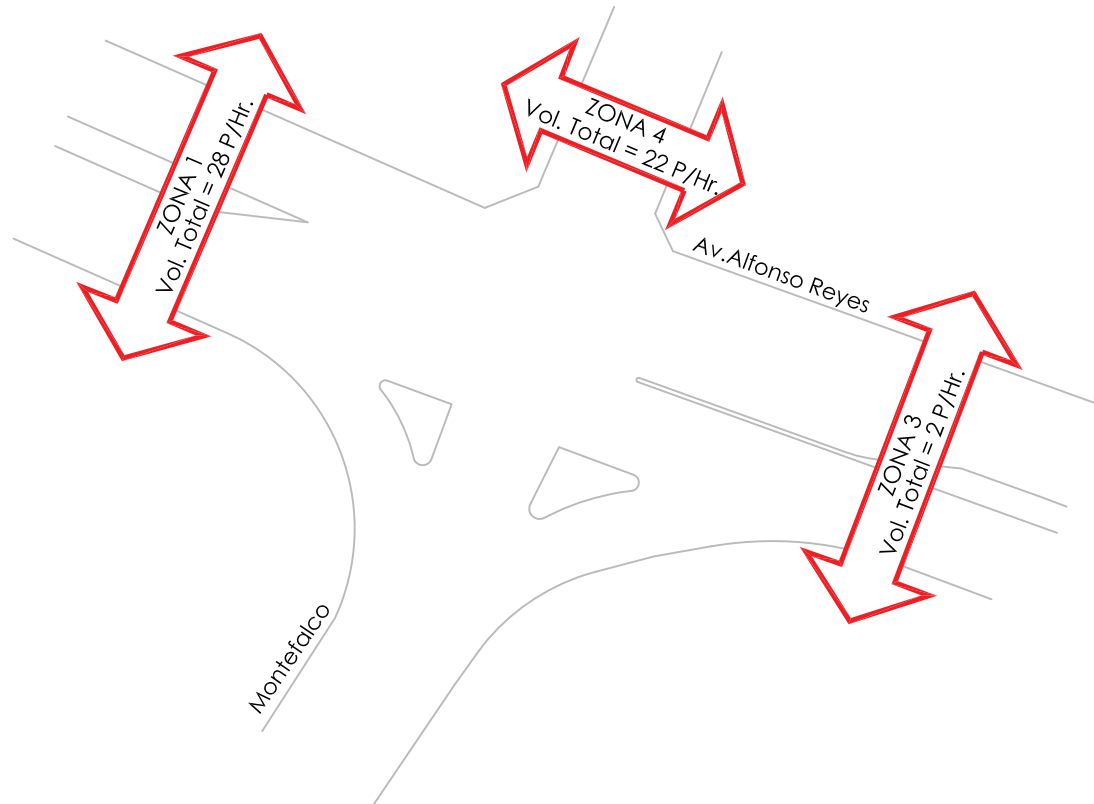
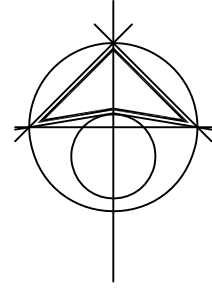
FECHA	HORA PICO
Viernes 22 de Mayo de 2020.	18:30 - 19:30
PERÍODO	VOLUMEN TOTAL
18:00 - 20:00	99 Cicl/h.

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SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 48

VOLUMENES PEATONALES



FECHA

Viernes 14 de Febrero de 2020

PERÍODO

07:00 - 10:00

HORA PICO

07:30 - 08:30

VOLUMEN TOTAL

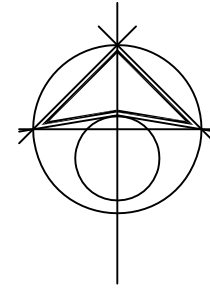
52 P/Hr.

ETV- SP - 217 - AGO/21

SIN ESCALA



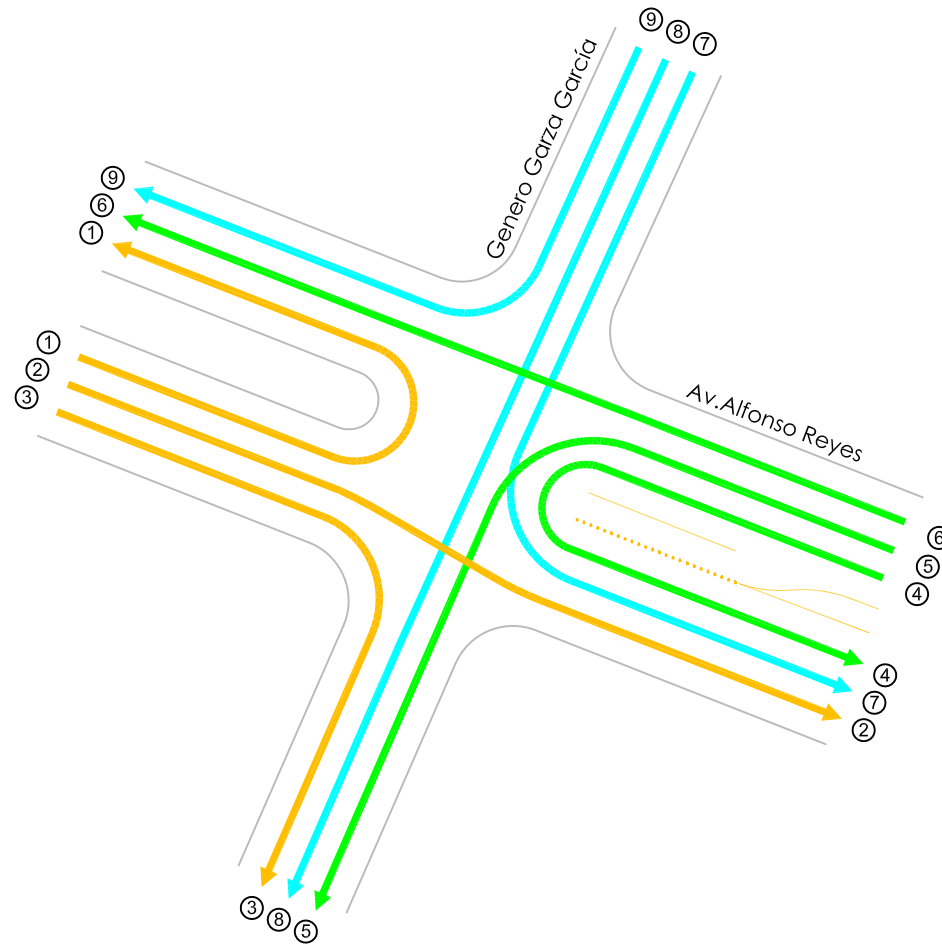
Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700



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FIGURA 49

MOVIMIENTOS DIRECCIONALES
VEHÍCULOS Y CICLISTAS



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SIN ESCALA

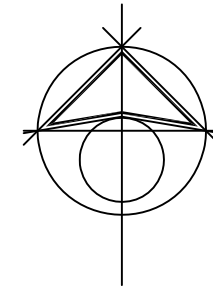
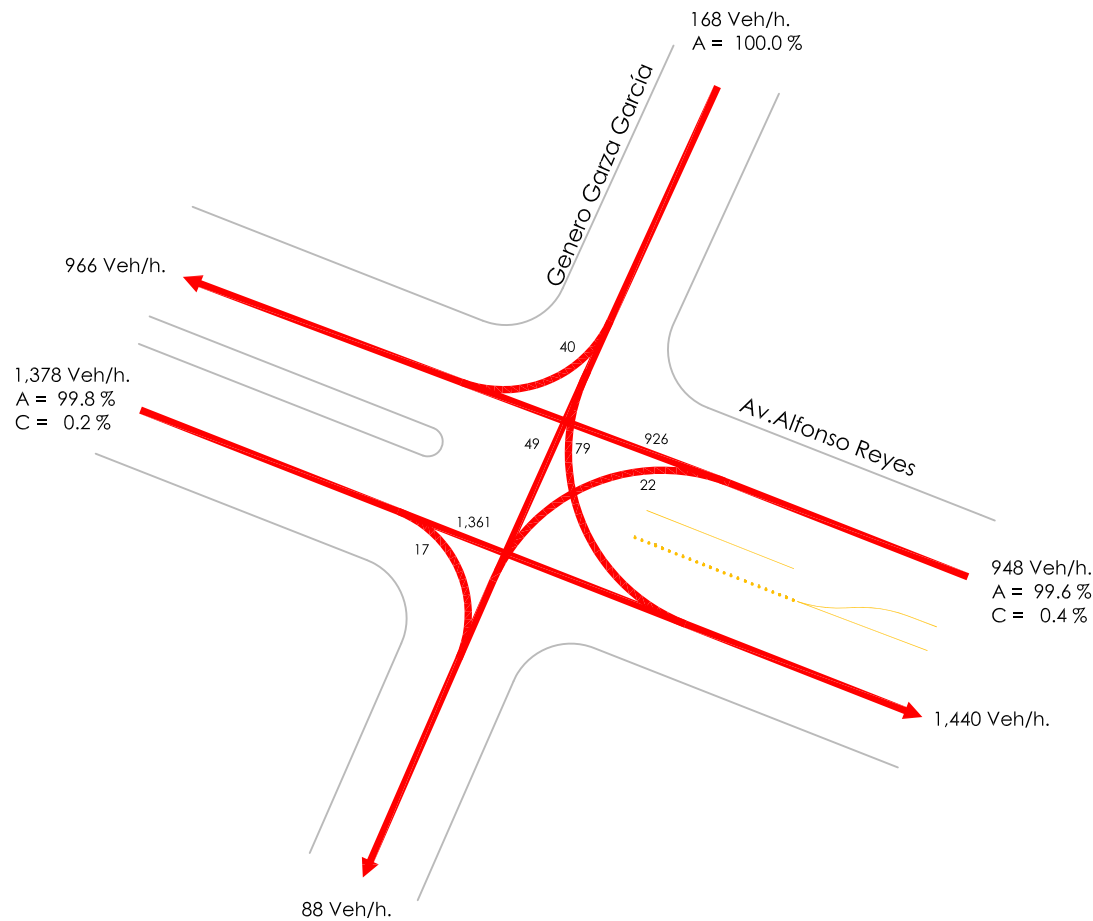


Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

ESTUDIO TÉCNICO VIAL

FIGURA 50

VOLUMENES VEHICULARES
Situación Actual



FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Viernes 14 de Febrero de 2020	08:00 - 09:00	A	99.7 %
PERÍODO	VOLUMEN TOTAL	Bu	0.0 %
07:00 - 10:00	2,494 Veh/hr.	C	0.3 %

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SIN ESCALA

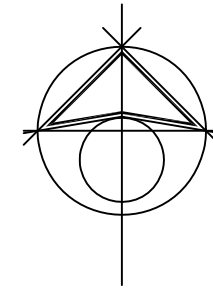
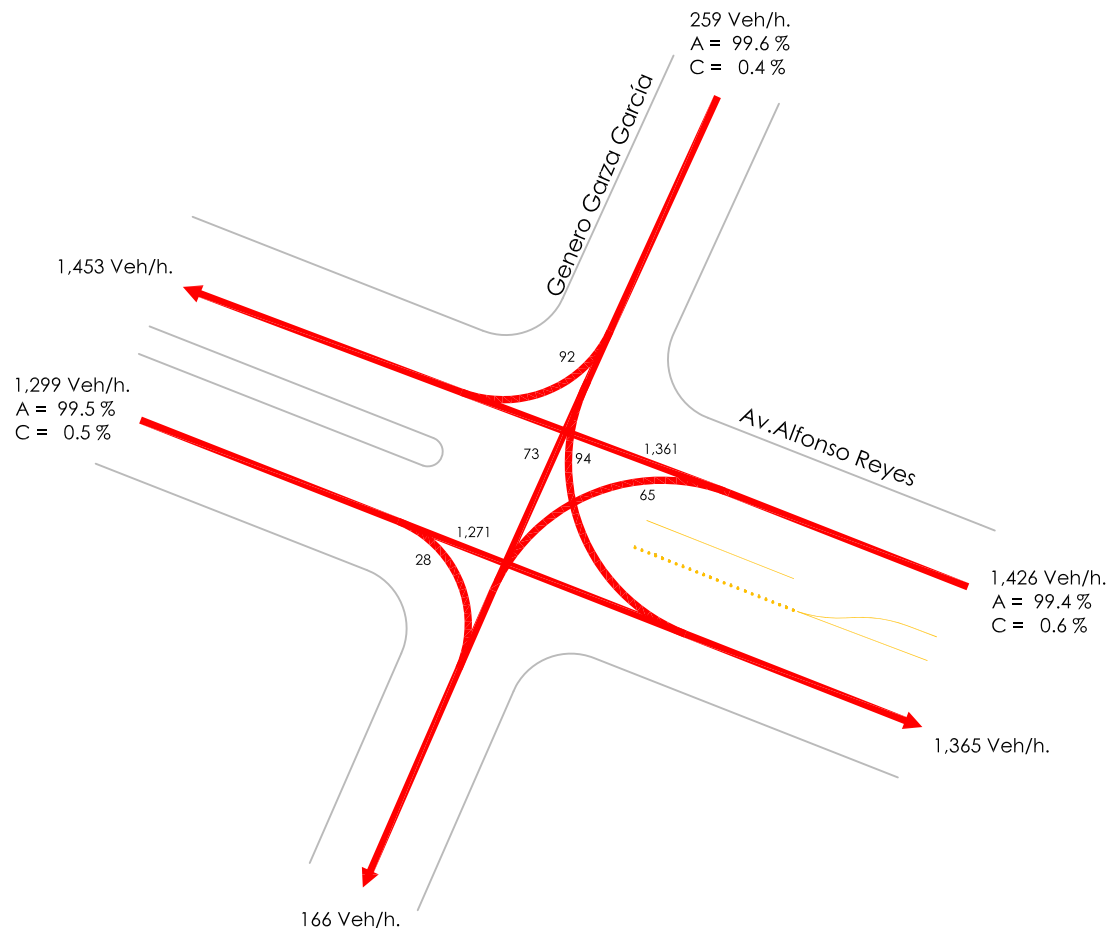


Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Mitas Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

ESTUDIO TÉCNICO VIAL

FIGURA 51

VOLUMENES VEHICULARES
Situación Actual



FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Viernes 14 de Febrero de 2020	13:30 - 14:30	A	99.5 %
PERÍODO	VOLUMEN TOTAL	Bu	0.0 %
12:00 - 15:00	2,984 Veh/hr.	C	0.5 %

ETV- SP - 217 - AGO/21

SIN ESCALA

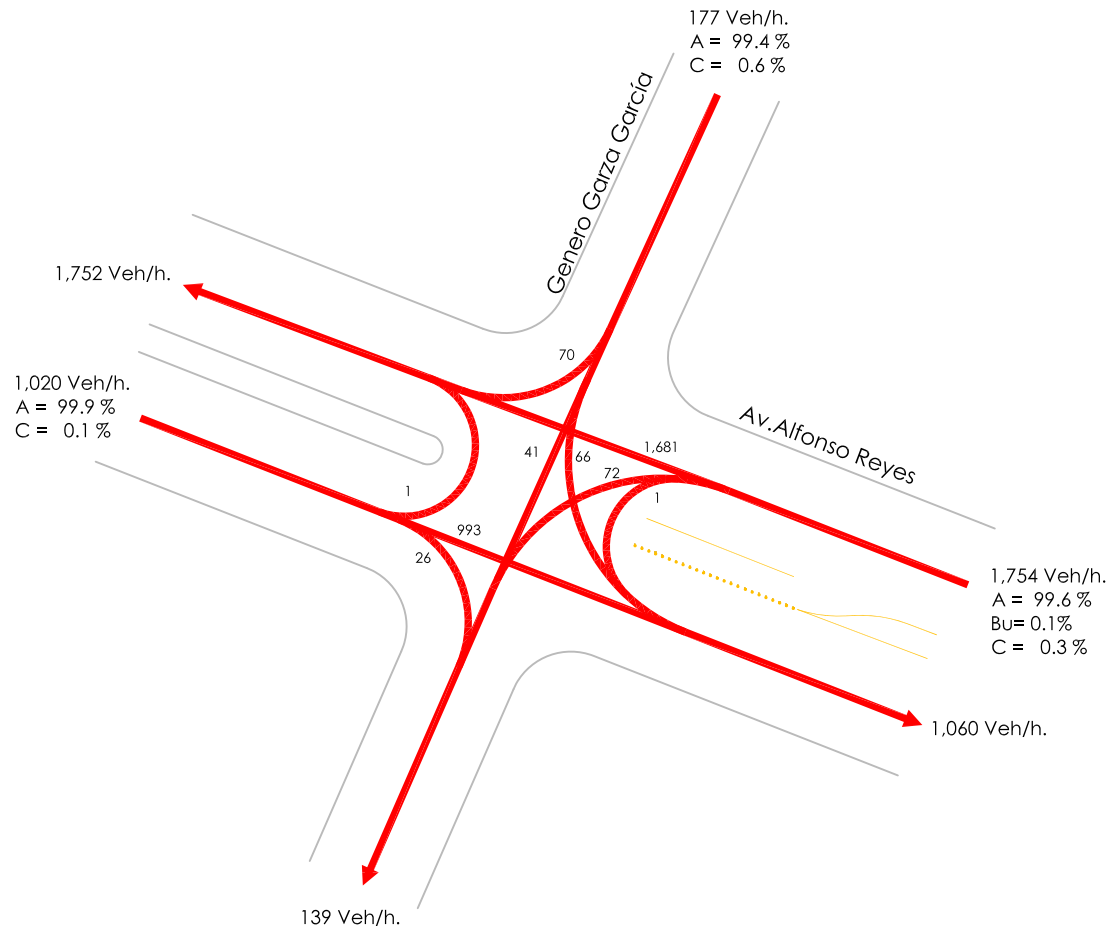
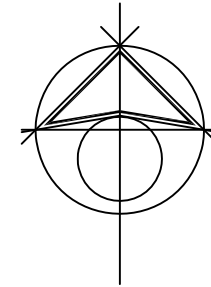


Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Mitrás Centro, Monterrey, N.L., C.P. 64460
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ESTUDIO TÉCNICO VIAL

FIGURA 52

VOLUMENES VEHICULARES
Situación Actual



FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Viernes 14 de Febrero de 2020	17:15 - 18:15	A	99.7 %
PERÍODO	VOLUMEN TOTAL	Bu	0.0 %
17:00 - 20:00	2,951 Veh/hr.	C	0.3 %

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SIN ESCALA

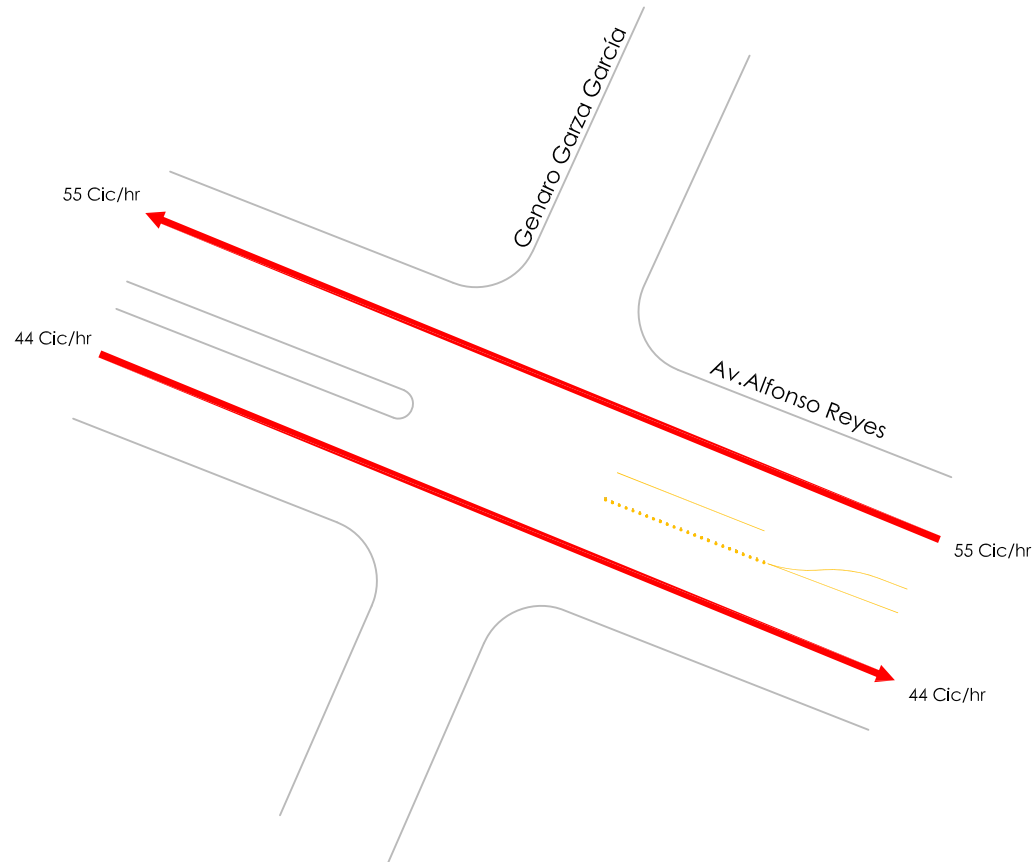
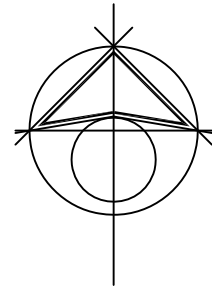


Vargas Torres y Asociados, S.A. de C.V.
 Zimapán #201 Col. Mitas Centro, Monterrey, N.L., C.P. 64460
 Tel. (81) 8346 0302 y (81) 8333 3700

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FIGURA 53

VOLUMENES CICLISTA



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Tel. (81) 8346 0302 y (81) 8333 3700

FECHA

Viernes 22 de Mayo de 2020.

HORA PICO

18:30 - 19:30

PERÍODO

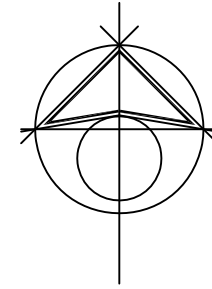
18:00 - 20:00

VOLUMEN TOTAL

99 Cicl/h.

ETV- SP - 217 - AGO/21

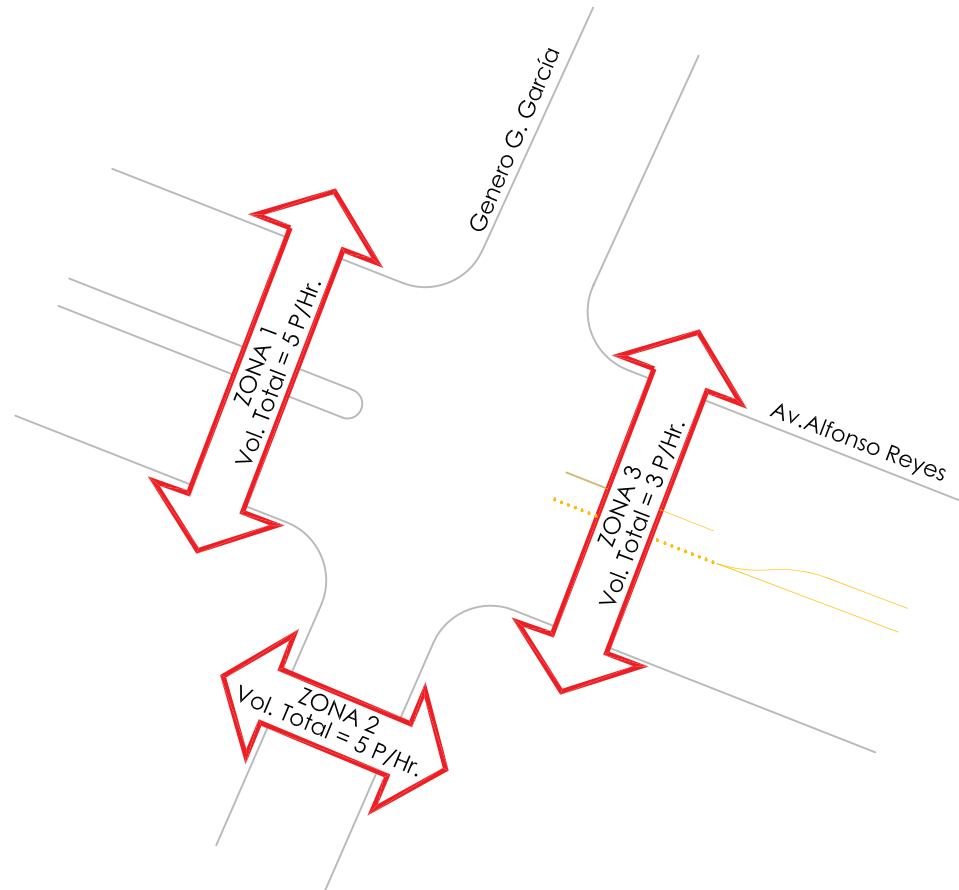
SIN ESCALA



ESTUDIO TÉCNICO VIAL

FIGURA 54

VOLUMENES PEATONALES



FECHA

Viernes 14 de Febrero de 2020

PERÍODO

17:00 - 20:00

HORA PICO

17:30 - 18:30

VOLUMEN TOTAL

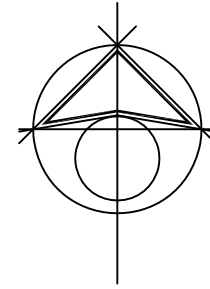
13 P/Hr.

ETV- SP - 217 - AGO/21

SIN ESCALA



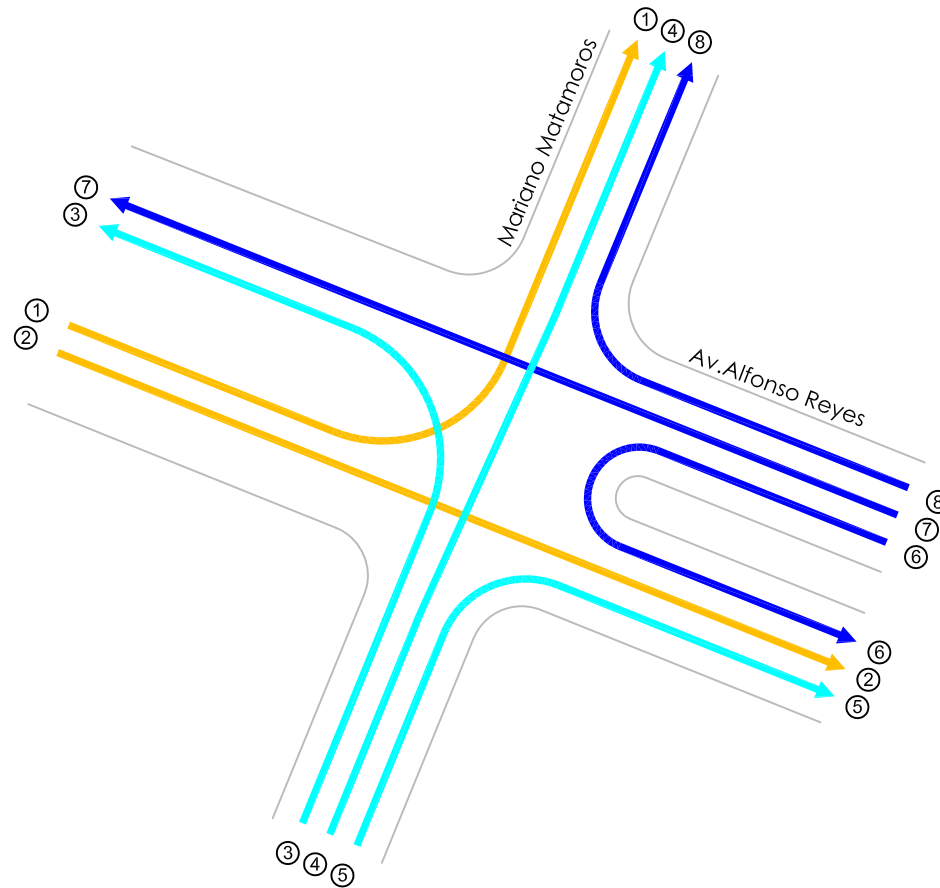
Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

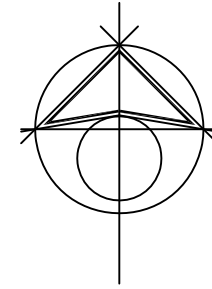


ESTUDIO TÉCNICO VIAL

FIGURA 55

MOVIMIENTOS DIRECCIONALES
VEHÍCULOS Y CICLISTAS

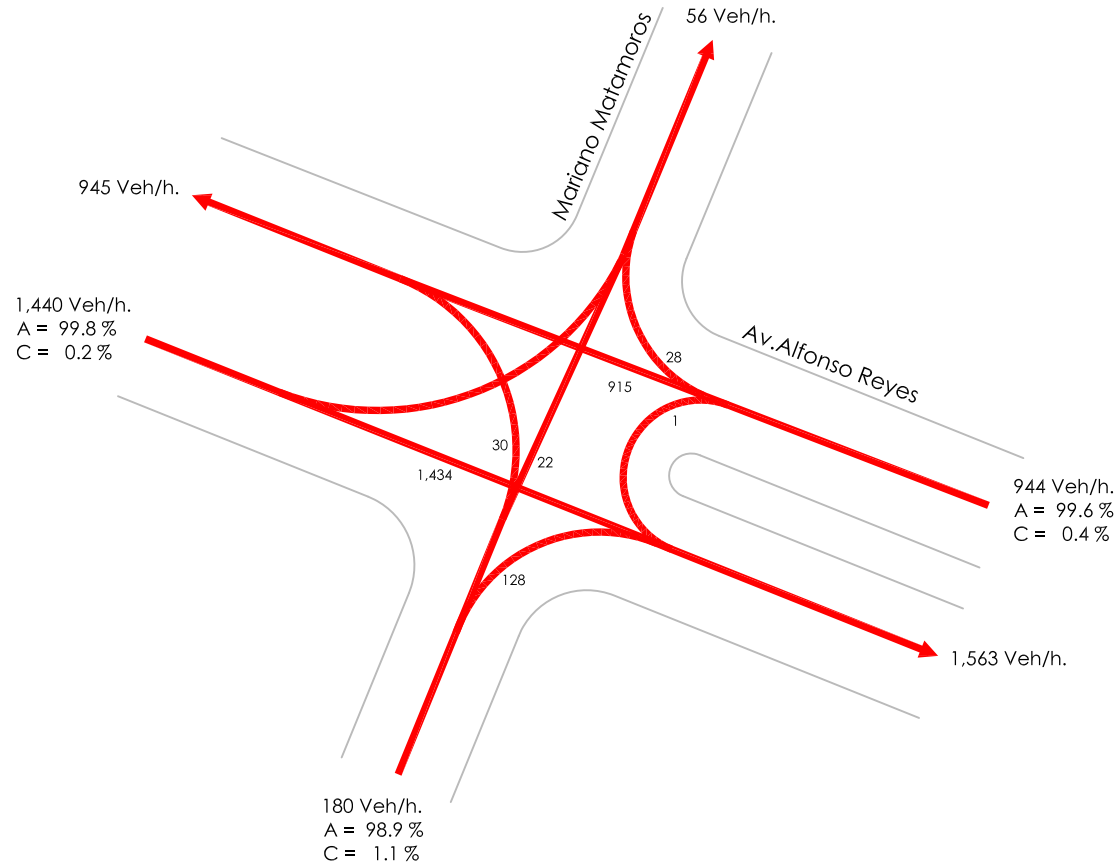




ESTUDIO TÉCNICO VIAL

FIGURA 56

VOLUMENES VEHICULARES
Situación Actual

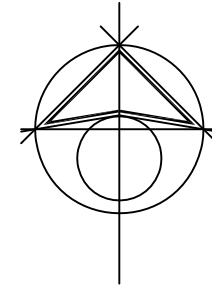


Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Viernes 14 de Febrero de 2020	08:00 - 09:00	A	99.6 %
PERÍODO	VOLUMEN TOTAL	Bu	0.0 %
07:00 - 10:00	2,564 veh/hr	C	0.4 %

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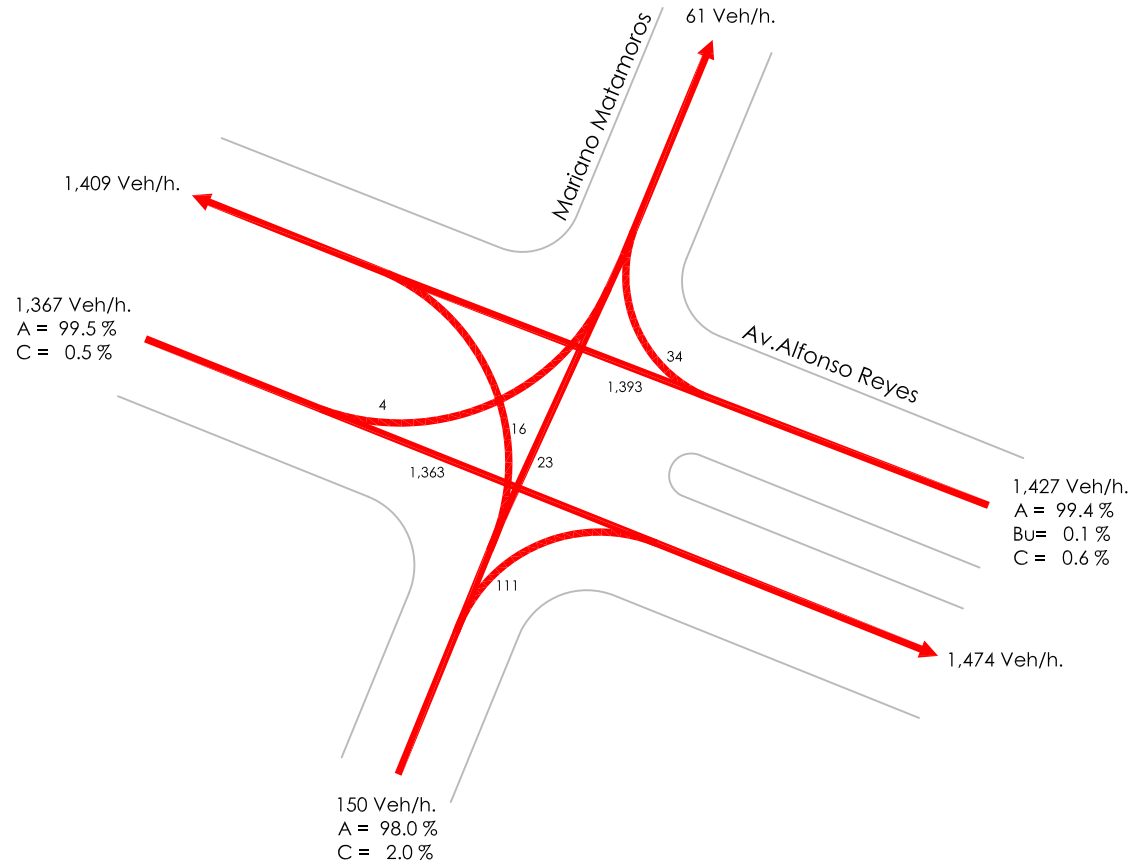
SIN ESCALA



ESTUDIO TÉCNICO VIAL

FIGURA 57

VOLUMENES VEHICULARES
Situación Actual

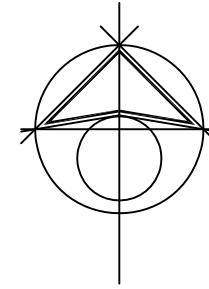


Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Viernes 14 de Febrero de 2020	13:30 - 14:30	A	99.7 %
PERÍODO	VOLUMEN TOTAL	Bu	
12:00 - 15:00	2,944 veh/hr	C	0.6 %

ETV- SP - 217 - AGO/21

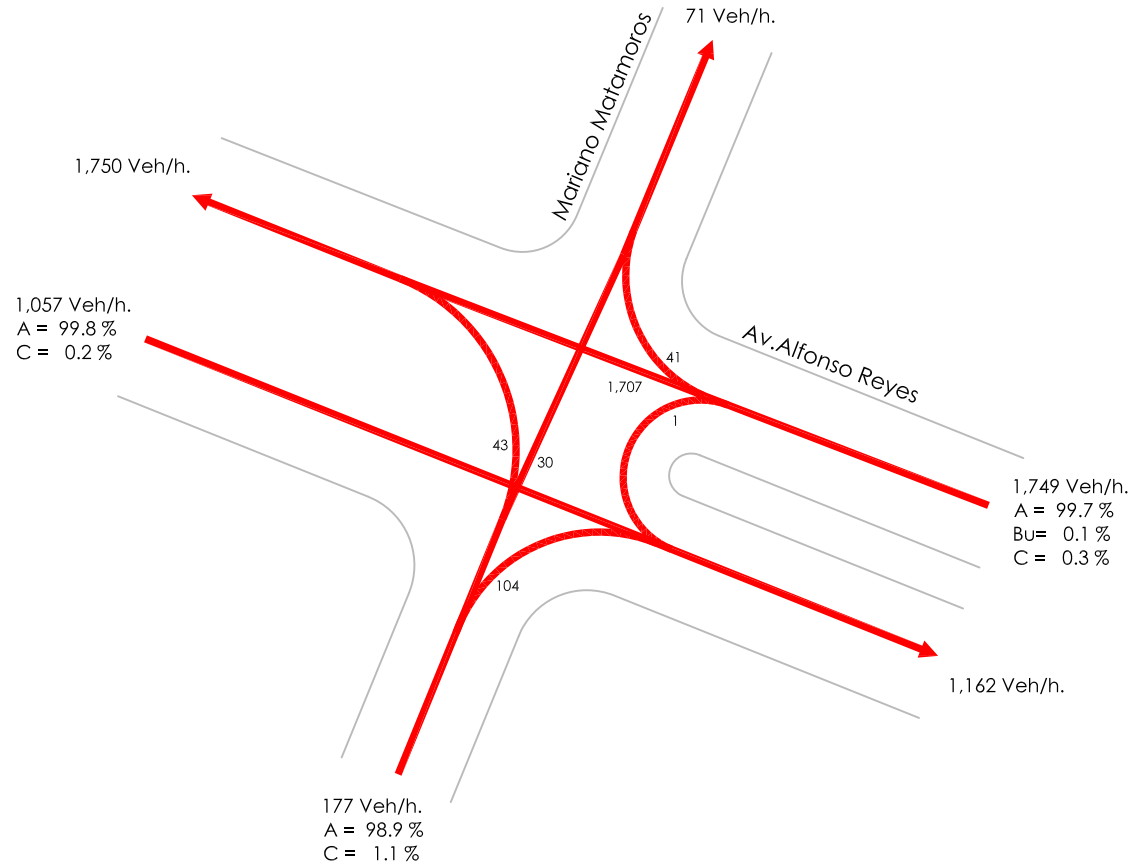
SIN ESCALA



ESTUDIO TÉCNICO VIAL

FIGURA 58

VOLUMENES VEHICULARES
Situación Actual

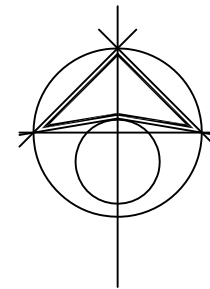


Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Viernes 14 de Febrero de 2020	17:15 - 13:30	A	99.7 %
PERÍODO	VOLUMEN TOTAL	Bu	0.0 %
17:00 - 20:00	2,983 veh/hr	C	0.3 %

ETV- SP - 217 - AGO/21

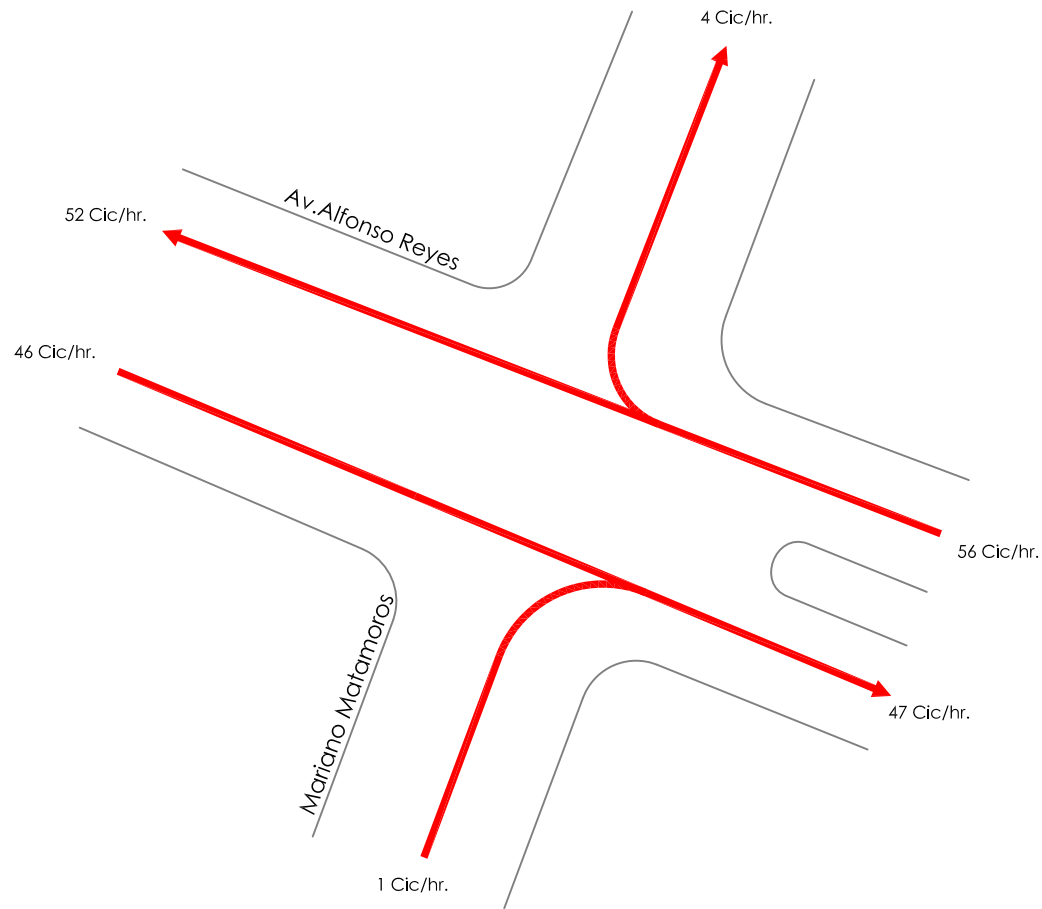
SIN ESCALA



ESTUDIO TÉCNICO VIAL

FIGURA 59

VOLUMENES CICLISTA



Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Mitras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA

Viernes 22 de Mayo de 2020.

HORA PICO

18:45 - 19:45

PERÍODO

18:00 - 20:00

VOLUMEN TOTAL

103 Cicl/h.

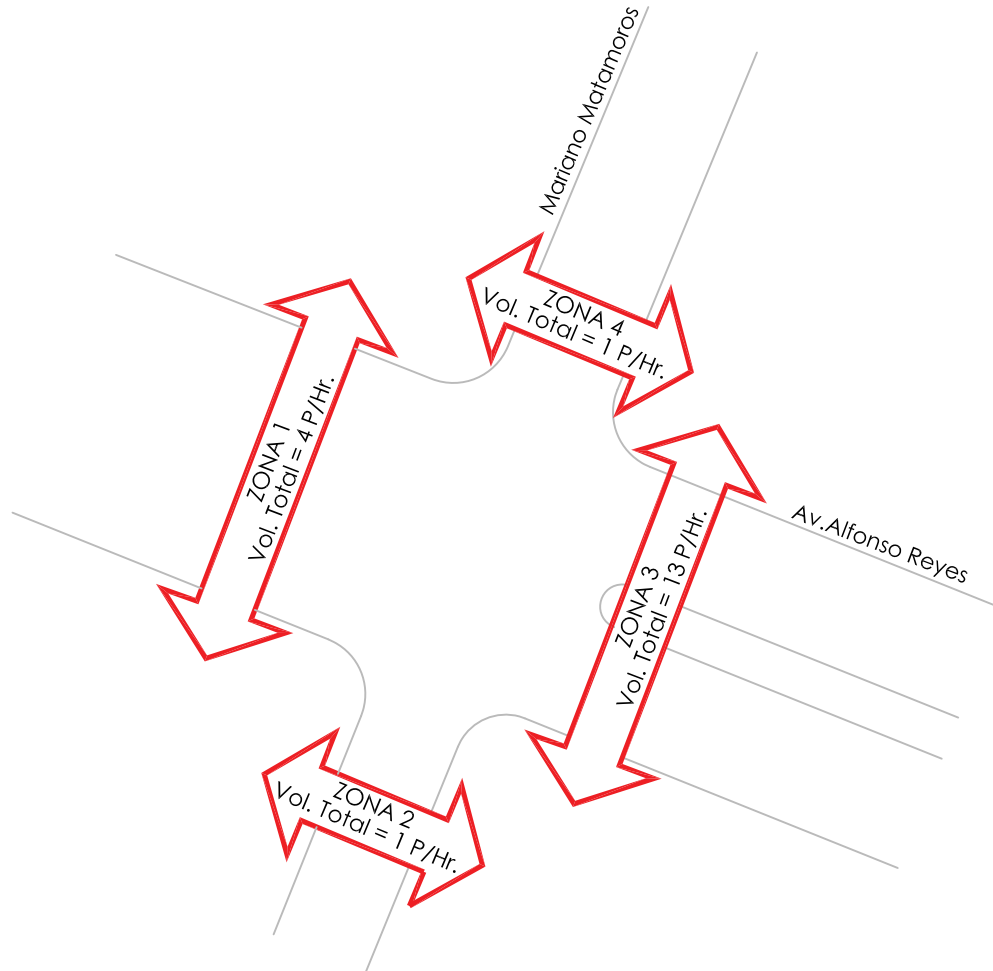
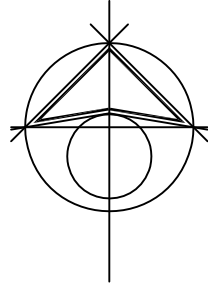
ETV- SP - 217 - AGO/21

SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 60

VOLUMENES PEATONALES



FECHA

Viernes 14 de Febrero de 2020

PERÍODO

07:00 - 10:00

HORA PICO

07:30 - 08:30

VOLUMEN TOTAL

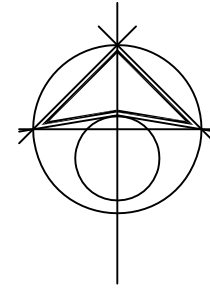
19 P/Hr.

ETV- SP - 217 - AGO/21

SIN ESCALA



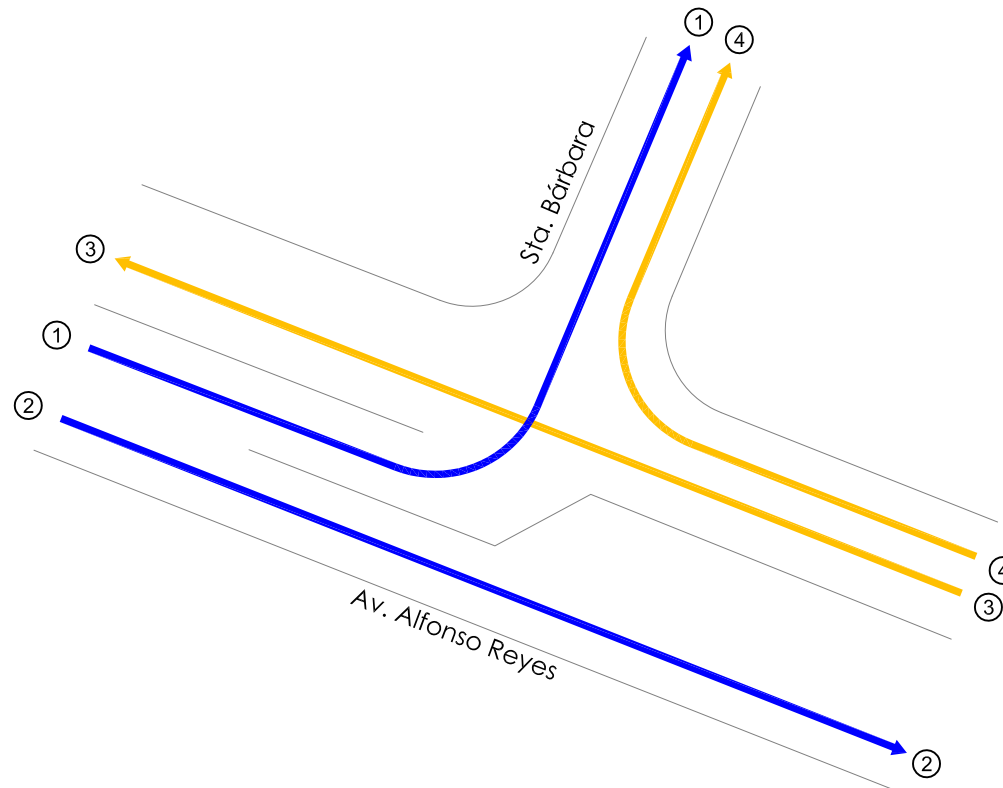
Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
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ESTUDIO TÉCNICO VIAL

FIGURA 61

MOVIMIENTOS DIRECCIONALES
VEHÍCULOS Y CICLISTAS

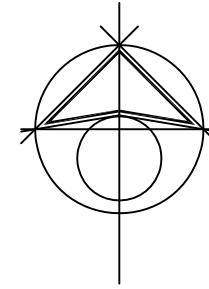


ETV- SP - 217 - AGO/21

SIN ESCALA



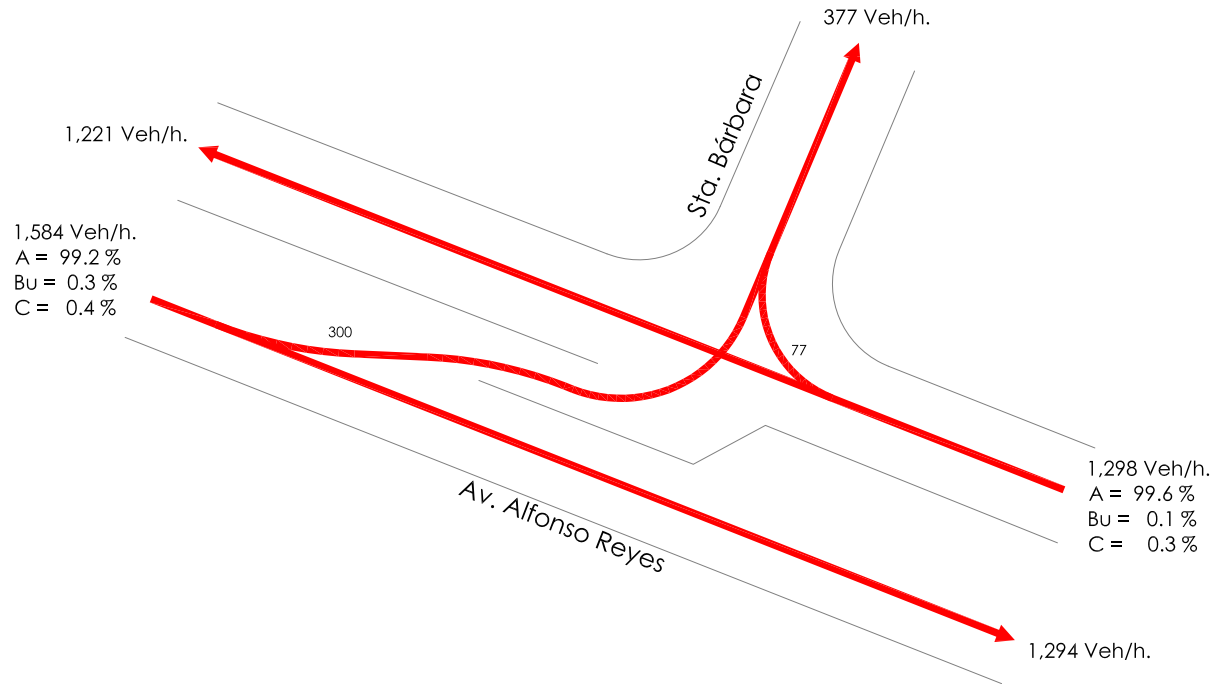
Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L. C.P. 64460
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ESTUDIO TÉCNICO VIAL

FIGURA 62

VOLUMENES VEHICULARES
Situación Actual



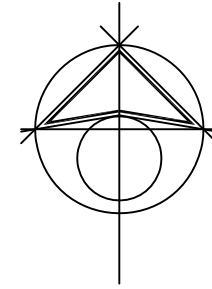
FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Miércoles 14 de Julio de 2021	07:45 - 08:45	A	99.4 %
PERÍODO	VOLUMEN TOTAL	Bu	
07:00 - 10:00	2,892 veh/hr	C	0.4 %

ETV- SP - 217 - AGO/21

SIN ESCALA



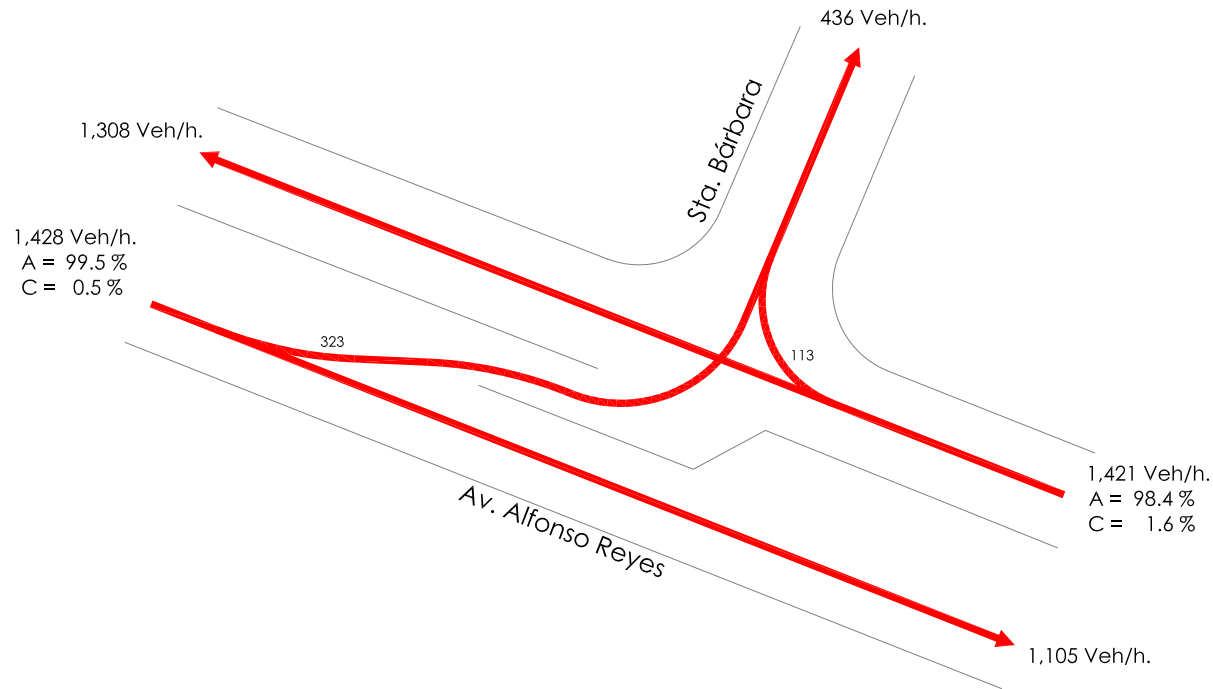
Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700



ESTUDIO TÉCNICO VIAL

FIGURA 63

VOLUMENES VEHICULARES
Situación Actual



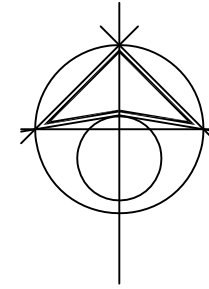
FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Miércoles 14 de Julio de 2021	13:30 - 14:30	A	98.9 %
PERÍODO	VOLUMEN TOTAL	Bu	0.0 %
12:00 - 15:00	2,849 veh/hr	C	1.1 %

ETV- SP - 217 - AGO/21

SIN ESCALA



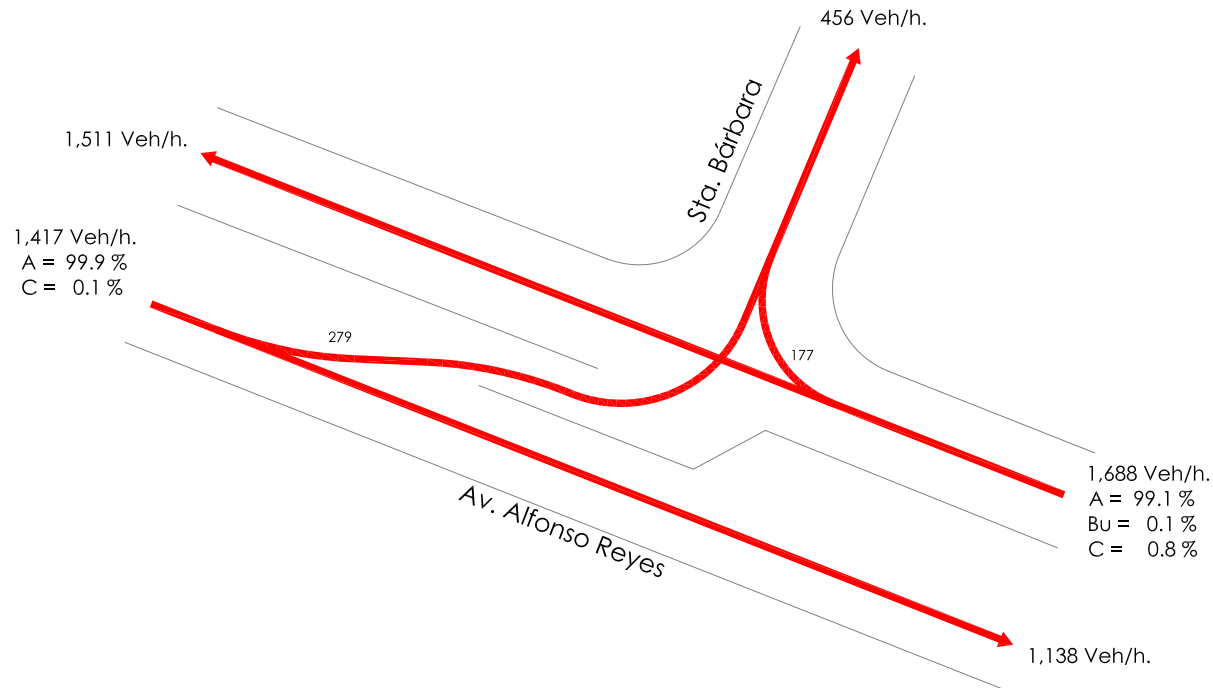
Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700



ESTUDIO TÉCNICO VIAL

FIGURA 64

VOLUMENES VEHICULARES
Situación Actual



FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Miércoles 14 de Julio de 2021	17:00 - 18:00	A	99.5 %
PERÍODO	VOLUMEN TOTAL	Bu	
17:00 - 20:00	3,105 veh/hr	C	0.5 %

ETV- SP - 217 - AGO/21

SIN ESCALA

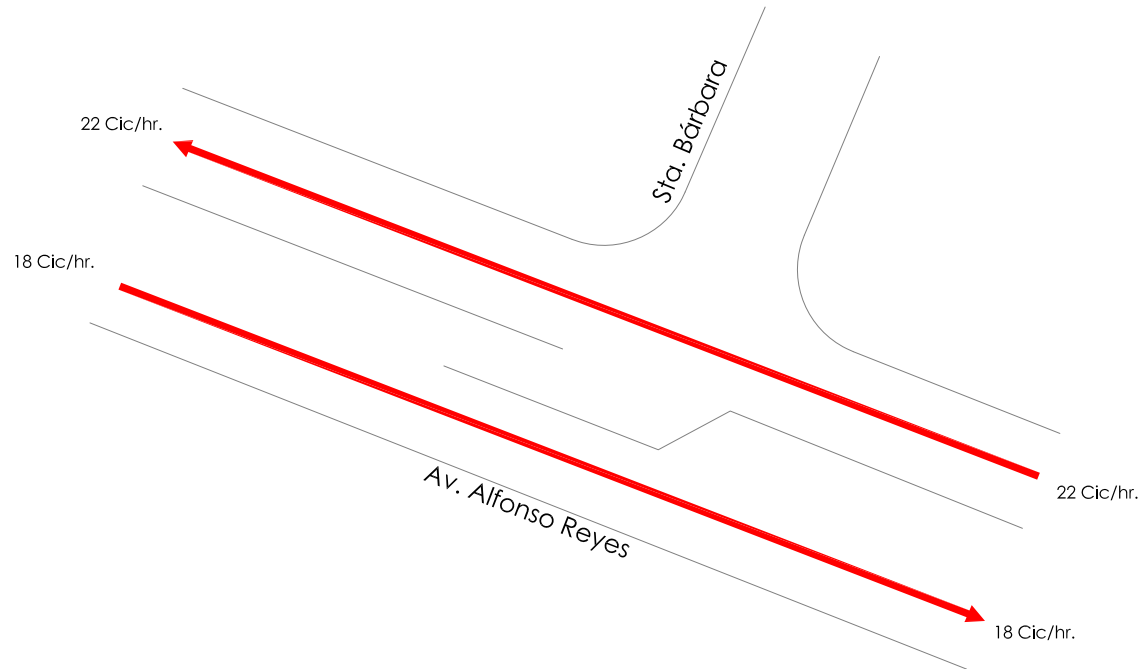
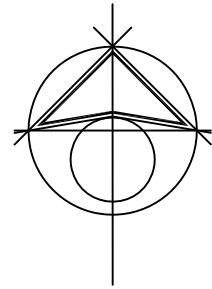


Vargas Torres y Asociados, S.A. de C.V.
Zimapan # 201 Col. Mitrás Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

ESTUDIO TÉCNICO VIAL

FIGURA 65

VOLUMENES CICLISTA



Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA

Miércoles 14 de Julio de 2021

HORA PICO

18:45 - 19:45

PERÍODO

18:00 - 20:00

VOLUMEN TOTAL

40 Cic/hr.

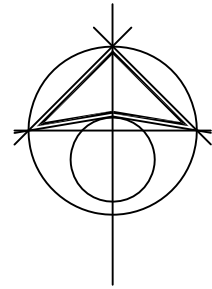
ETV- SP - 217 - AGO/21

SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 66

VOLUMENES PEATONALES



FECHA

Miércoles 14 de Julio de 2021

PERÍODO

12:00 - 15:00

HORA PICO

12:00 - 13:00

VOLUMEN TOTAL

3 P/Hr.

ETV- SP - 217 - AGO/21

SIN ESCALA



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Tel. (81) 8346 0302 y (81) 8333 3700

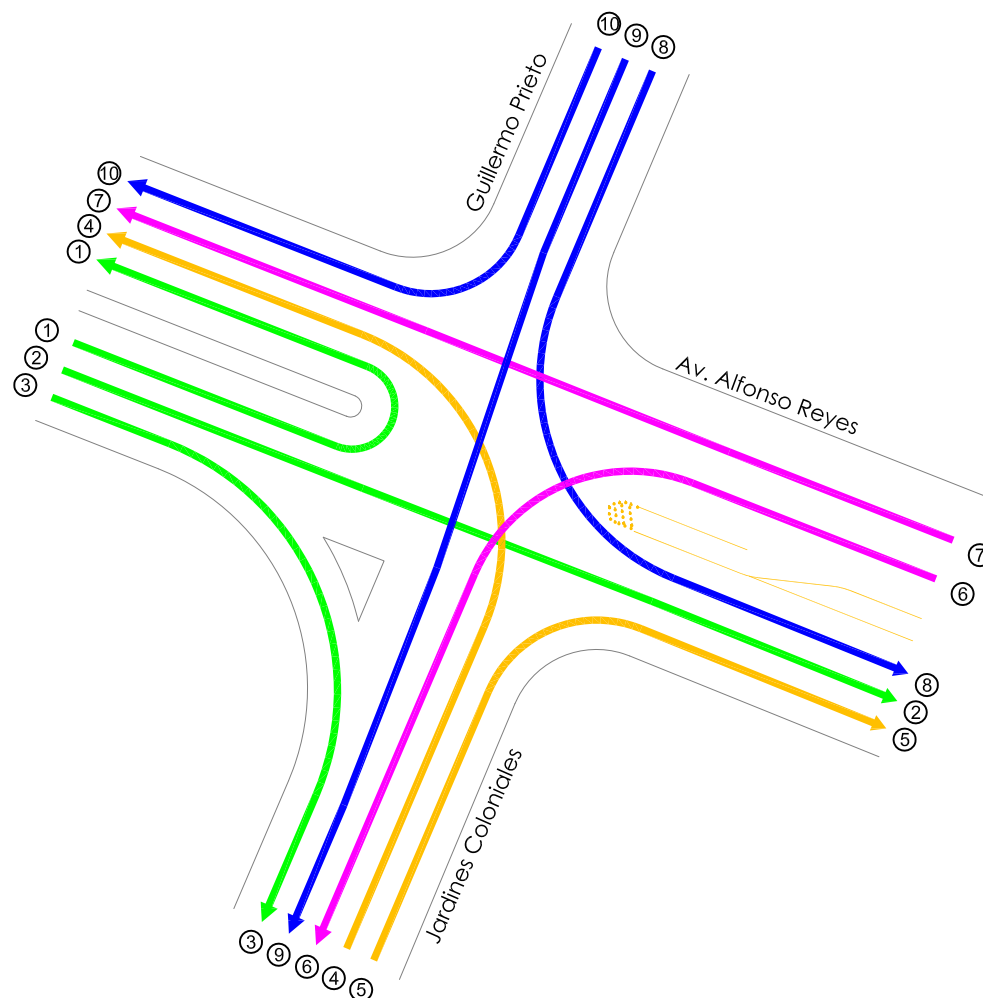
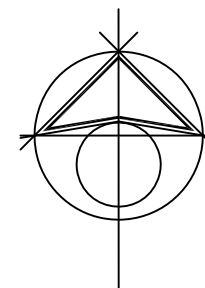


Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

ESTUDIO TÉCNICO VIAL

FIGURA 67

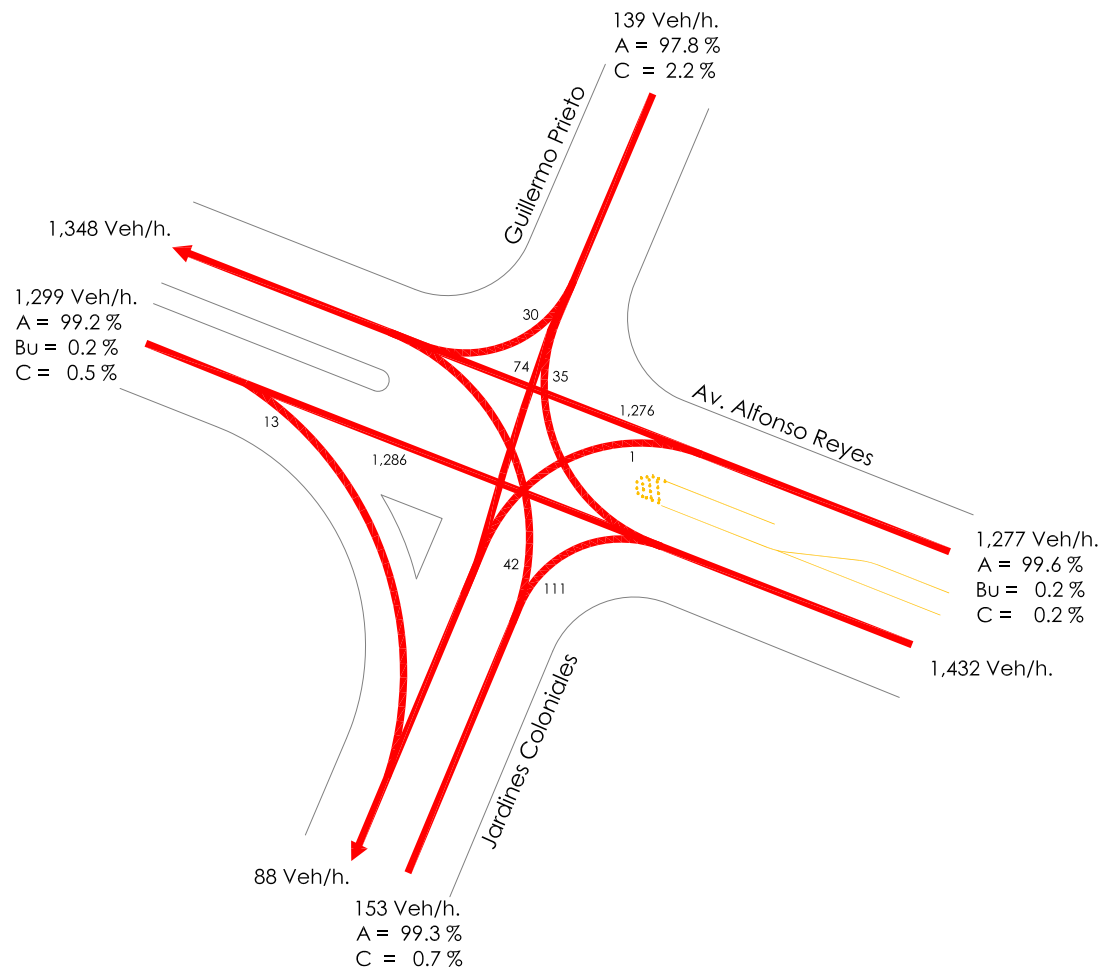
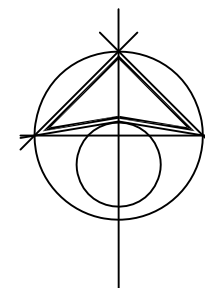
MOVIMIENTOS DIRECCIONALES
VEHÍCULOS Y CICLISTAS



ESTUDIO TÉCNICO VIAL

FIGURA 68

VOLUMENES VEHICULARES
Situación Actual



Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Miércoles 12 de Febrero de 2020	07:15 -08:15	A	99.3 %
PERÍODO	VOLUMEN TOTAL	Bu	C
07:00 - 10:00	2,868 Veh./hr.	0.2 %	0.5 %

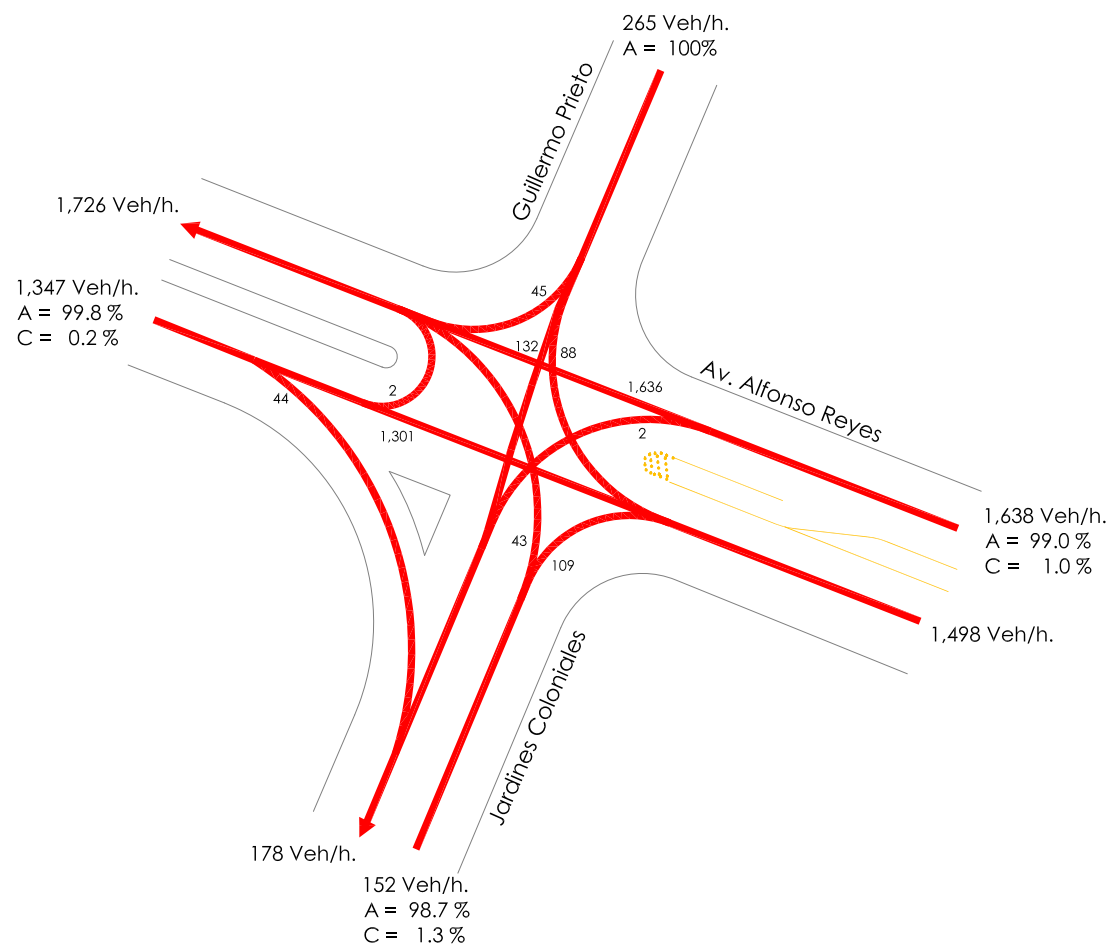
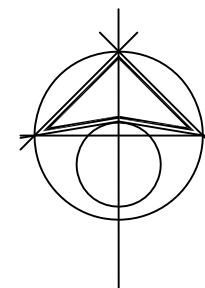
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ESTUDIO TÉCNICO VIAL

FIGURA 69

VOLUMENES VEHICULARES
Situación Actual



FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Miércoles 12 de Febrero de 2020	13:30 - 14:30	A	99.2 %
PERÍODO	VOLUMEN TOTAL	Bu	0.0 %
12:00 - 15:00	3,402 Veh./hr.	C	0.8 %

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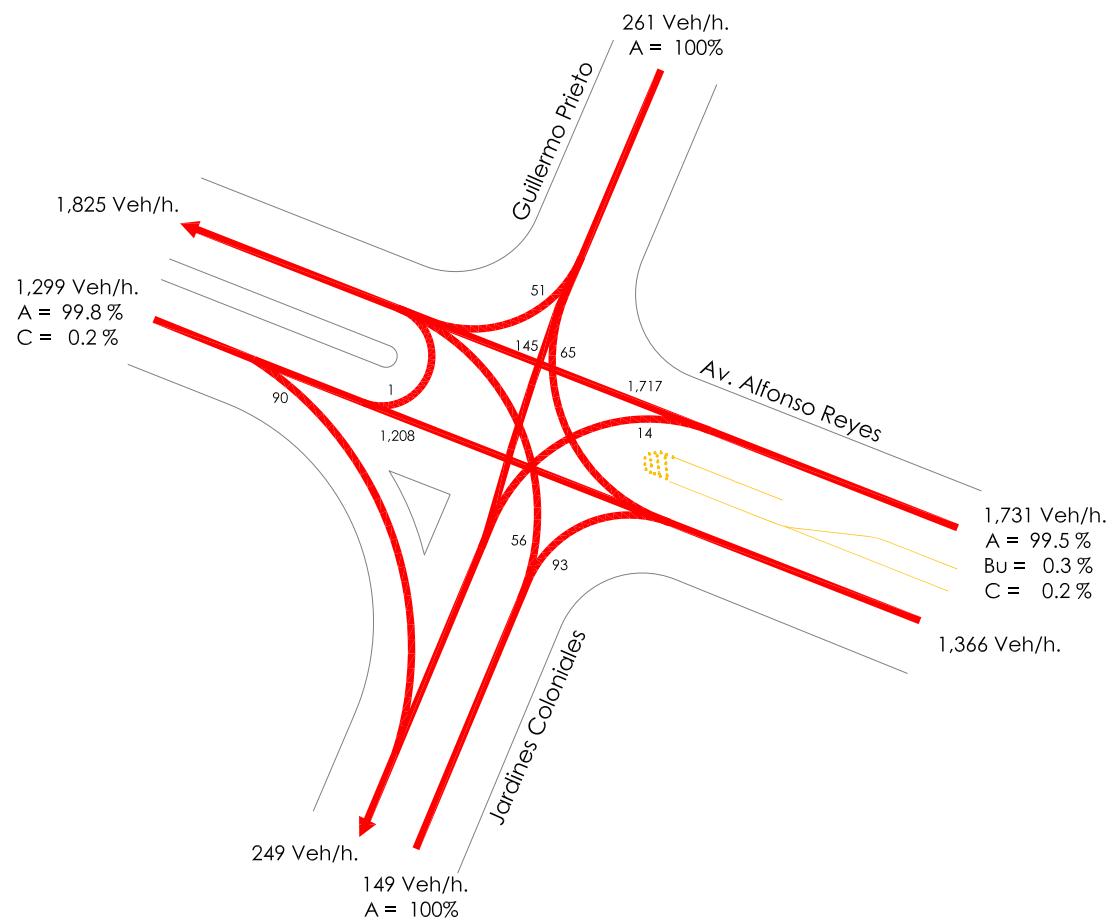
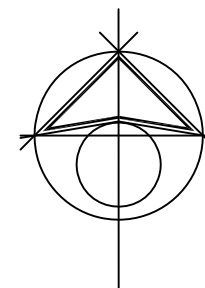


Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

ESTUDIO TÉCNICO VIAL

FIGURA 70

VOLUMENES VEHICULARES
Situación Actual



Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Miércoles 12 de Febrero de 2020	18:30 - 19:30	A	99.7 %
PERÍODO	VOLUMEN TOTAL	Bu	C
17:00 - 20:00	3,440 Veh./hr.	0.1 %	0.1 %

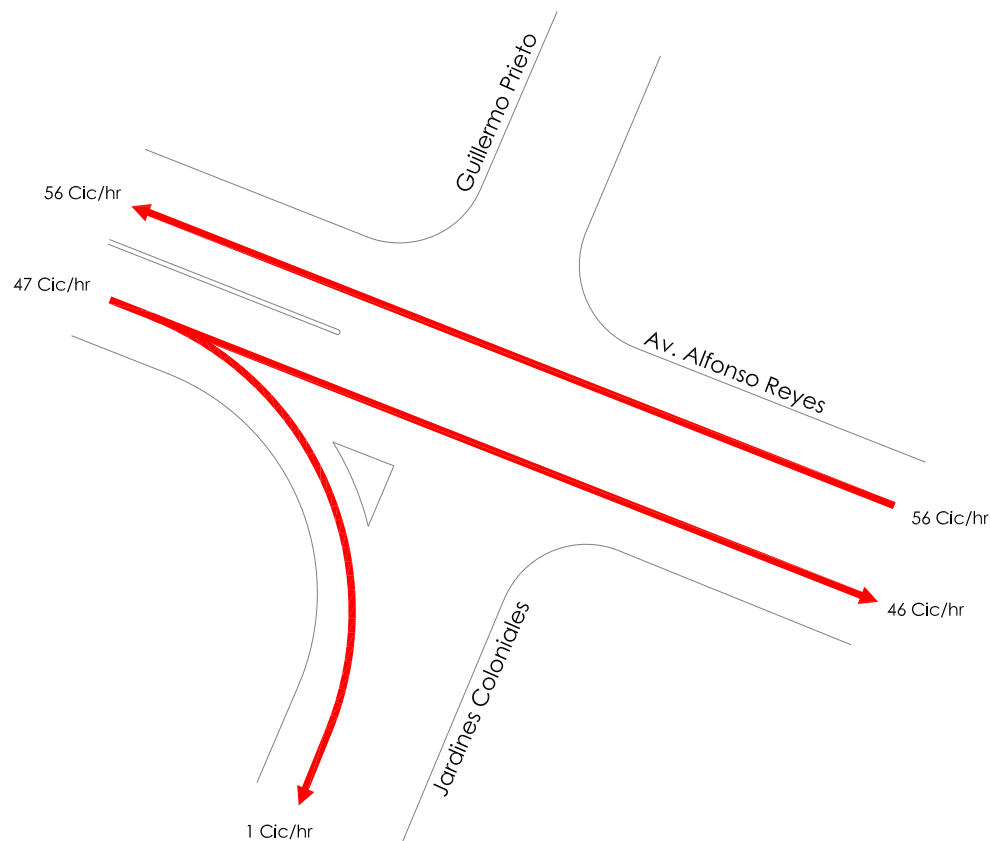
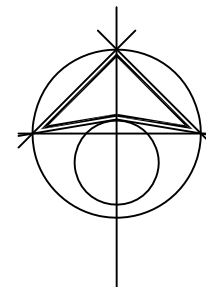
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FIGURA 71

VOLUMENES CICLISTA



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Tel. (81) 8346 0302 y (81) 8333 3700

FECHA

Viernes 22 de Mayo de 2020

HORA PICO

18:45 - 19:45

PERÍODO

18:00 - 20:00

VOLUMEN TOTAL

104 Cic/hr.

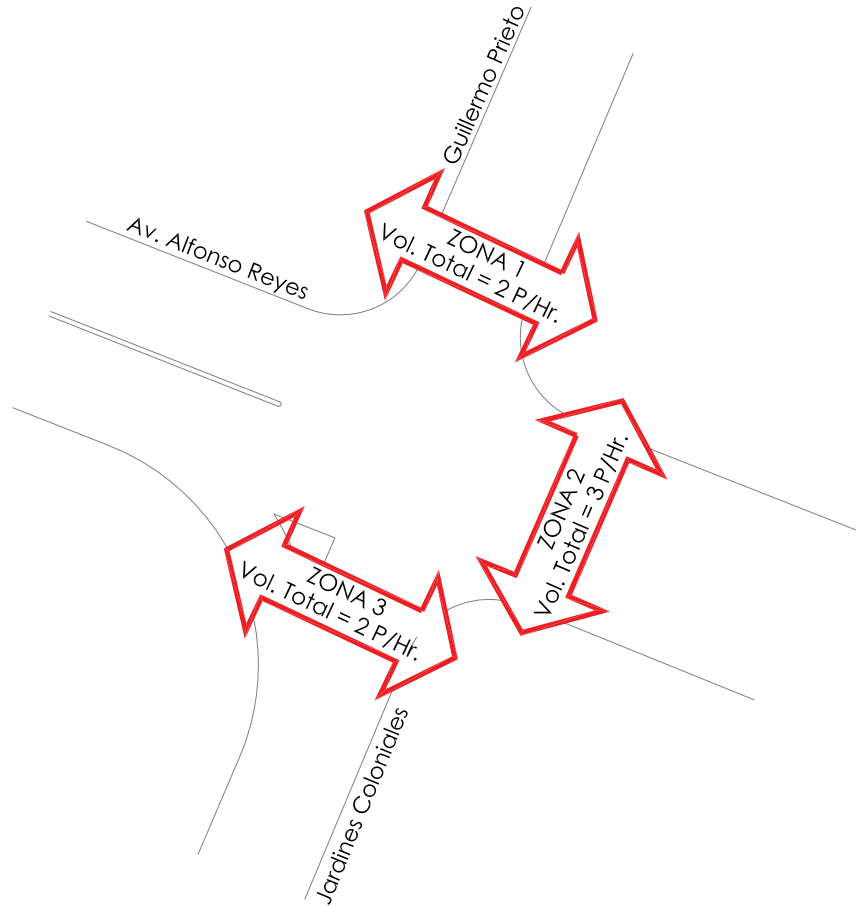
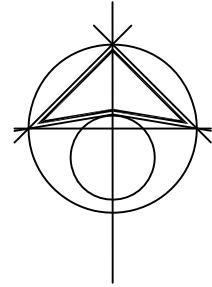
ETV- SP - 217 - AGO/21

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ESTUDIO TÉCNICO VIAL

FIGURA 72

VOLUMENES PEATONALES
Situación Actual



FECHA

Miércoles 12 de Febrero de 2020

PERÍODO

07:00 - 10:00

HORA PICO

07:45 - 08:45

VOLUMEN TOTAL

7 P/Hr.

ETV- SP - 217 - AGO/21

SIN ESCALA

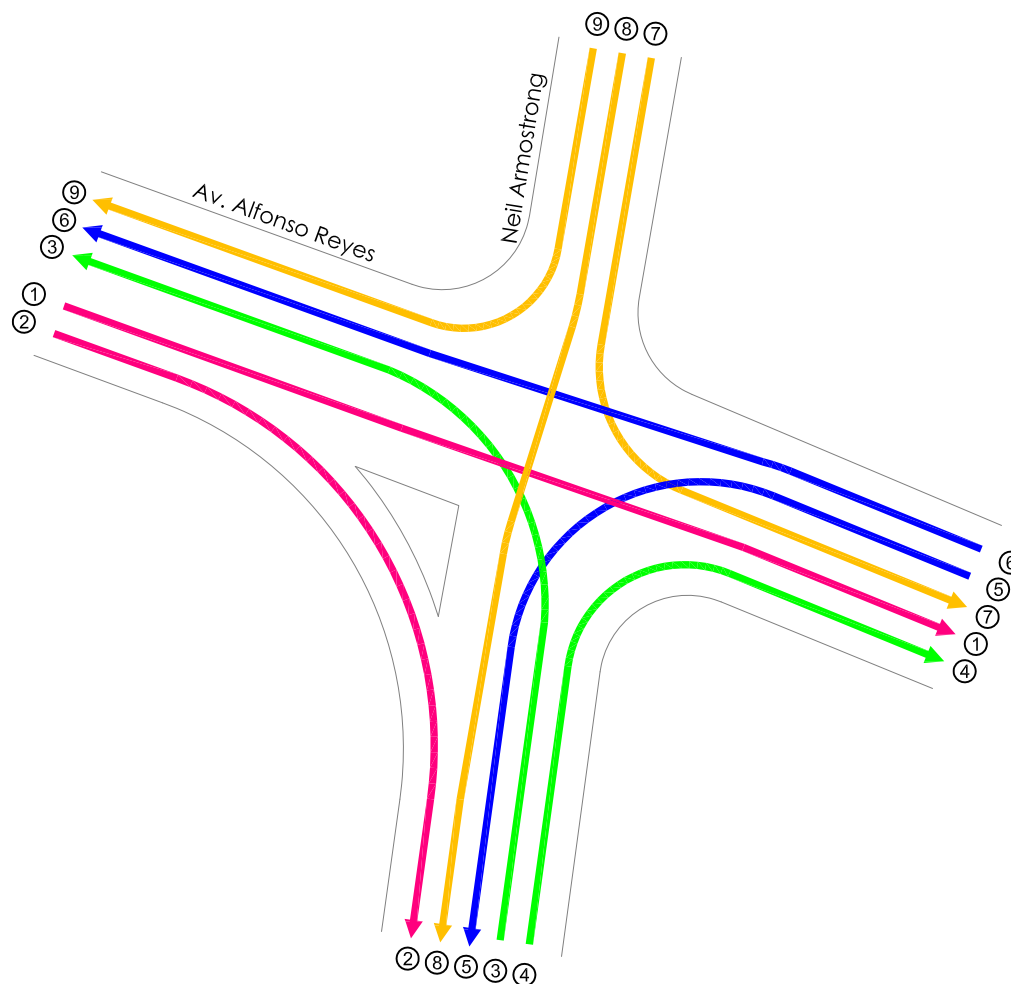
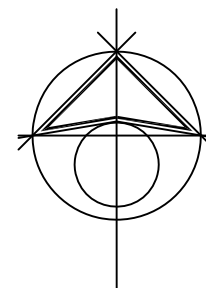


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ESTUDIO TÉCNICO VIAL

FIGURA 73

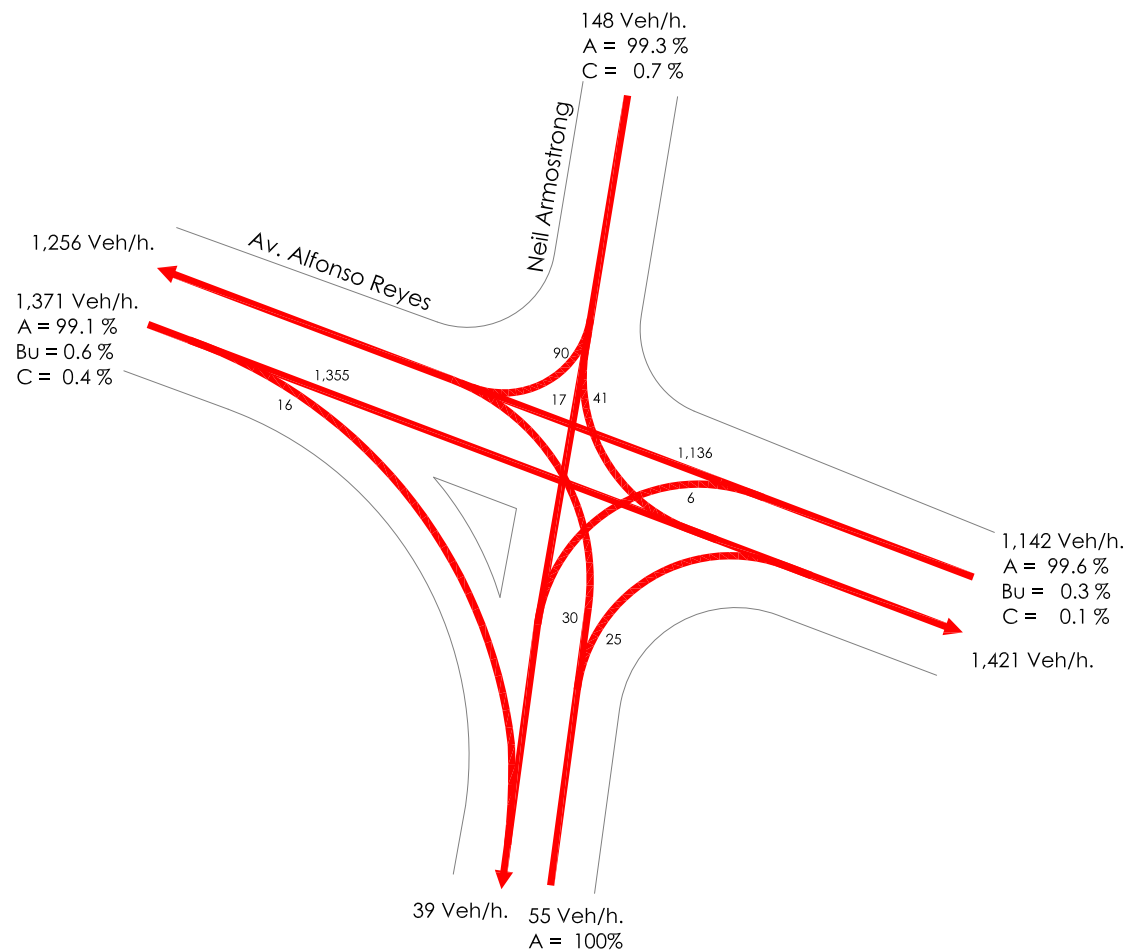
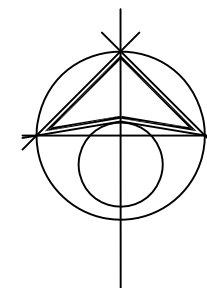
MOVIMIENTOS DIRECCIONALES
VEHÍCULOS Y CICLISTAS



ESTUDIO TÉCNICO VIAL

FIGURA 74

VOLUMENES VEHICULARES
Situación Actual



Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Miércoles 12 de Febrero de 2020	07:15 - 08:15	A	99.3 %
PERÍODO	VOLUMEN TOTAL	Bu	C
07:00 - 10:00	2,716 Veh./hr.	0.4 %	0.3 %

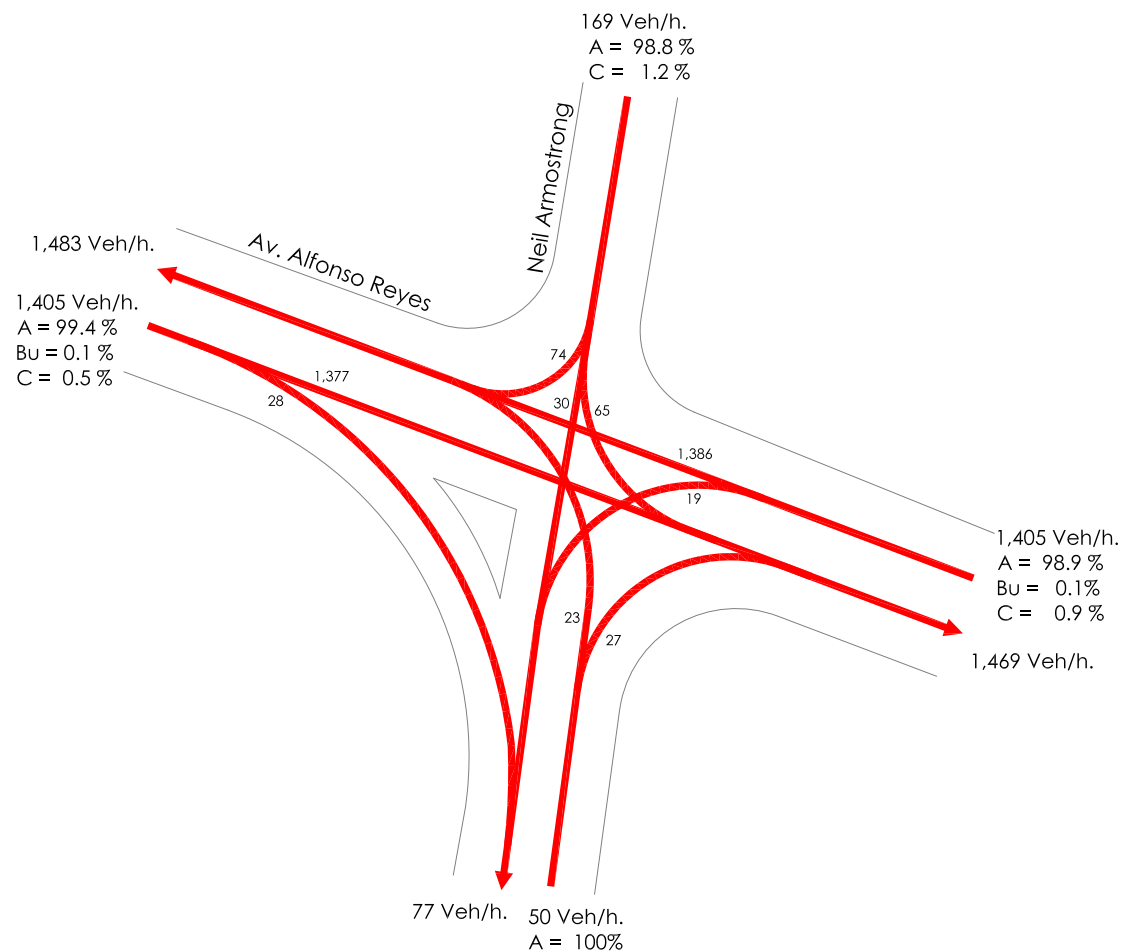
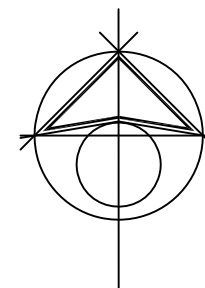
ETV- SP - 217 - AGO/21

SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 75

VOLUMENES VEHICULARES
Situación Actual



Vargas Torres y Asociados, S.A. de C.V.
Zimapán #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Miércoles 12 de Febrero de 2020	13:15 - 14:15	A	99.2 %
PERÍODO	VOLUMEN TOTAL	Bu	0.1 %
12:00 - 15:00	3,029 Veh./hr.	C	0.7 %

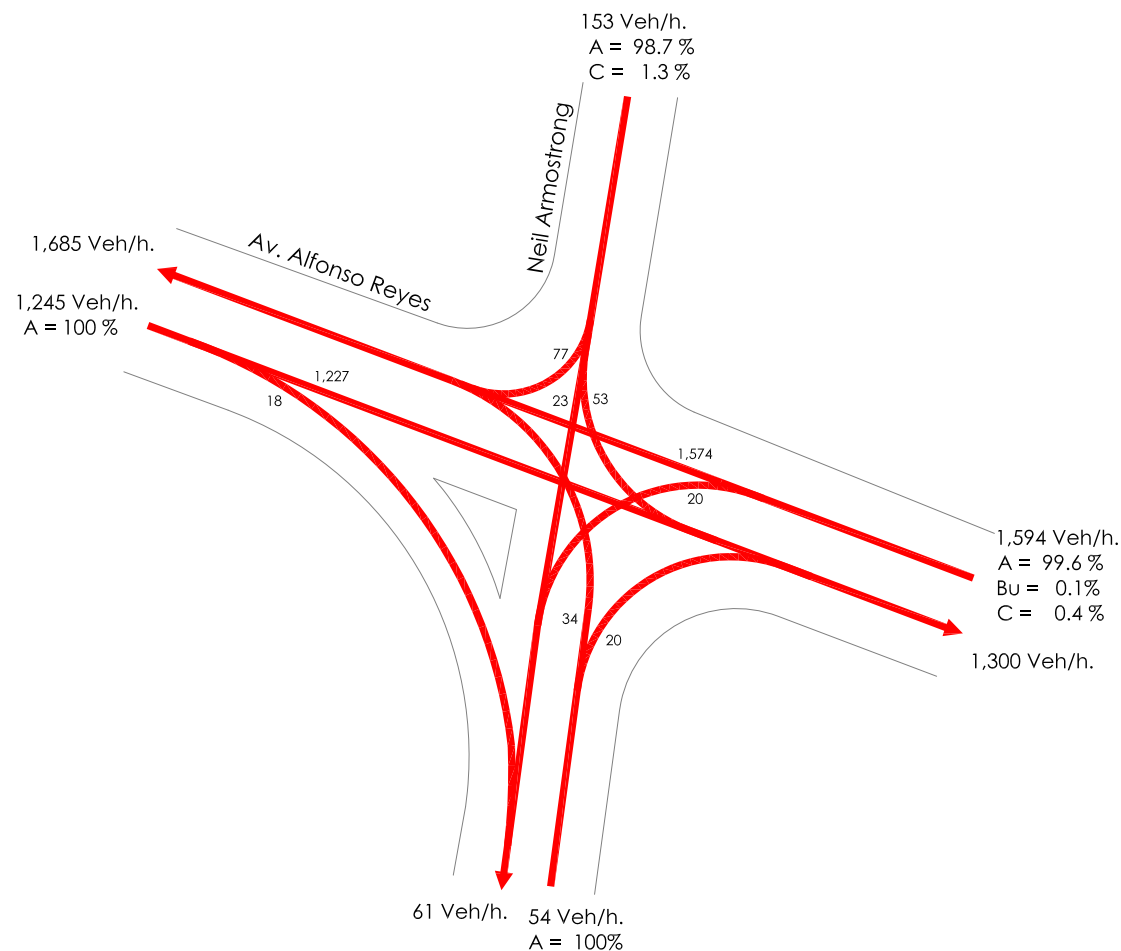
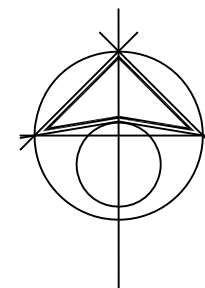
ETV- SP - 217 - AGO/21

SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 76

VOLUMENES VEHICULARES
Situación Actual



Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Miércoles 12 de Febrero de 2020	17:45 - 18:45	A	99.7 %
PERÍODO	VOLUMEN TOTAL	Bu	C
17:00 - 20:00	3,046 Veh./hr.	0.1 %	0.2 %

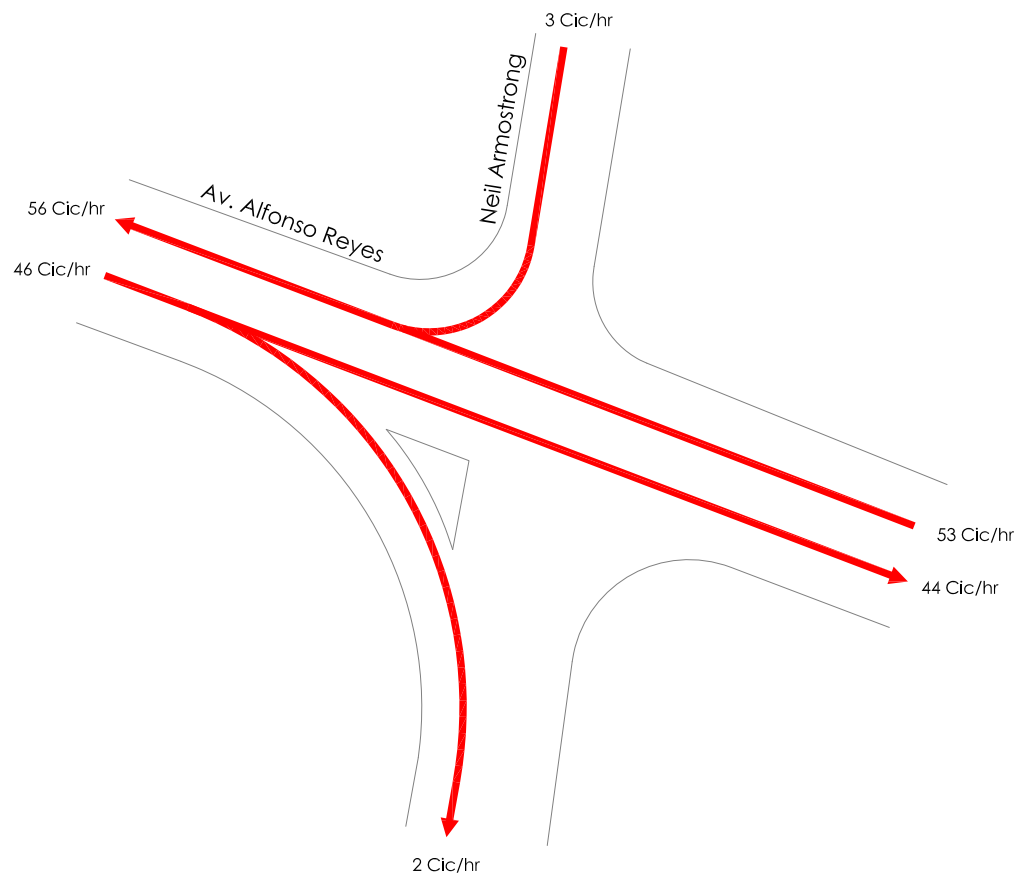
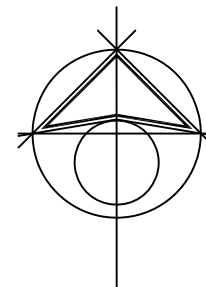
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ESTUDIO TÉCNICO VIAL

FIGURA 77

VOLUMENES CICLISTA



Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA

Viernes 22 de Mayo de 2020

HORA PICO

18:45 - 19:45

PERÍODO

18:00 - 20:00

VOLUMEN TOTAL

101 Cic/hr.

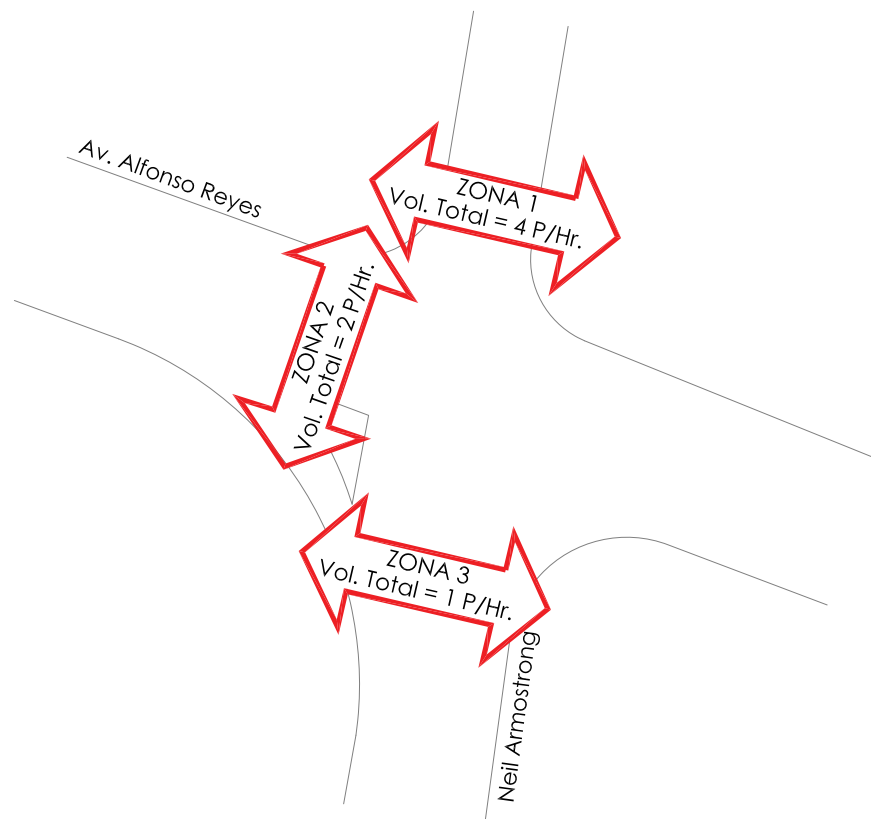
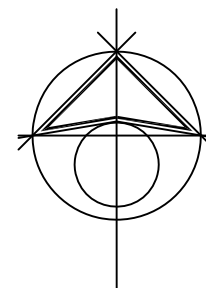
ETV- SP - 217 - AGO/21

SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 78

VOLUMENES PEATONALES
Situación Actual



FECHA

Miércoles 12 de Febrero de 2020

PERÍODO

07:00 - 10:00

HORA PICO

07:30 - 08:30

VOLUMEN TOTAL

7 P/Hr.

ETV- SP - 217 - AGO/21

SIN ESCALA

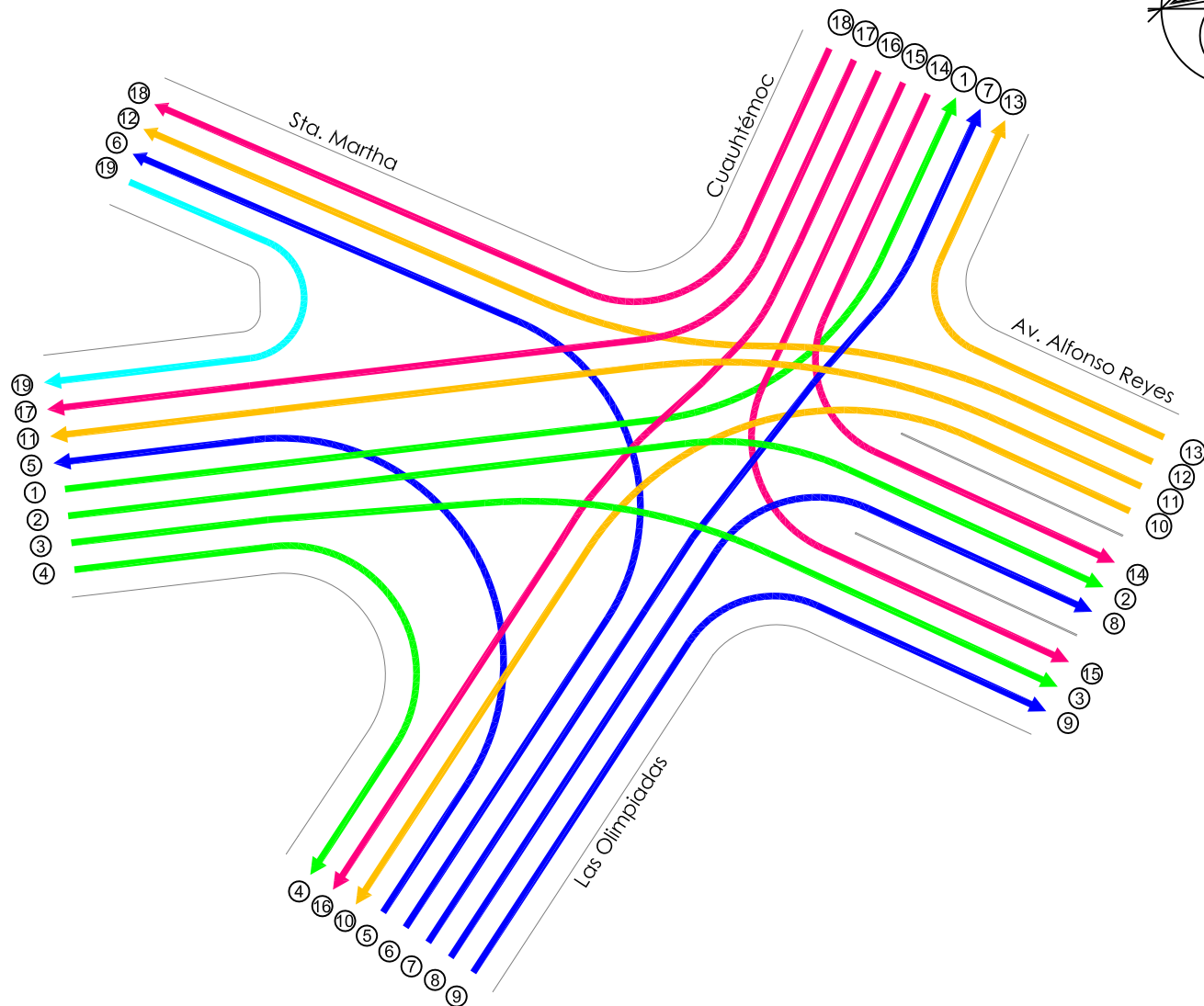


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ESTUDIO TÉCNICO VIAL

FIGURA 79

MOVIMIENTOS DIRECCIONALES
VEHÍCULOS Y CICLISTAS



Vargas Torres y Asociados, S.A. de C.V.
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Tel. (81) 8346 0302 y (81) 8333 3700

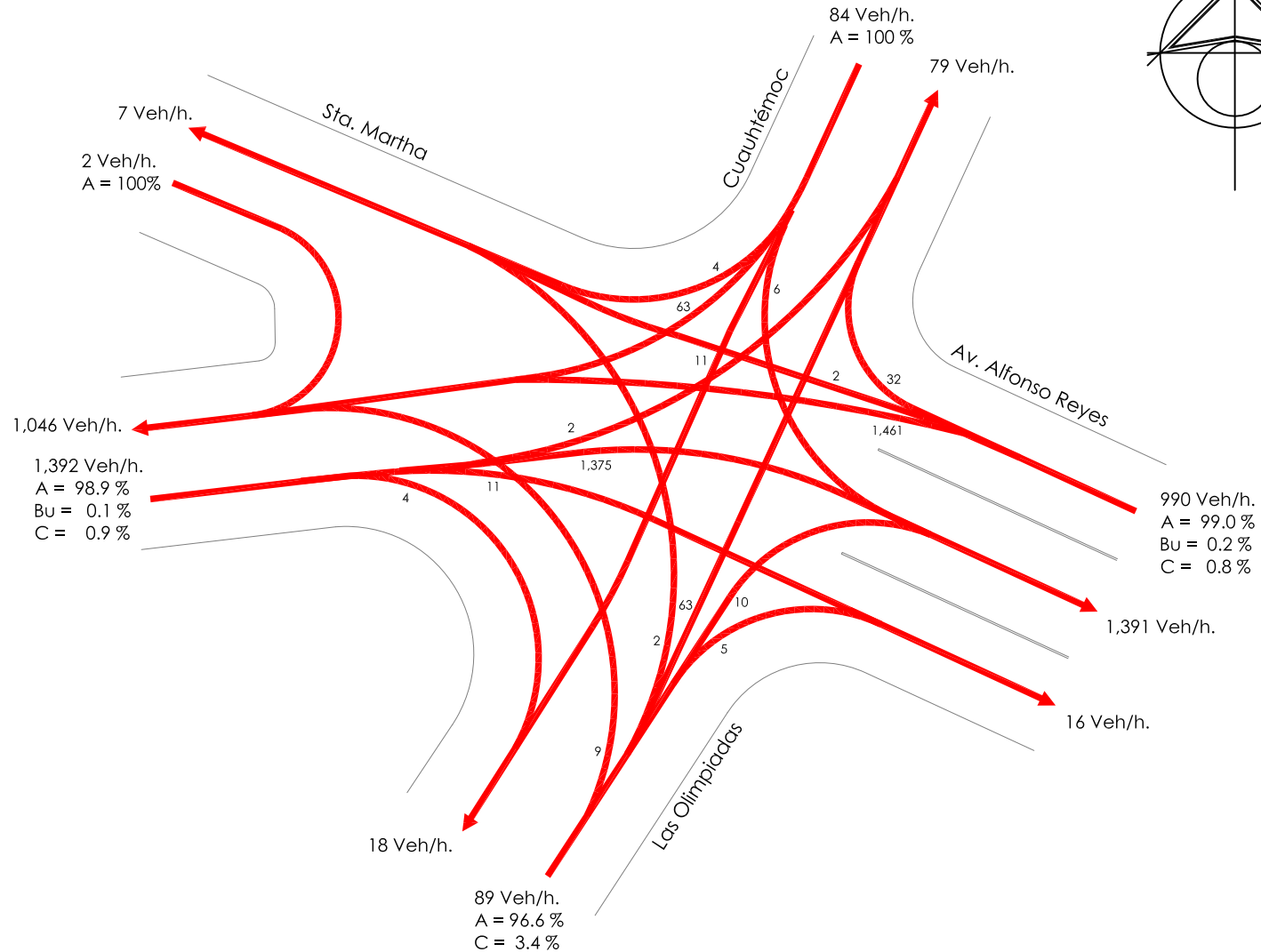
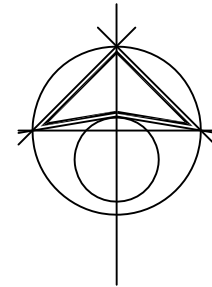
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SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 80

VOLUMENES VEHICULARES
Situación Actual



FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Martes 4 de Febrero de 2020	07:30 - 08:30	A	98.9 %
PERÍODO	VOLUMEN TOTAL	Bu	
07:00 - 10:00	2,557 Veh./hr.	C	0.9 %

ETV- SP - 217 - AGO/21

SIN ESCALA

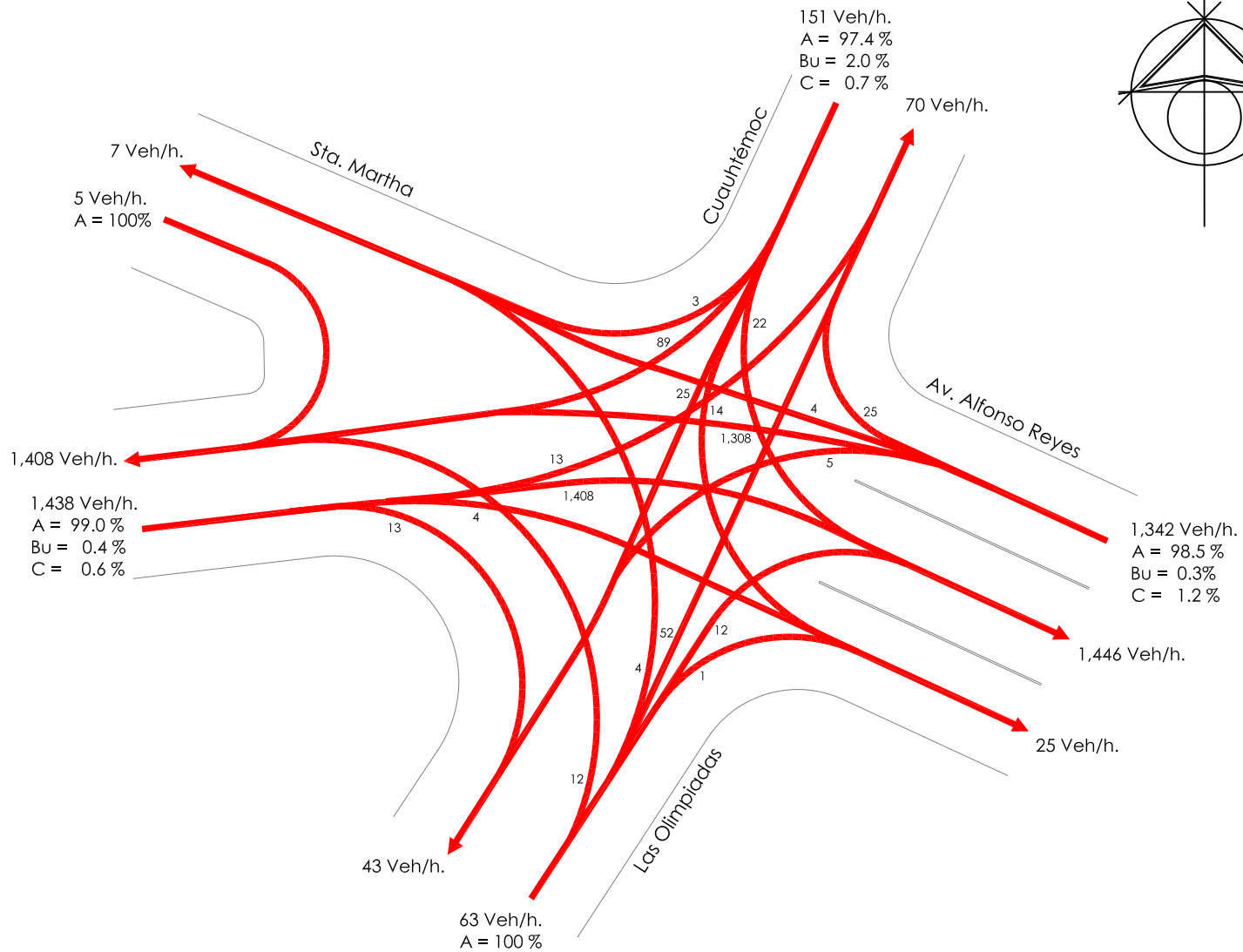


Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
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ESTUDIO TÉCNICO VIAL

FIGURA 81

VOLUMENES VEHICULARES
Situación Actual



FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Martes 4 de Febrero de 2020	13:15 - 14:15	A	98.7 %
PERÍODO	VOLUMEN TOTAL	Bu	C
12:00 - 15:00	2,999 Veh./hr.	0.4 %	0.9 %

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SIN ESCALA

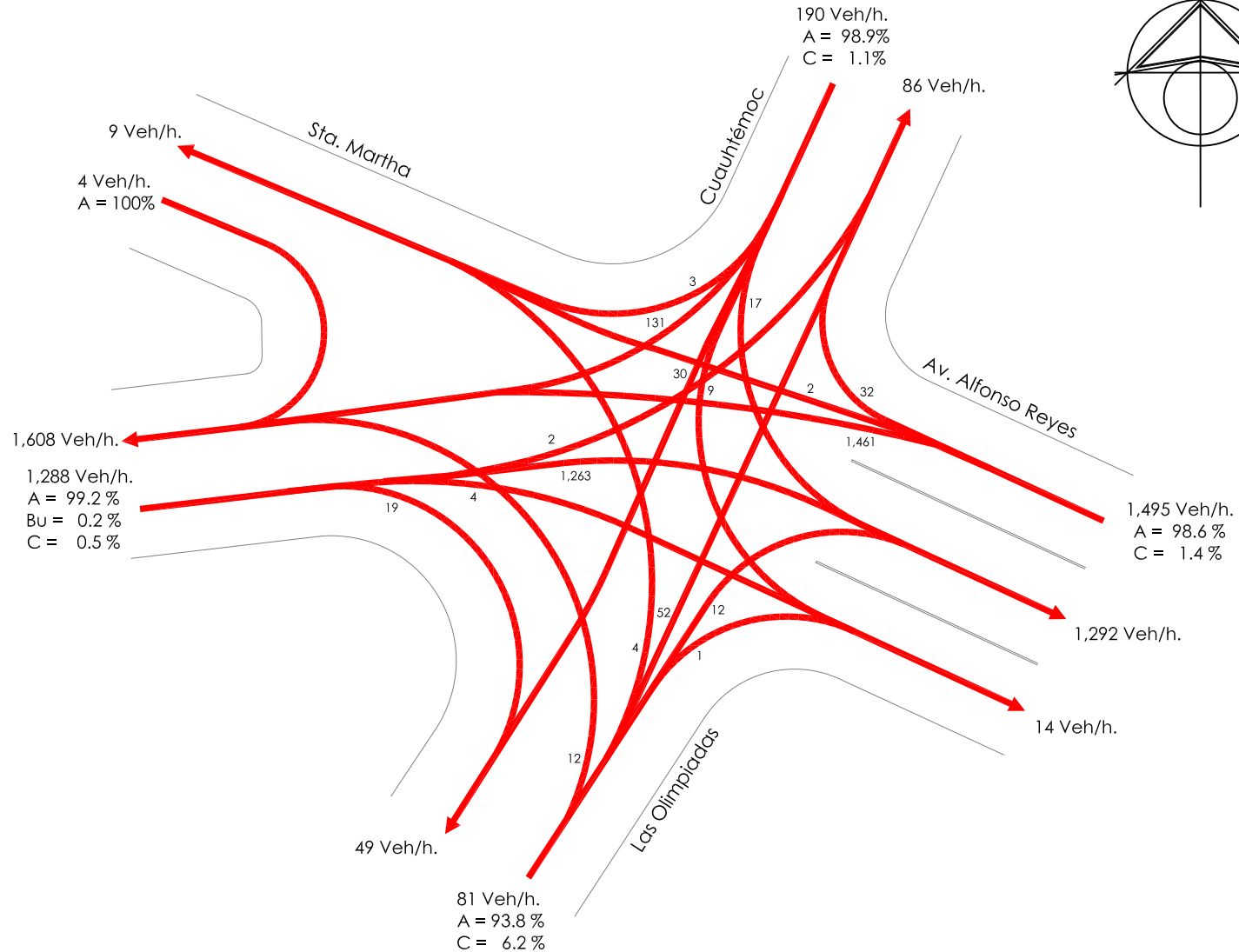
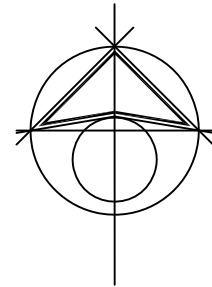


Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
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ESTUDIO TÉCNICO VIAL

FIGURA 82

VOLUMENES VEHICULARES
Situación Actual



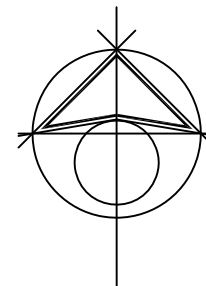
FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Martes 4 de Febrero de 2020	17:30 - 18:30	A	98.8 %
PERÍODO	VOLUMEN TOTAL	Bu	
17:00 - 20:00	3,058 Veh./hr.	C	1.1 %

ETV- SP - 217 - AGO/21

SIN ESCALA



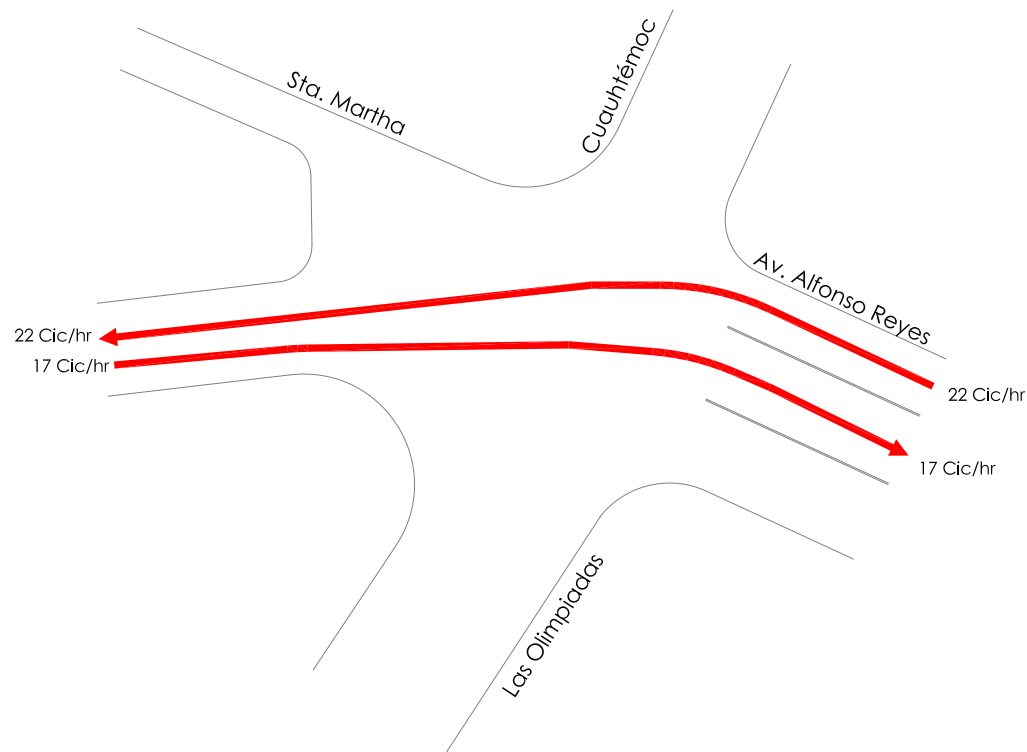
Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
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ESTUDIO TÉCNICO VIAL

FIGURA 83

VOLUMENES CICLISTA



Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA

Viernes 22 de Mayo de 2020

HORA PICO

18:15 - 19:15

PERÍODO

18:00 - 20:00

VOLUMEN TOTAL

39 Cic/hr.

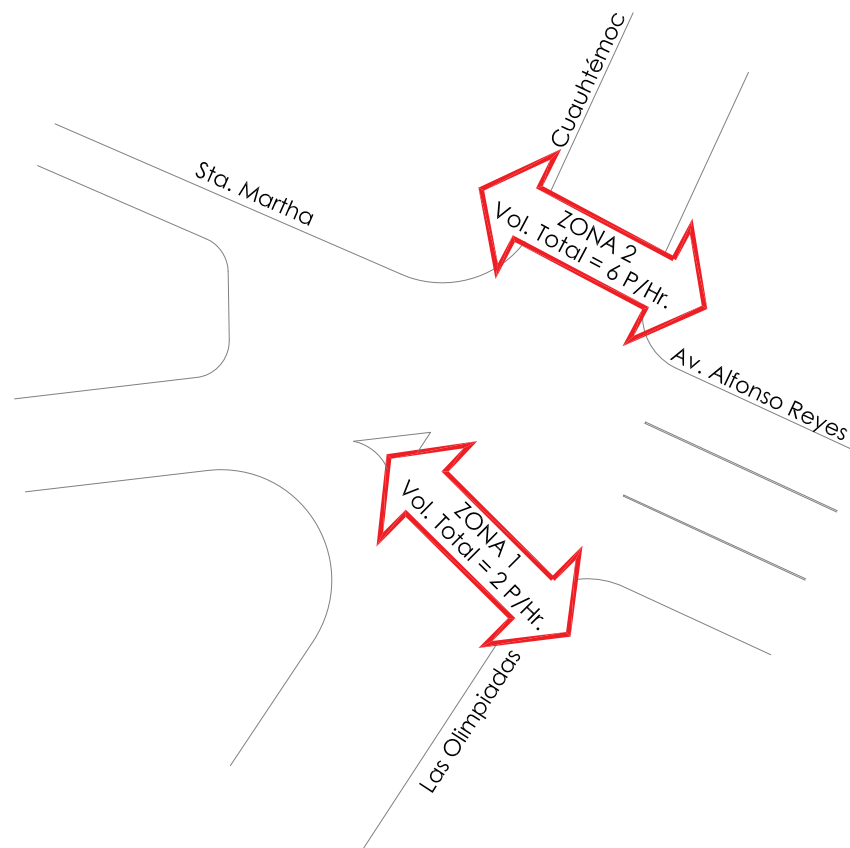
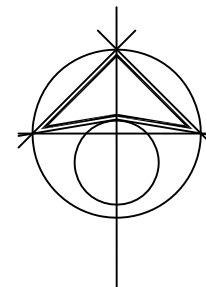
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SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 84

VOLUMENES PEATONALES
Situación Actual



FECHA

Martes 4 de Febrero de 2020

PERÍODO

07:00 - 10:00

HORA PICO

08:00 - 09:00

VOLUMEN TOTAL

8 P/Hr.

ETV- SP - 217 - AGO/21

SIN ESCALA

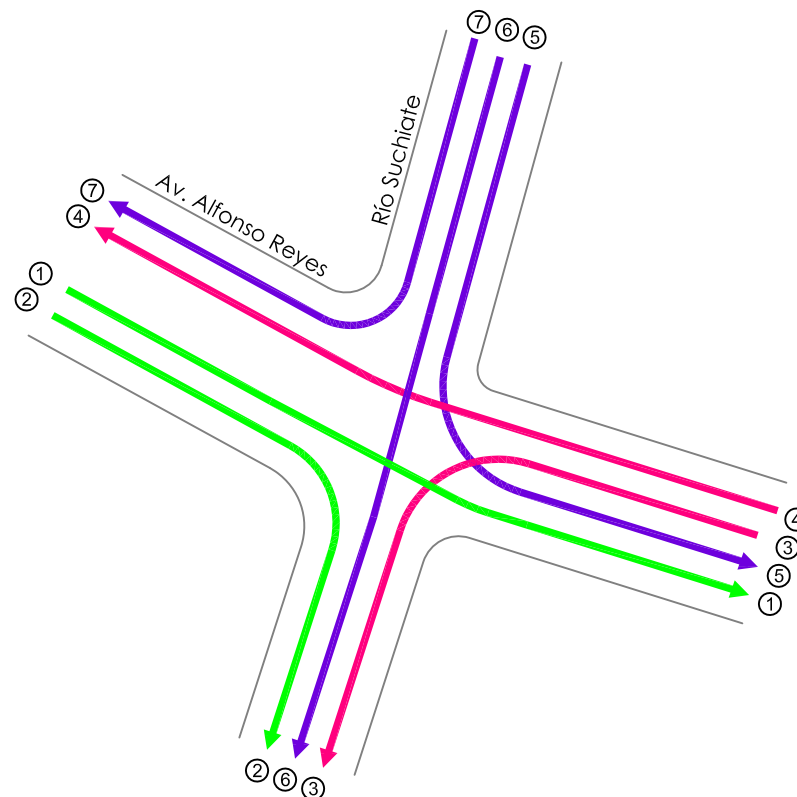
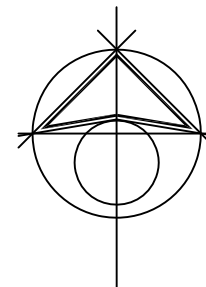


Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
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ESTUDIO TÉCNICO VIAL

FIGURA 85

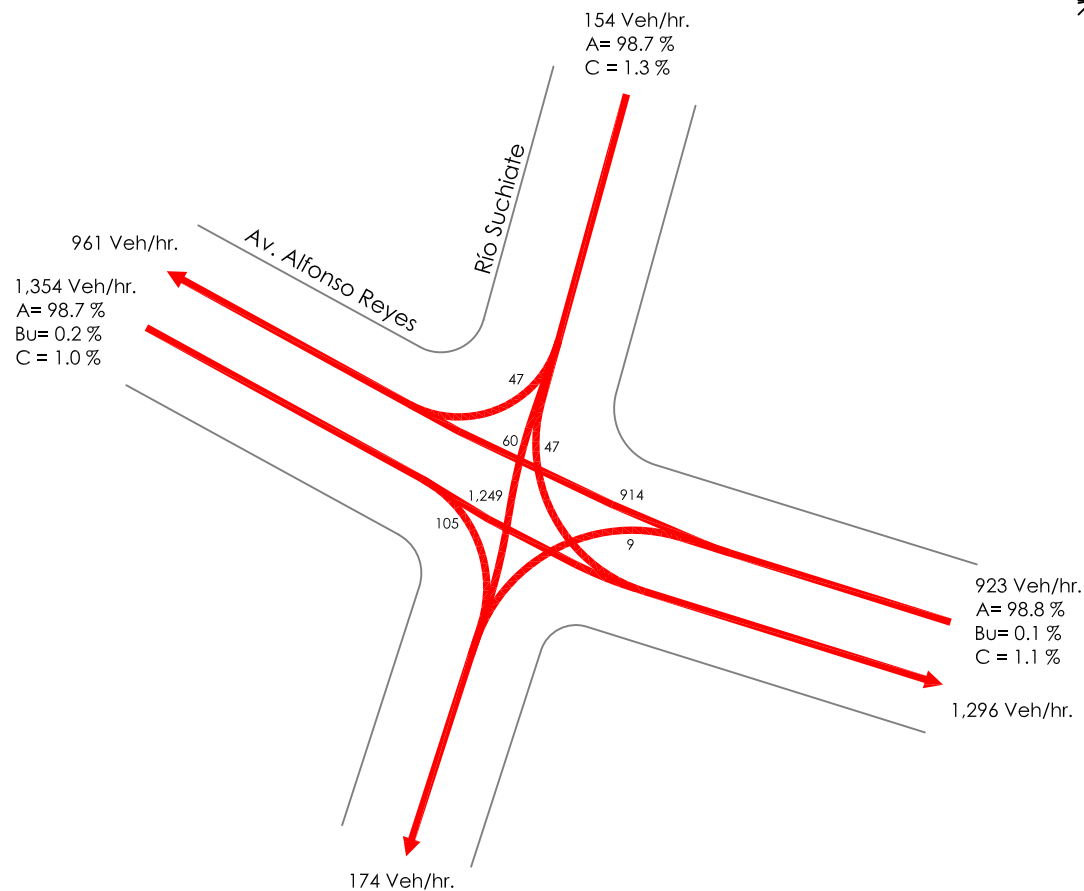
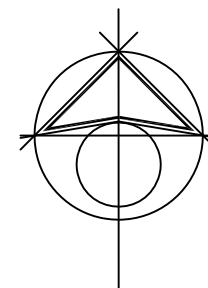
MOVIMIENTOS DIRECCIONALES
VEHÍCULOS Y CICLISTAS



ESTUDIO TÉCNICO VIAL

FIGURA 86

VOLUMENES VEHICULARES
Situación Actual



FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Martes 4 de Febrero de 2020	08:30 - 09:30	A	98.8 %
PERÍODO	VOLUMEN TOTAL	Bu	C
07:00 - 10:00	2,431 Veh./hr.	0.2 %	1.1 %

ETV- SP - 217 - AGO/21

SIN ESCALA

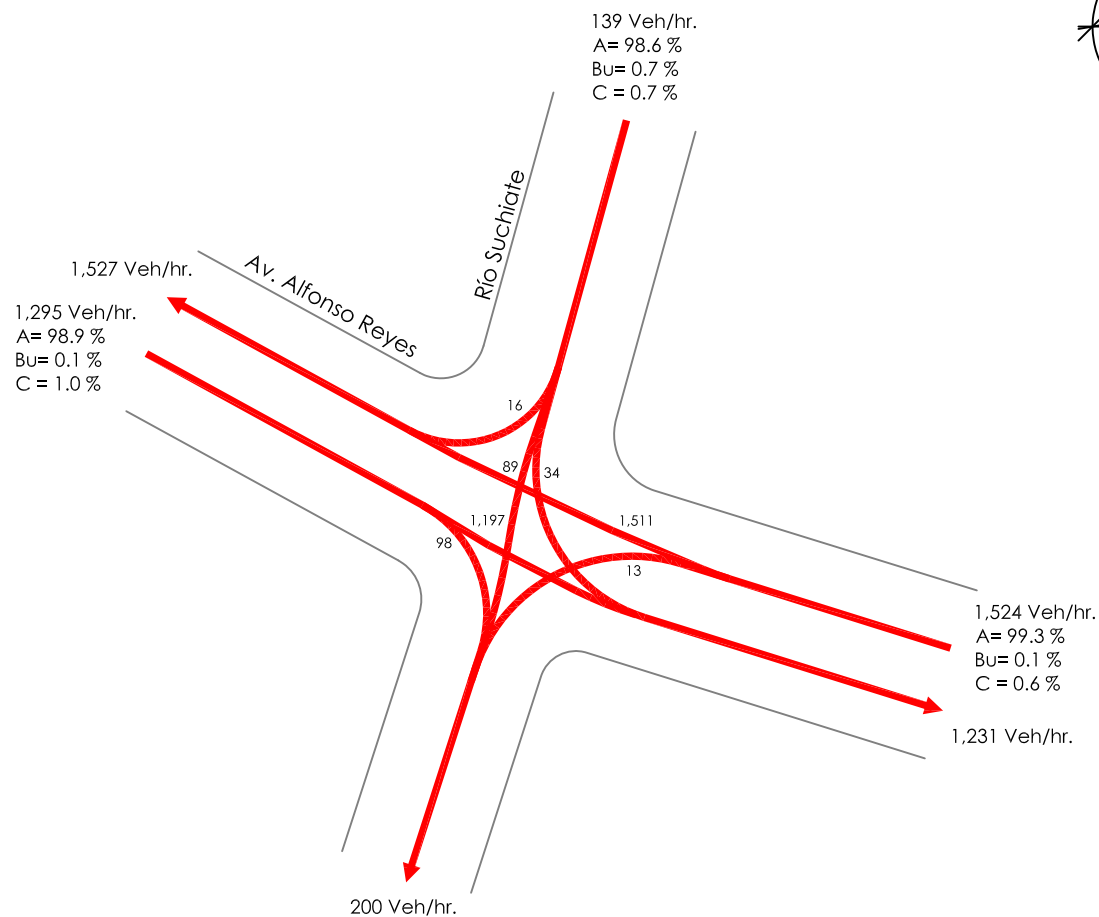
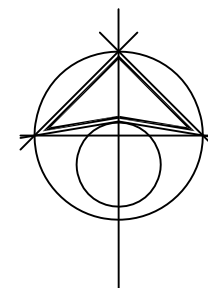


Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
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ESTUDIO TÉCNICO VIAL

FIGURA 87

VOLUMENES VEHICULARES
Situación Actual



Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Martes 4 de Febrero de 2020	13:15 - 14:15	A	99.1 %
PERÍODO	VOLUMEN TOTAL	Bu	0.1 %
12:00 - 15:00	2,958 Veh./hr.	C	0.8 %

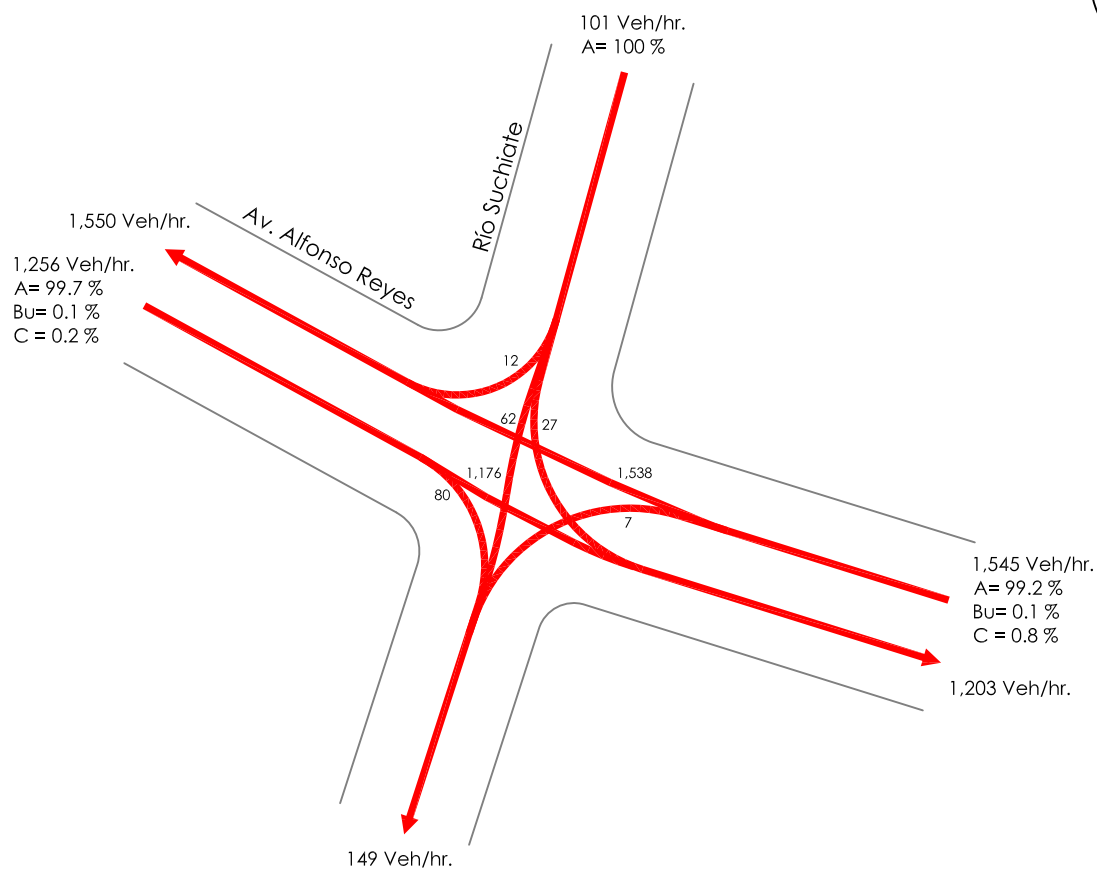
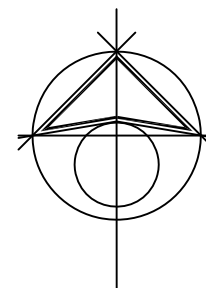
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SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 88

VOLUMENES VEHICULARES
Situación Actual



FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Martes 4 de Febrero de 2020	17:30 - 18:30	A	99.4 %
PERÍODO	VOLUMEN TOTAL	Bu	0.1 %
17:00 - 20:00	2,902 Veh./hr.	C	0.5 %

ETV- SP - 217 - AGO/21

SIN ESCALA

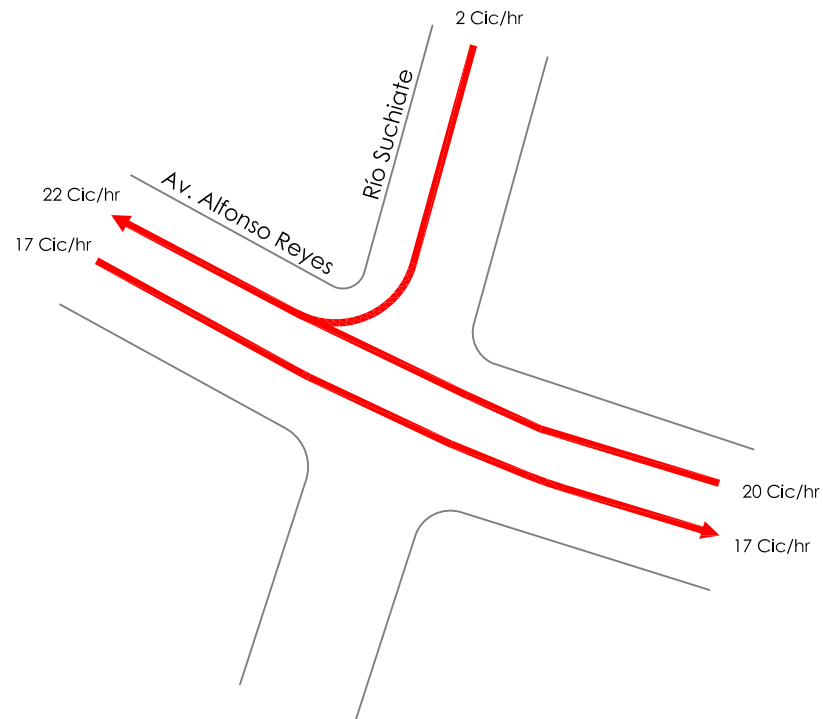
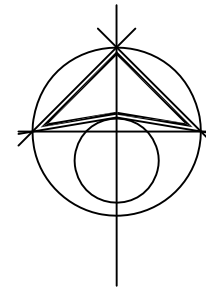


Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
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ESTUDIO TÉCNICO VIAL

FIGURA 89

VOLUMENES CICLISTA



Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA

Viernes 22 de Mayo de 2020

HORA PICO

18:15 - 19:15

PERÍODO

18:00 - 20:00

VOLUMEN TOTAL

39 Cic/hr.

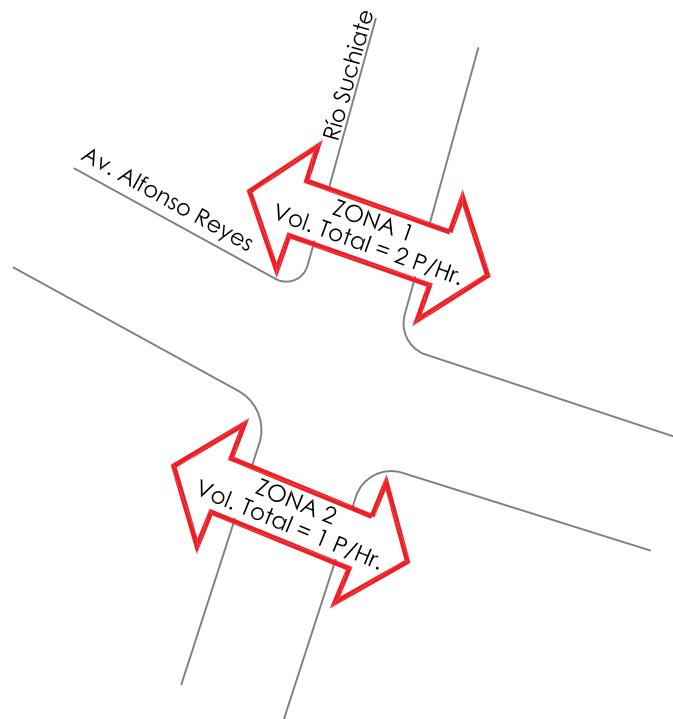
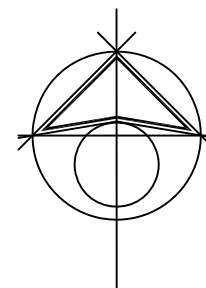
ETV- SP - 217 - AGO/21

SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 90

VOLUMENES PEATONALES
Situación Actual



FECHA

Martes 4 de Febrero de 2020

PERÍODO

12:00 - 15:00

HORA PICO

12:45 - 13:45

VOLUMEN TOTAL

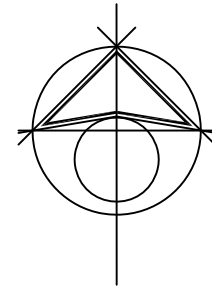
3 P/Hr.

ETV- SP - 217 - AGO/21

SIN ESCALA



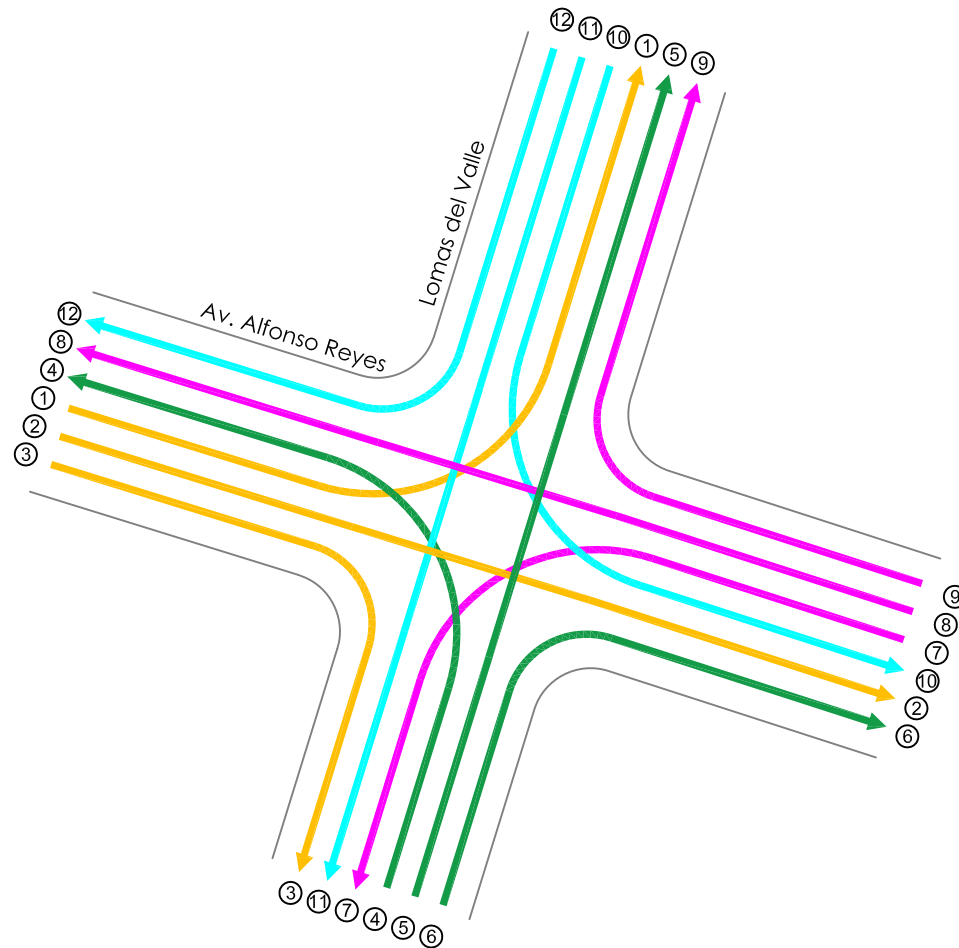
Vargas Torres y Asociados, S.A. de C.V.
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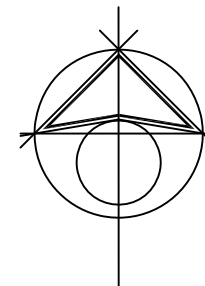


ESTUDIO TÉCNICO VIAL

FIGURA 91

MOVIMIENTOS DIRECCIONALES
VEHÍCULOS Y CICLISTAS

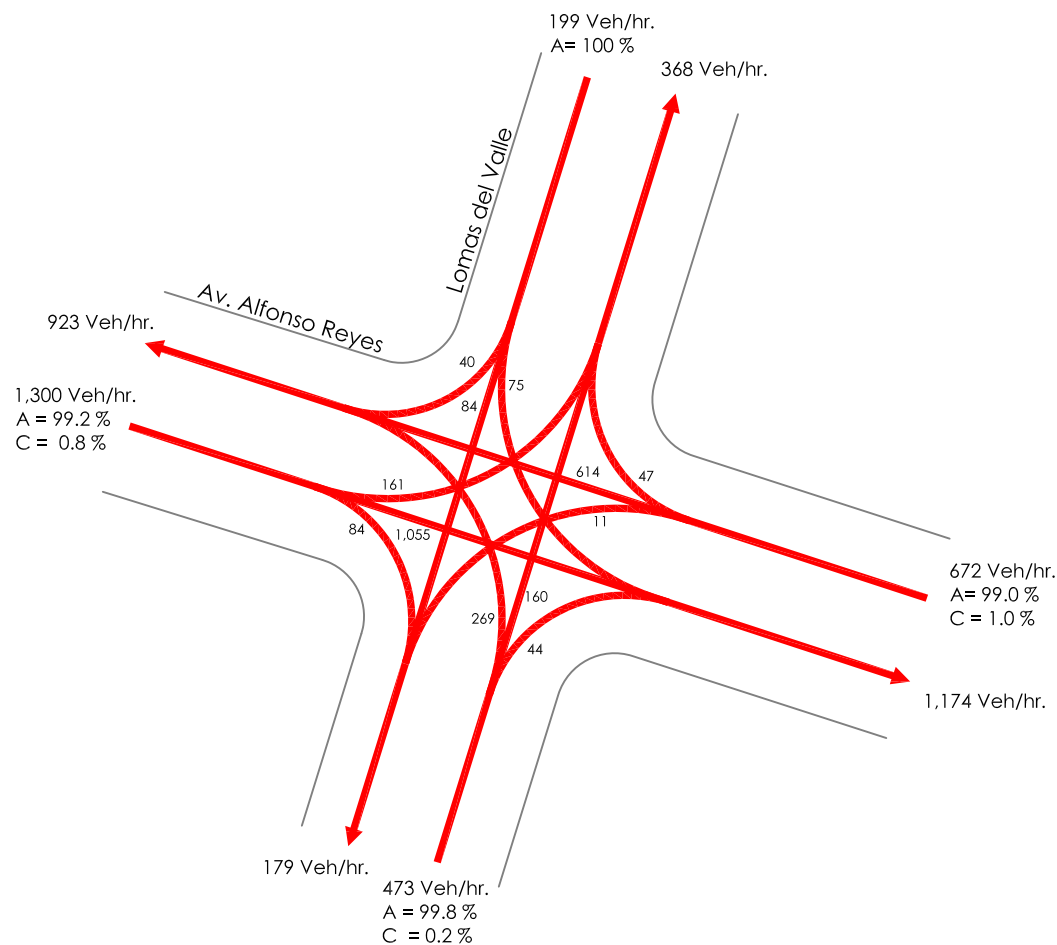




ESTUDIO TÉCNICO VIAL

FIGURA 92

VOLUMENES VEHICULARES
Situación Actual



FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Miércoles 5 de Febrero de 2020	08:00 - 09:00	A	99.3 %
PERÍODO	VOLUMEN TOTAL	Bu	0.0 %
07:00 - 10:00	2,644 Veh./hr.	C	0.7 %

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SIN ESCALA

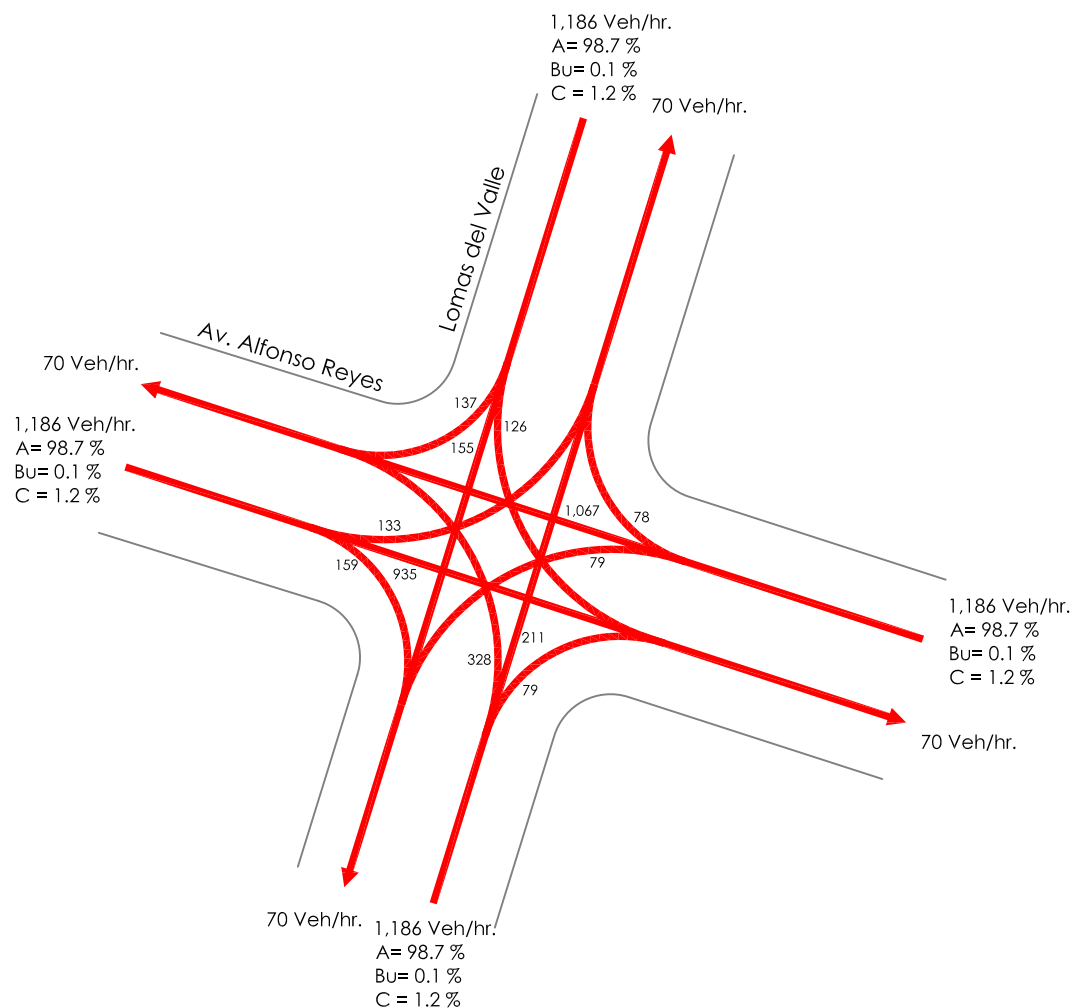
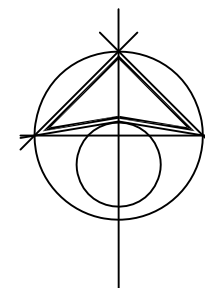


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ESTUDIO TÉCNICO VIAL

FIGURA 93

VOLUMENES VEHICULARES
Situación Actual



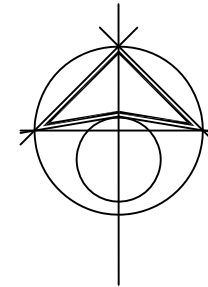
FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Miércoles 5 de Febrero de 2020	13:30 - 14:30	A	98.9 %
PERÍODO	VOLUMEN TOTAL	Bu	C
12:00 - 15:00	3,487 Veh./hr.	0.1 %	1.0 %

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SIN ESCALA



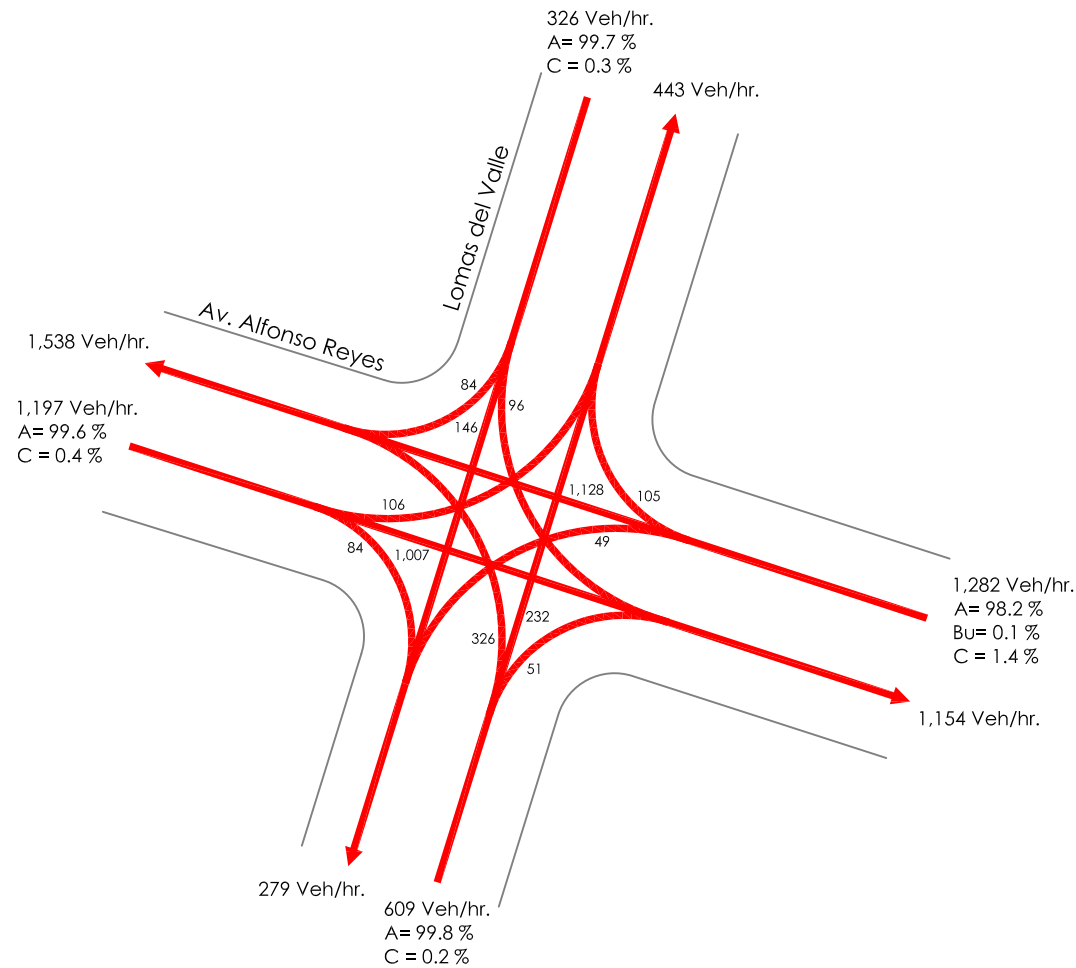
Vargas Torres y Asociados, S.A. de C.V.
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ESTUDIO TÉCNICO VIAL

FIGURA 94

VOLUMENES VEHICULARES
Situación Actual

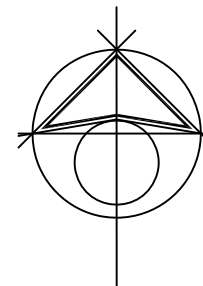


FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Miércoles 5 de Febrero de 2020	17:00 - 18:00	A	99.2 %
PERÍODO	VOLUMEN TOTAL	Bu	0.0 %
17:00 - 20:00	3,414 Veh./hr.	C	0.7 %

ETV- SP - 217 - AGO/21
SIN ESCALA



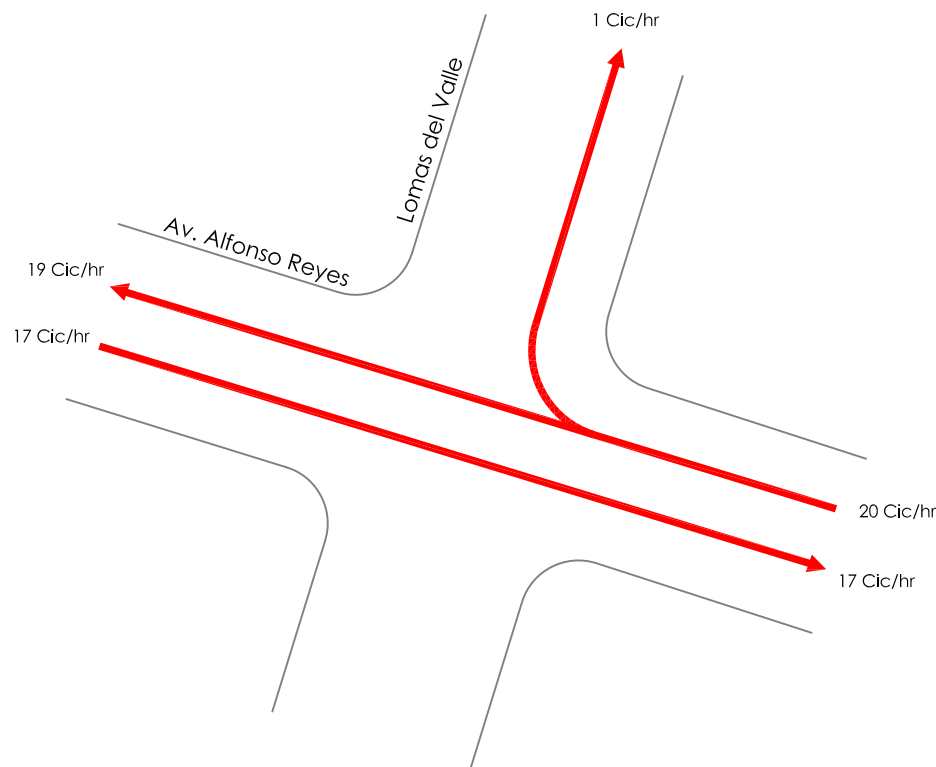
Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
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FIGURA 95

VOLUMENES CICLISTA



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FECHA

Viernes 22 de Mayo de 2020

HORA PICO

18:15 - 19:15

PERÍODO

17:00 - 20:00

VOLUMEN TOTAL

37 Cic/hr.

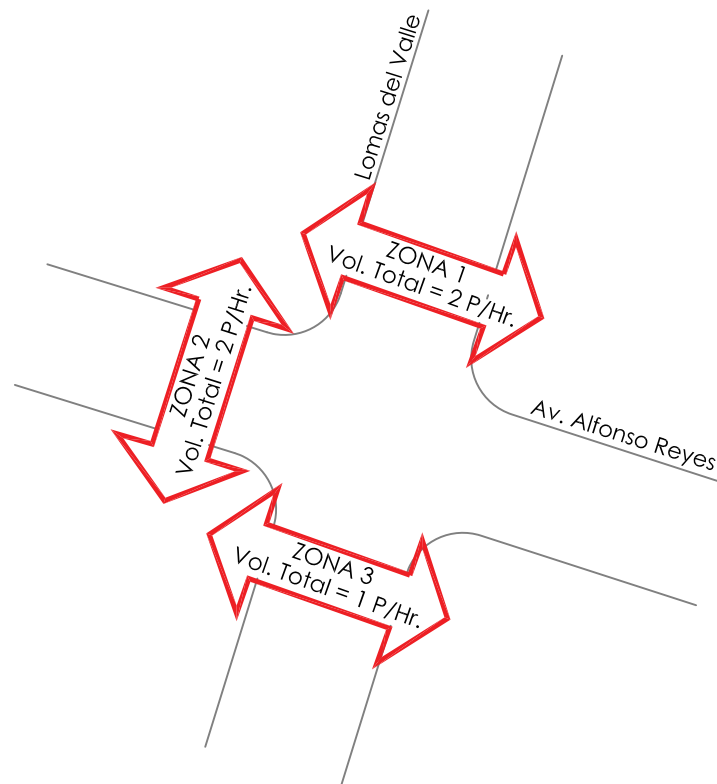
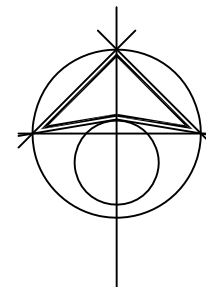
ETV- SP - 217 - AGO/21

SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 96

VOLUMENES PEATONALES
Situación Actual



FECHA

Miércoles 5 de Febrero de 2020

PERÍODO

12:00 - 15:00

HORA PICO

12:45 - 13:45

VOLUMEN TOTAL

5 P/Hr.

ETV- SP - 217 - AGO/21

SIN ESCALA



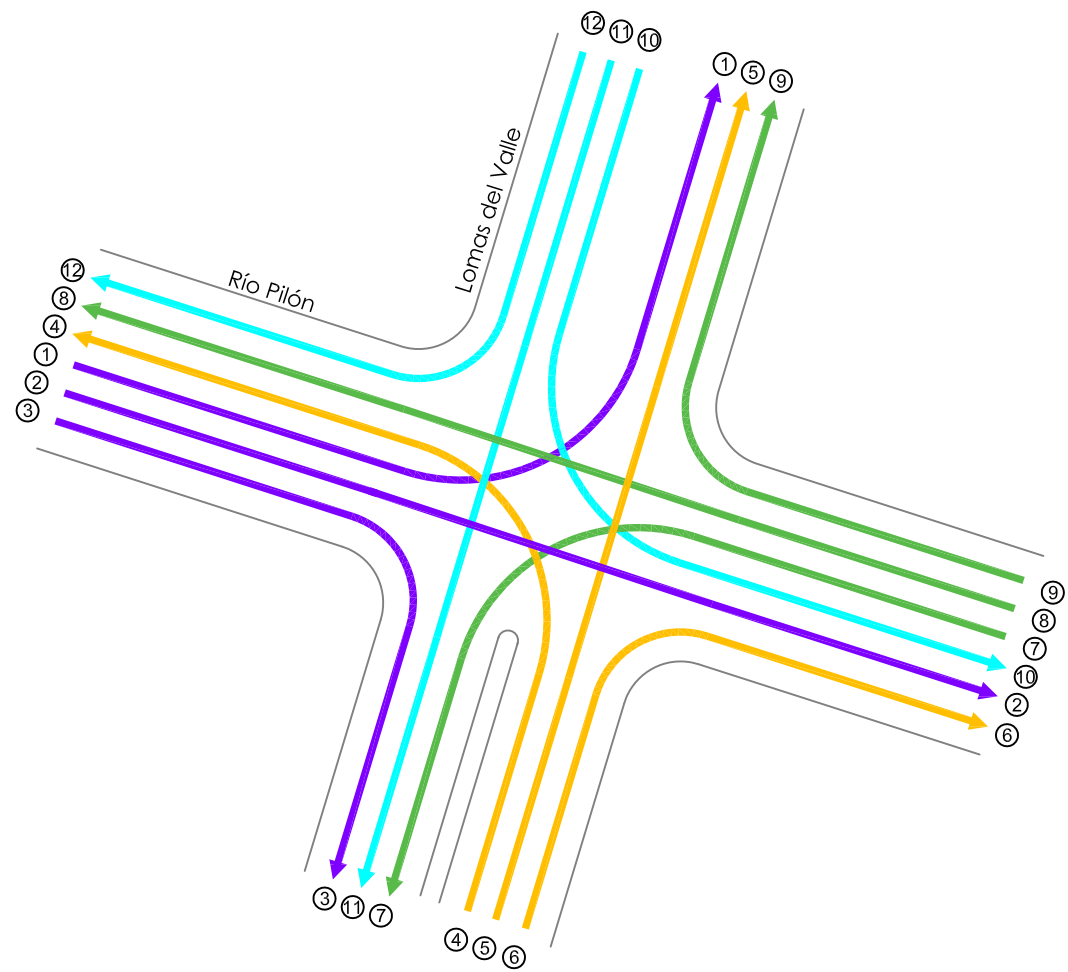
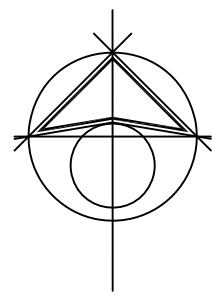
Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700



Vargas Torres y Asociados, S.A. de C.V.
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ESTUDIO TÉCNICO VIAL

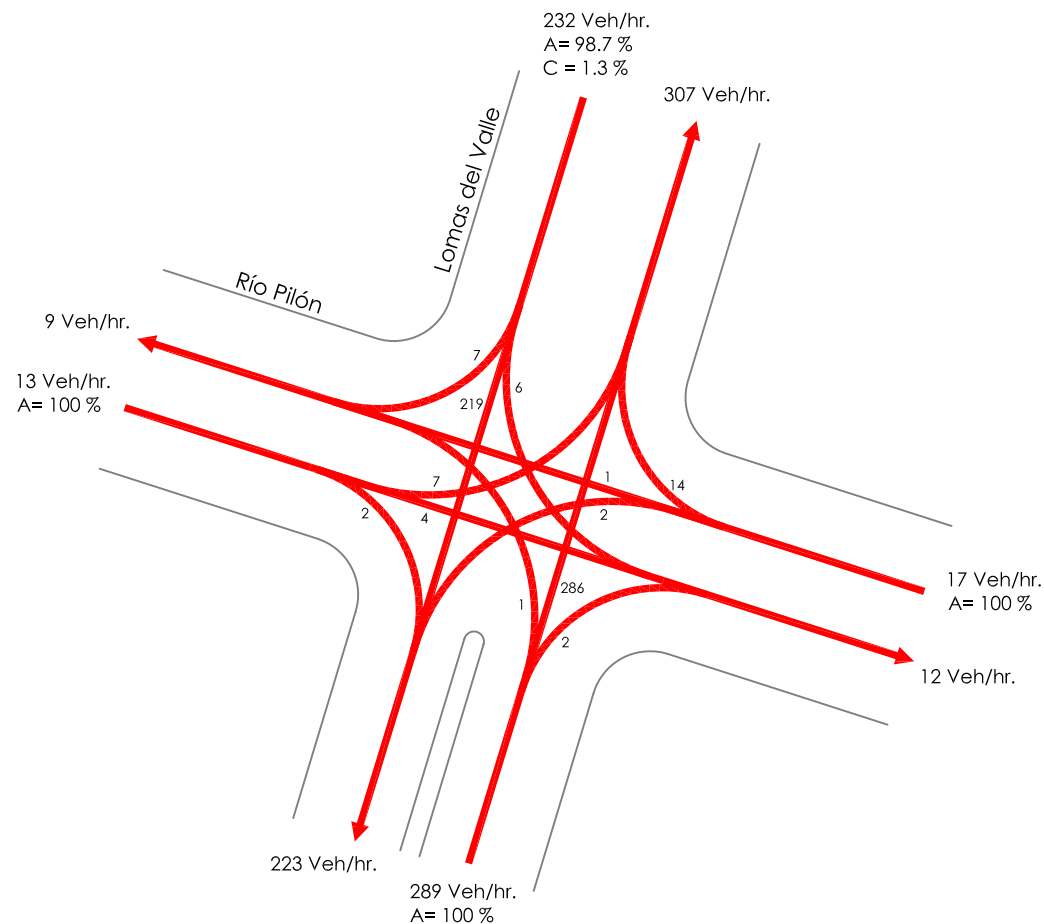
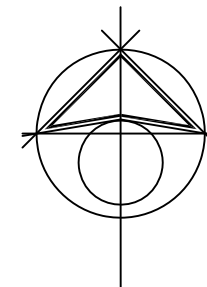
FIGURA 97
MOVIMIENTOS DIRECCIONALES
VEHÍCULOS Y CICLISTAS



ESTUDIO TÉCNICO VIAL

FIGURA 98

VOLUMENES VEHICULARES
Situación Actual



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Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Miércoles 11 de Agosto de 2021	08:30 - 09:30	A	99.5 %
PERÍODO	VOLUMEN TOTAL	Bu	0.0 %
07:00 - 10:00	551 Veh./hr.	C	0.5 %

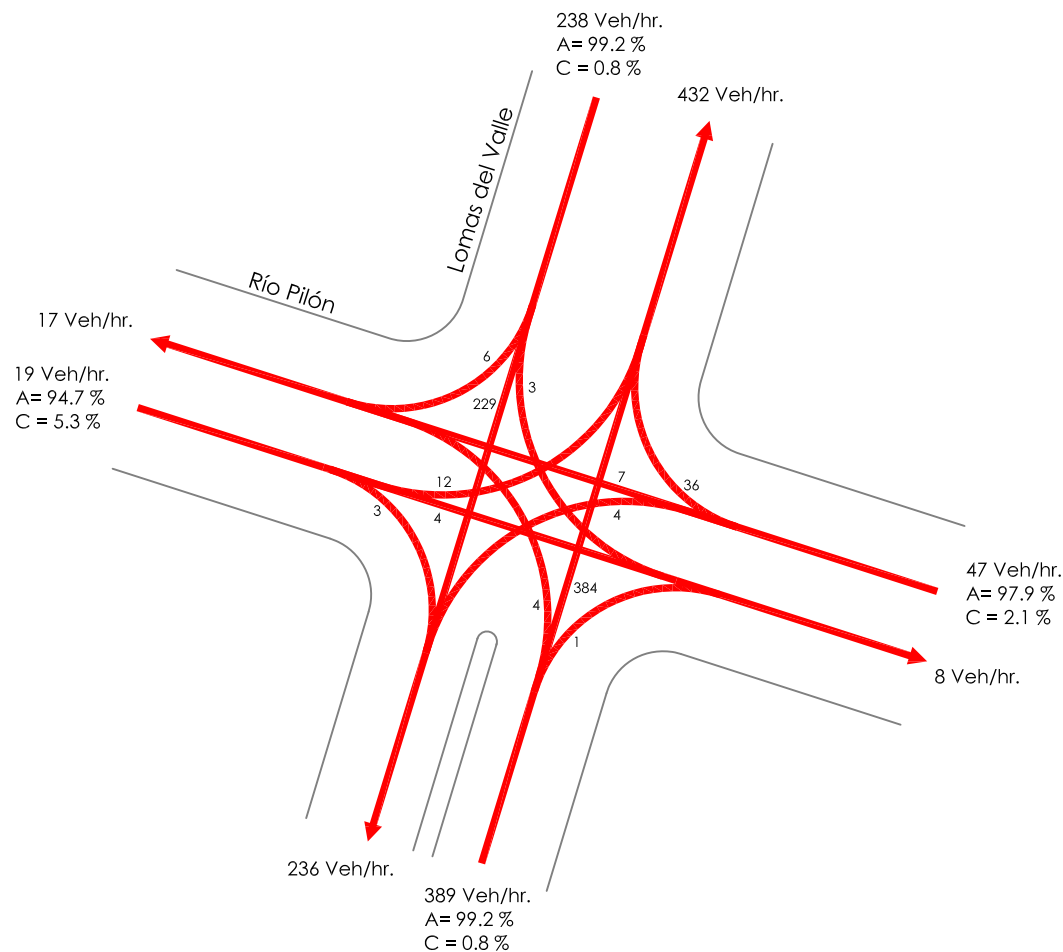
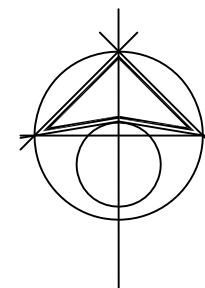
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SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 99

VOLUMENES VEHICULARES
Situación Actual



Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Miércoles 11 de Agosto de 2021	12:15 - 13:15	A	99.0 %
PERÍODO	VOLUMEN TOTAL	Bu	0.0 %
12:00 - 15:00	693 Veh./hr.	C	1.0 %

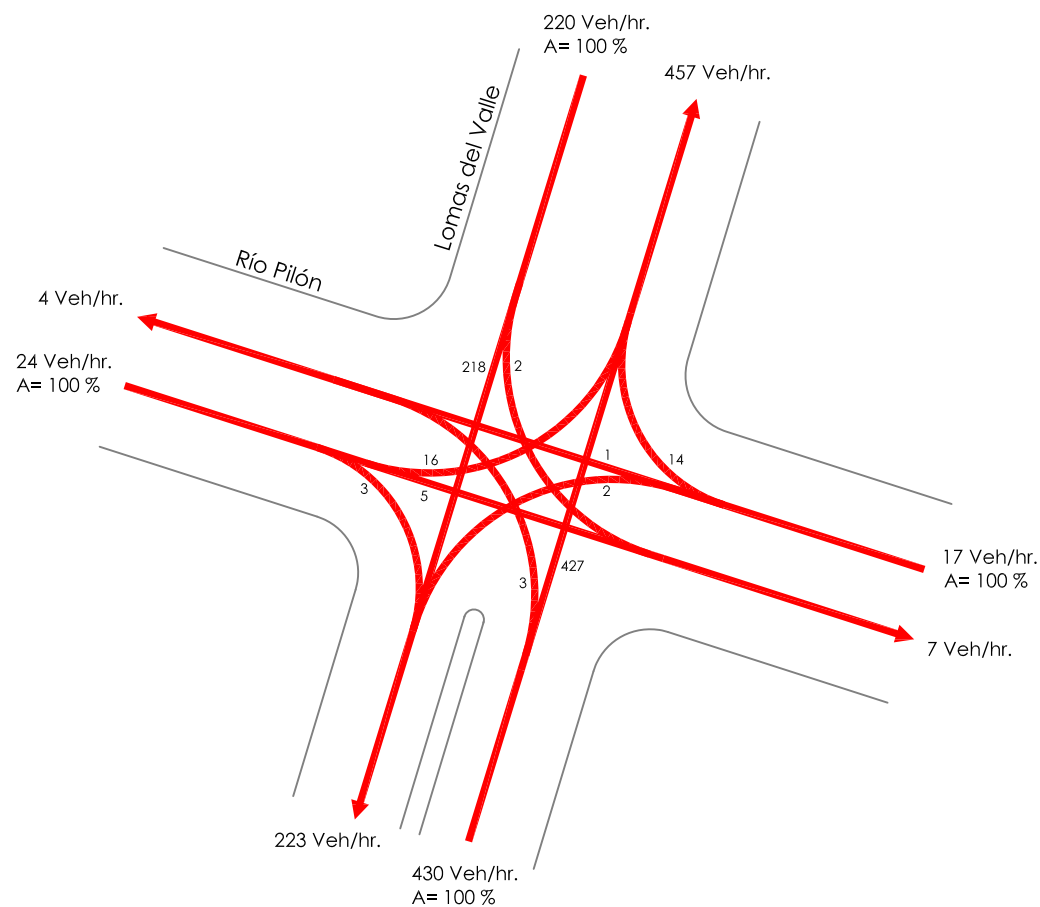
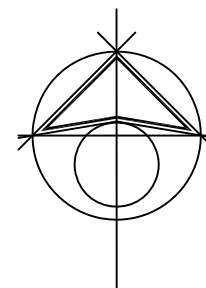
ETV- SP - 217 - AGO/21

SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 100

VOLUMENES VEHICULARES
Situación Actual

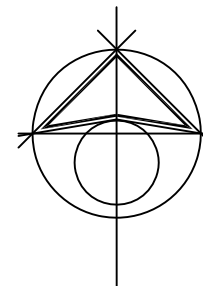


Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Miércoles 11 de Agosto de 2021	17:30 - 18:30	A	99.9 %
PERÍODO	VOLUMEN TOTAL	Bu	0.0 %
17:00 - 20:00	691 Veh./hr.	C	0.1 %

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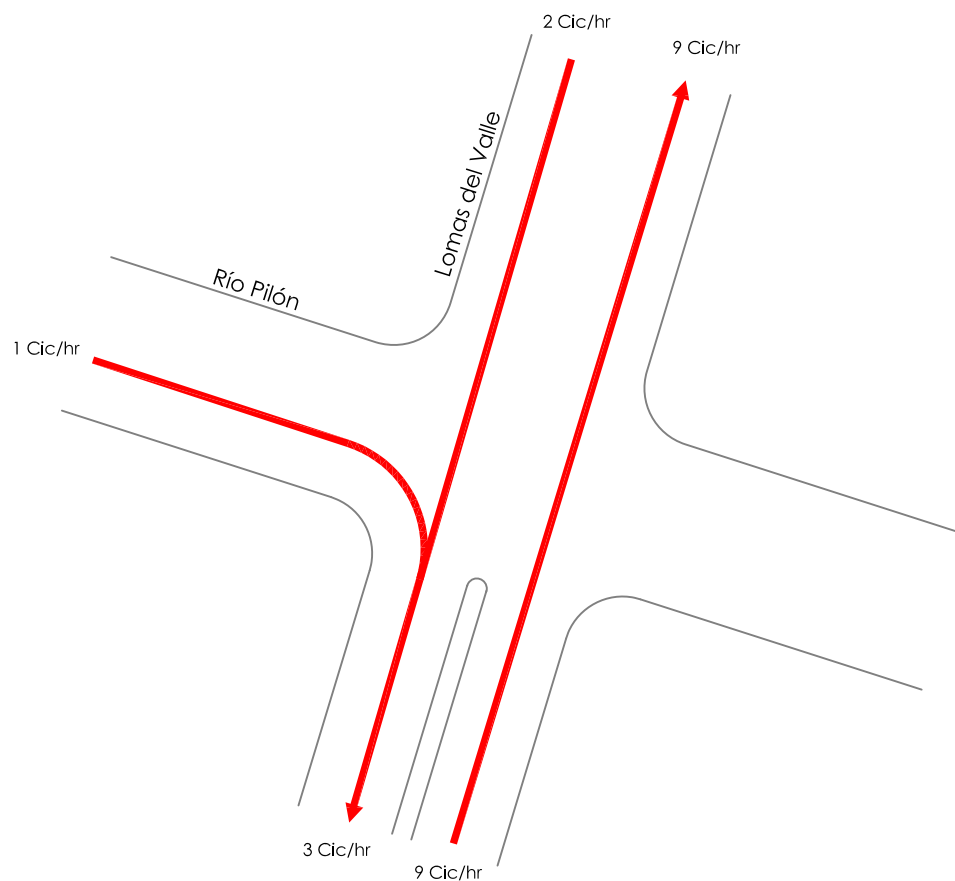
SIN ESCALA



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FIGURA 101

VOLUMENES CICLISTA



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FECHA	HORA PICO
Miércoles 11 de Agosto de 2021	07:45 - 08:45
PERÍODO	VOLUMEN TOTAL
07:00 - 10:00	12 Cic/hr.

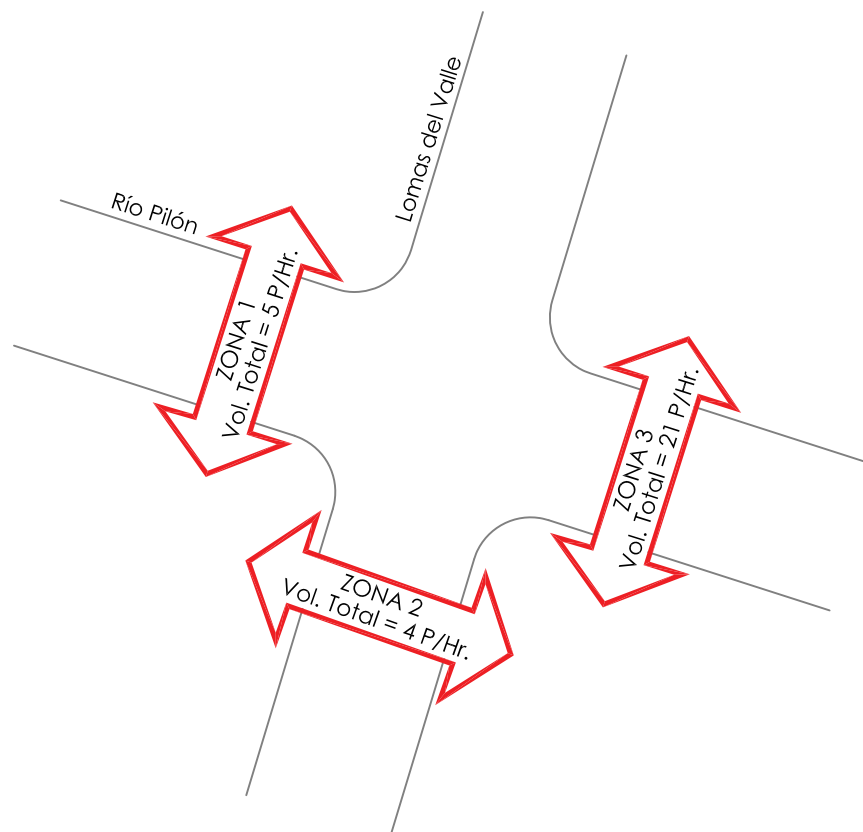
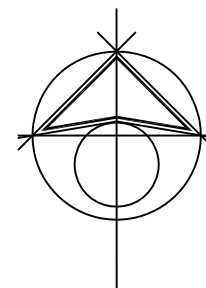
ETV- SP - 217 - AGO/21

SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 102

VOLUMENES PEATONALES
Situación Actual



FECHA

Miércoles 11 de Agosto de 2021

PERÍODO

07:00 - 10:00

HORA PICO

07:00 - 08:00

VOLUMEN TOTAL

30 P/Hr.

ETV- SP - 217 - AGO/21

SIN ESCALA

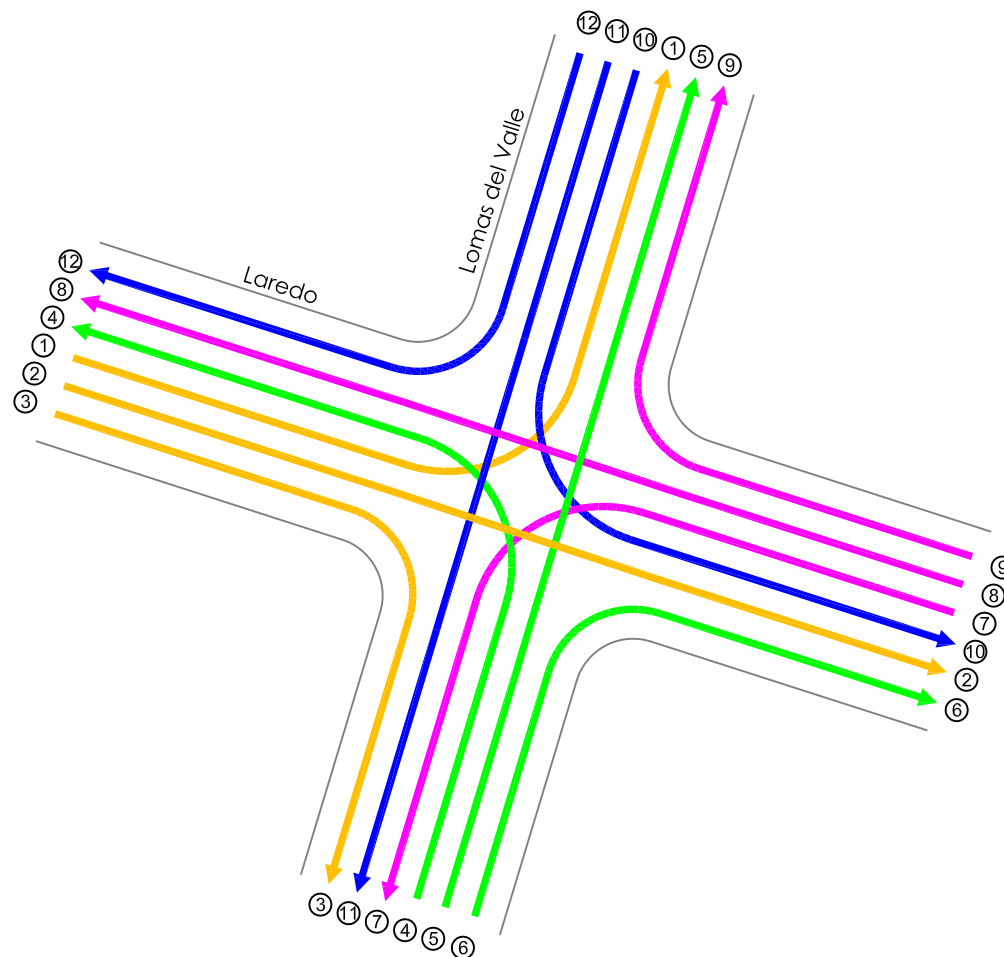
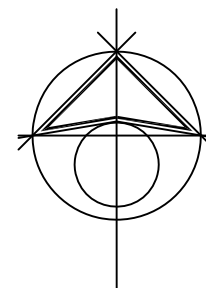


Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L. C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

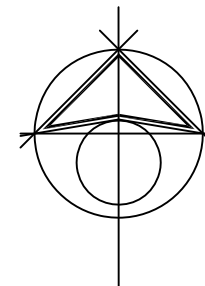
ESTUDIO TÉCNICO VIAL

FIGURA 103

MOVIMIENTOS DIRECCIONALES
VEHÍCULOS Y CICLISTAS



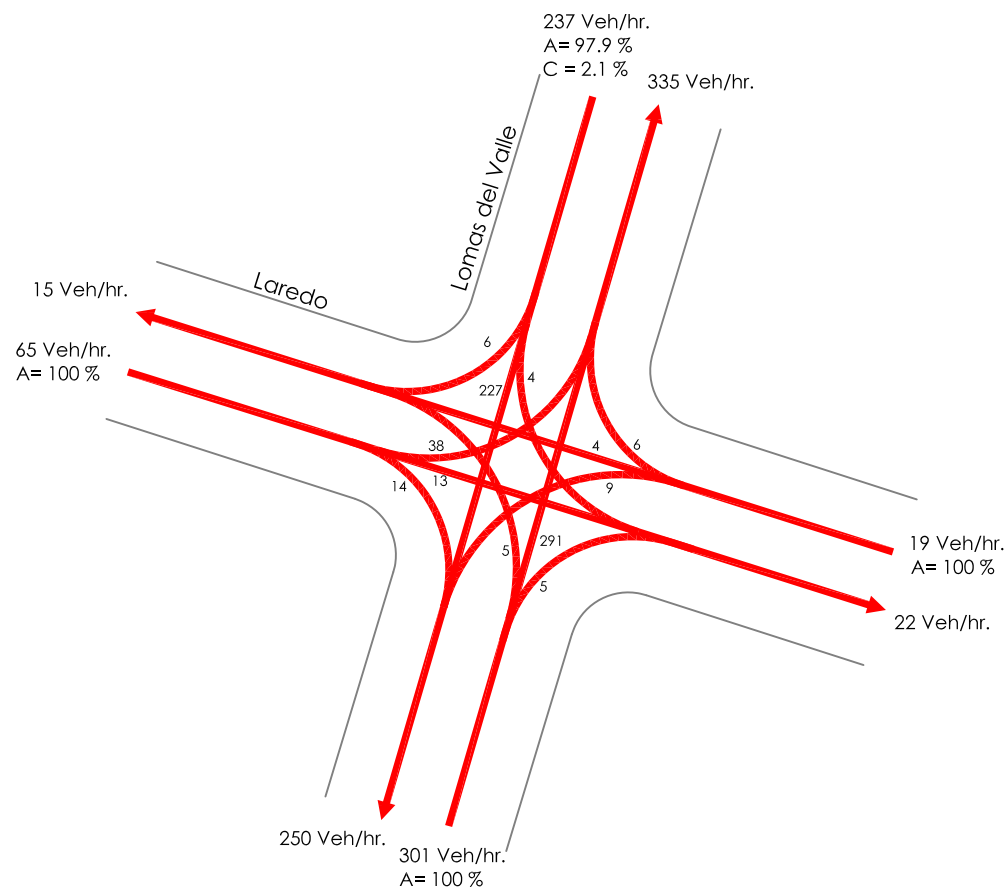
Vargas Torres y Asociados, S.A. de C.V.
Zimapán #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
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FIGURA 104

VOLUMENES VEHICULARES
Situación Actual

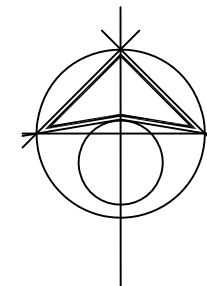


Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Mitras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Miércoles 11 de Agosto de 2021	08:30 - 09:30	A	99.2 %
PERÍODO	VOLUMEN TOTAL	Bu	0.0 %
07:00 - 10:00	622 Veh./hr.	C	0.8 %

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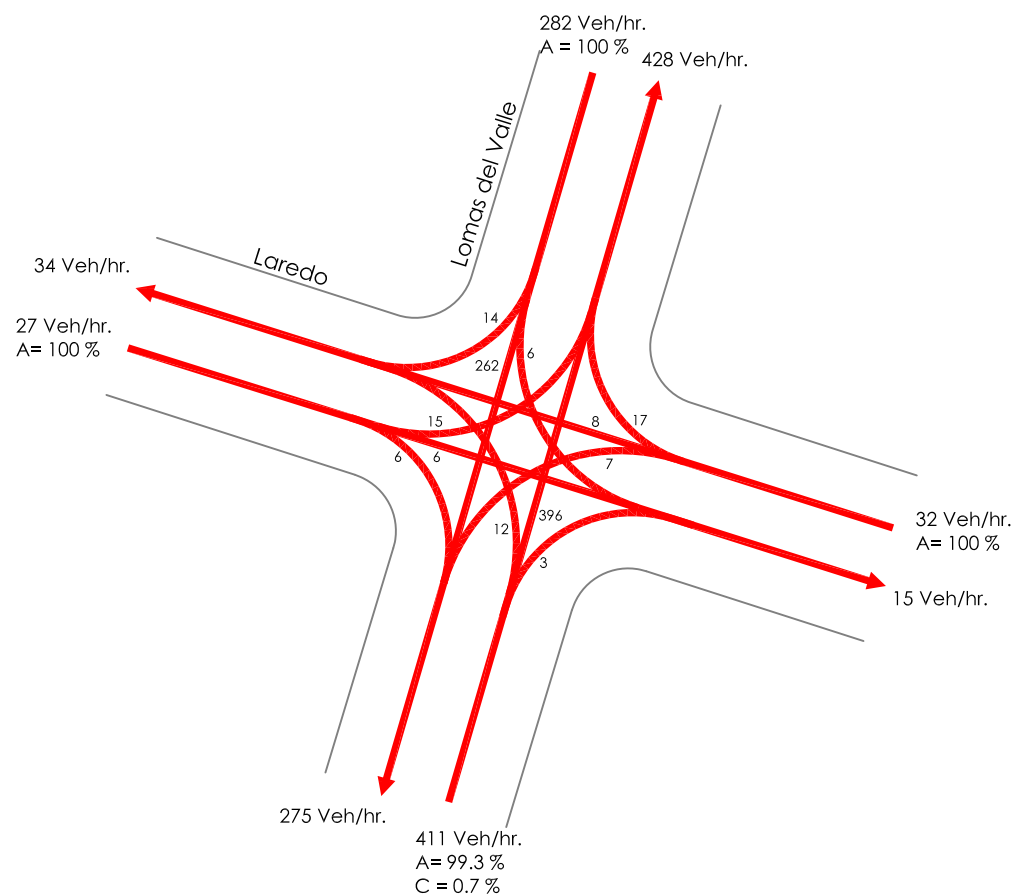
SIN ESCALA



ESTUDIO TÉCNICO VIAL

FIGURA 105

VOLUMENES VEHICULARES
Situación Actual



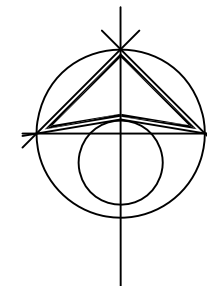
FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Miércoles 11 de Agosto de 2021	12:00 - 13:00	A	99.6 %
PERÍODO	VOLUMEN TOTAL	Bu	0.0 %
12:00 - 15:00	752 Veh./hr.	C	0.4 %

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SIN ESCALA



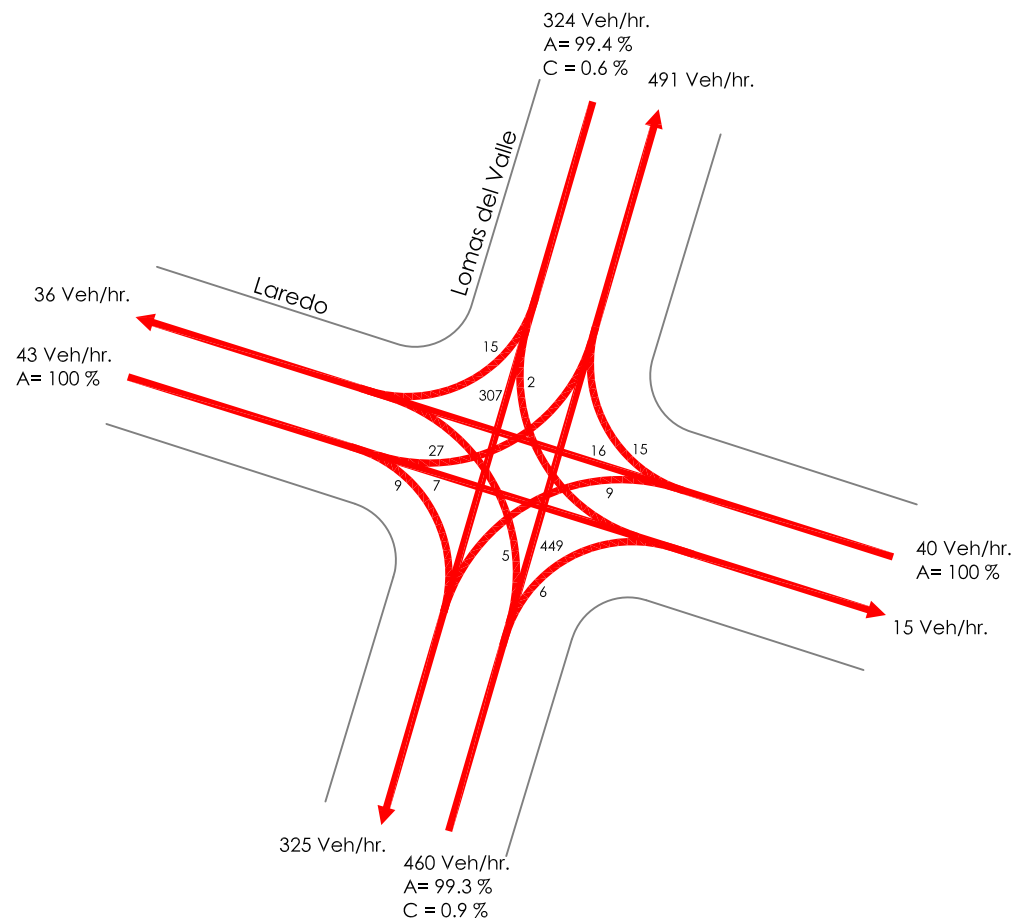
Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
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FIGURA 106

VOLUMENES VEHICULARES
Situación Actual



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FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Miércoles 11 de Agosto de 2021	17:15 - 18:15	A	99.3 %
PERÍODO	VOLUMEN TOTAL	Bu	0.0 %
17:00 - 20:00	867 Veh./hr.	C	0.7 %

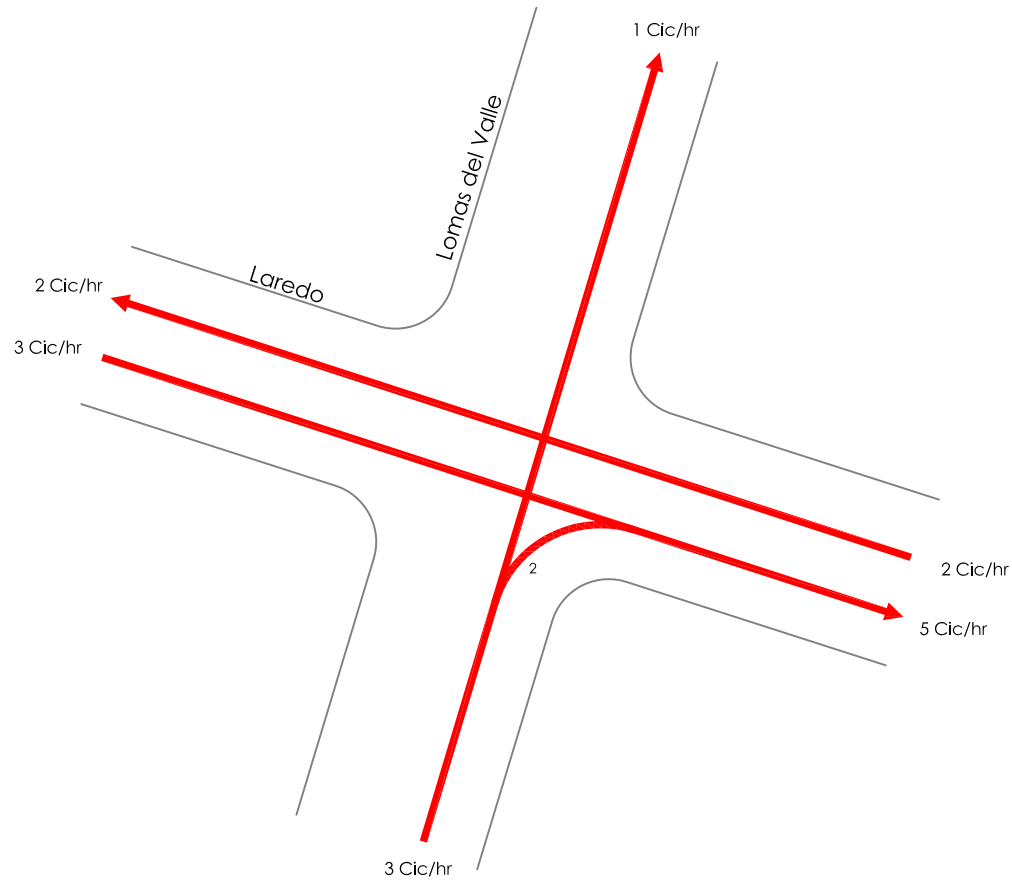
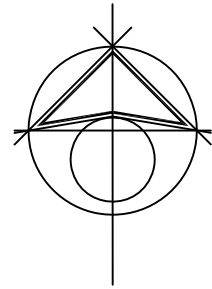
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FIGURA 107

VOLUMENES CICLISTA



Vargas Torres y Asociados, S.A. de C.V.
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FECHA	HORA PICO
Miércoles 11 de Agosto de 2021	08:30 - 09:30
PERÍODO	VOLUMEN TOTAL
07:00 - 10:00	8 Cic/hr.

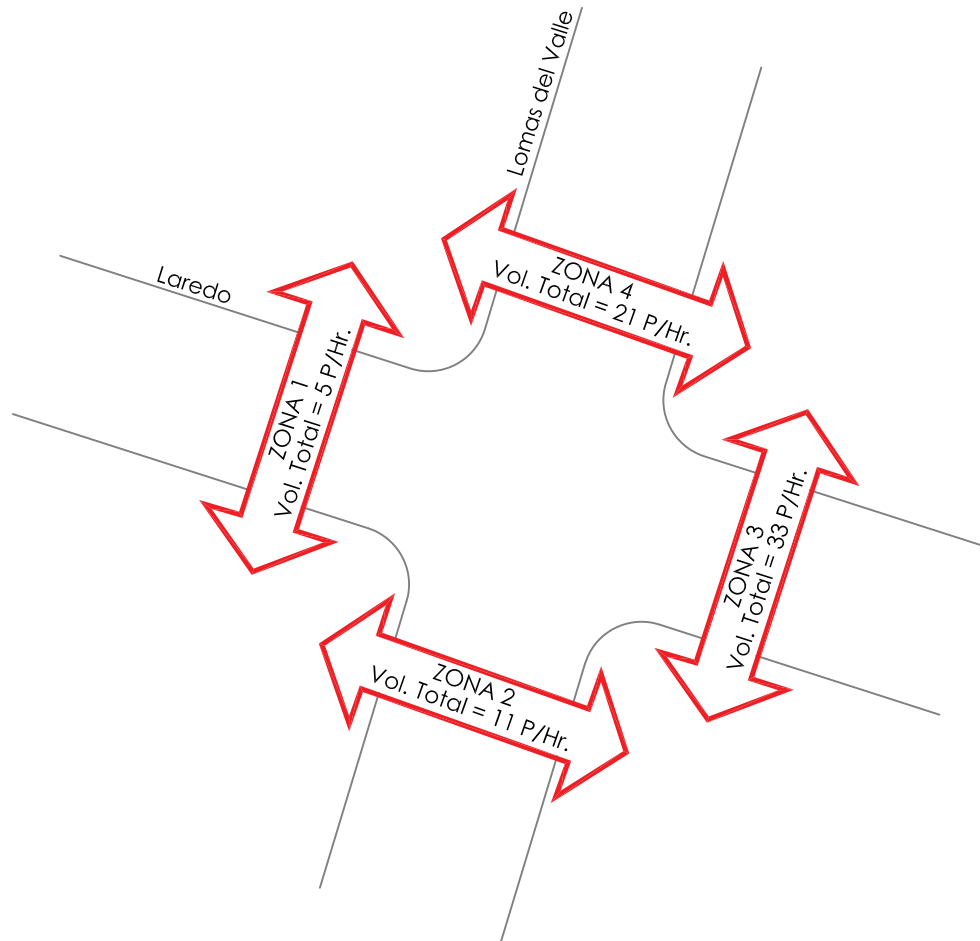
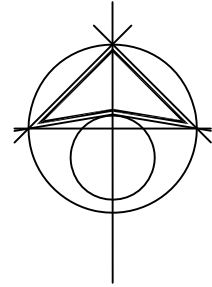
ETV- SP - 217 - AGO/21

SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 108

VOLUMENES PEATONALES
Situación Actual



FECHA

Miércoles 11 de Agosto de 2021

PERÍODO

07:00 - 10:00

HORA PICO

07:30 - 08:30

VOLUMEN TOTAL

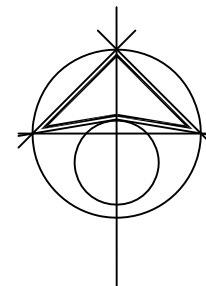
70 P/Hr.

ETV- SP - 217 - AGO/21

SIN ESCALA



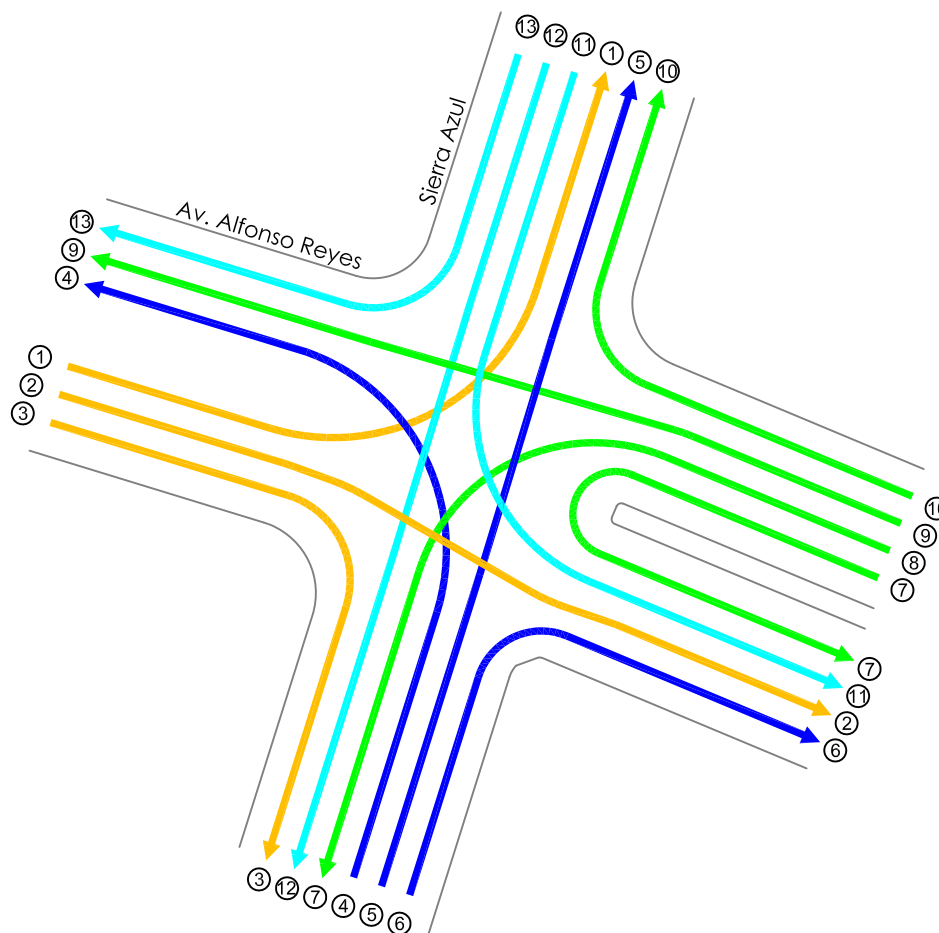
Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

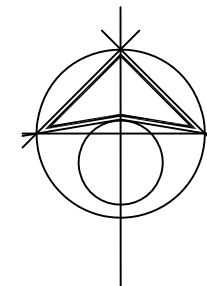


ESTUDIO TÉCNICO VIAL

FIGURA 109

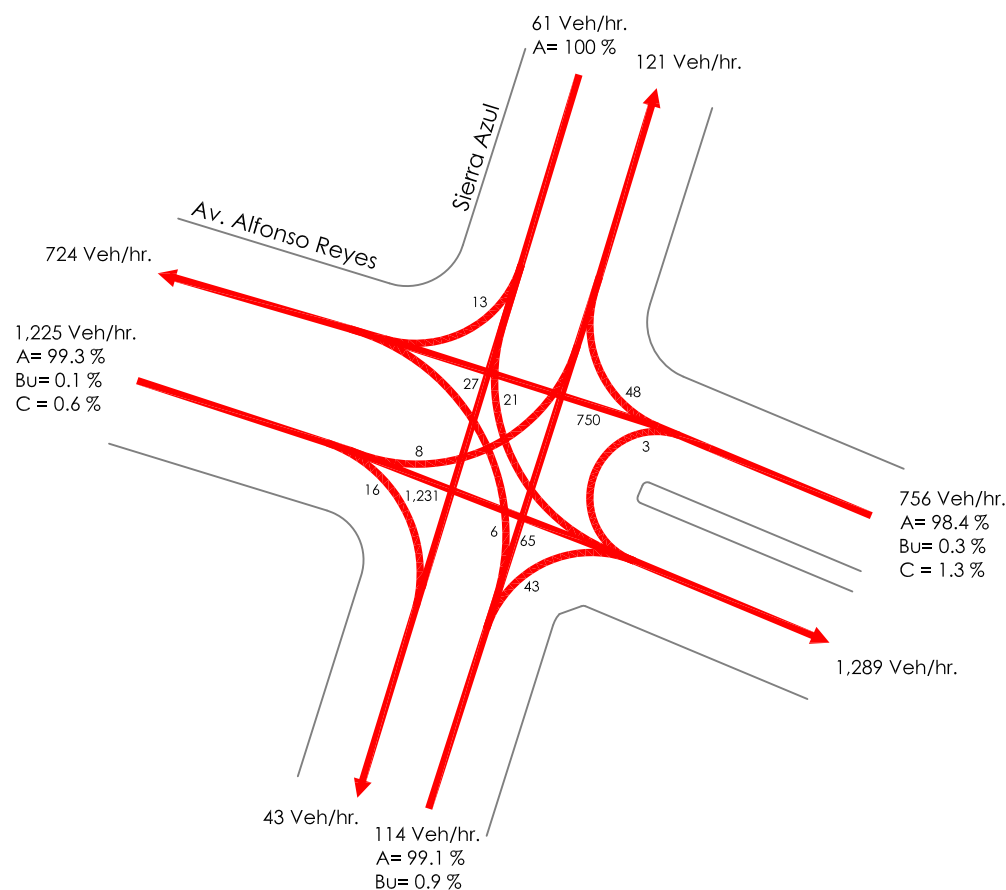
MOVIMIENTOS DIRECCIONALES
VEHÍCULOS Y CICLISTAS





ESTUDIO TÉCNICO VIAL

FIGURA 110 VOLUMENES VEHICULARES
Situación Actual



FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Viernes 7 de Febrero de 2020	08:30 - 09:30	A	99.0 %
PERÍODO	VOLUMEN TOTAL	Bu	
07:00 - 10:00	2,186 Veh./hr.	C	0.8 %

ETV- SP - 217 - AGO/21
SIN ESCALA

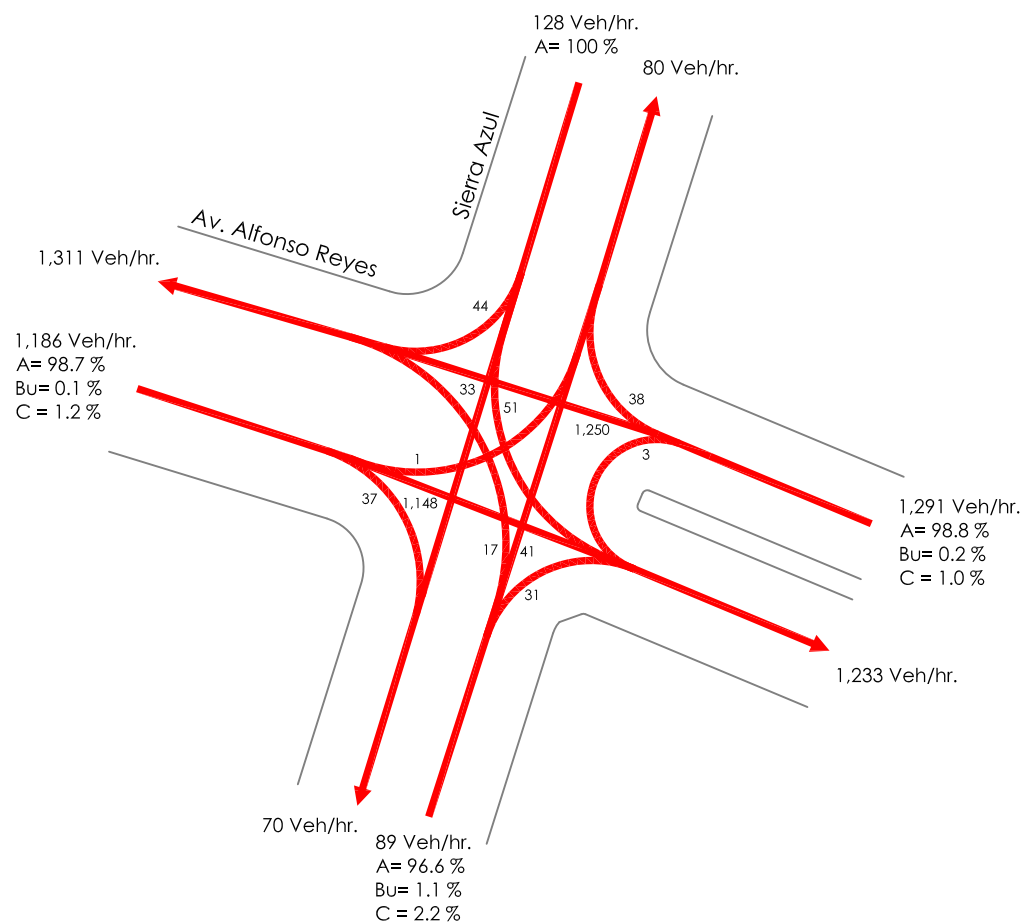
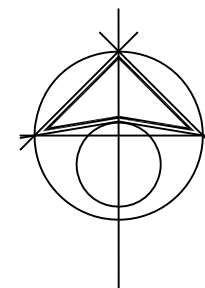


Vargas Torres y Asociados, S.A. de C.V.
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ESTUDIO TÉCNICO VIAL

FIGURA 111

VOLUMENES VEHICULARES
Situación Actual

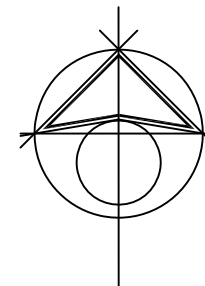


Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Viernes 7 de Febrero de 2020	13:15 - 14:15	A	98.7 %
PERÍODO	VOLUMEN TOTAL	Bu	C
12:00 - 15:00	2,694 Veh./hr.	0.2 %	1.1 %

ETV- SP - 217 - AGO/21

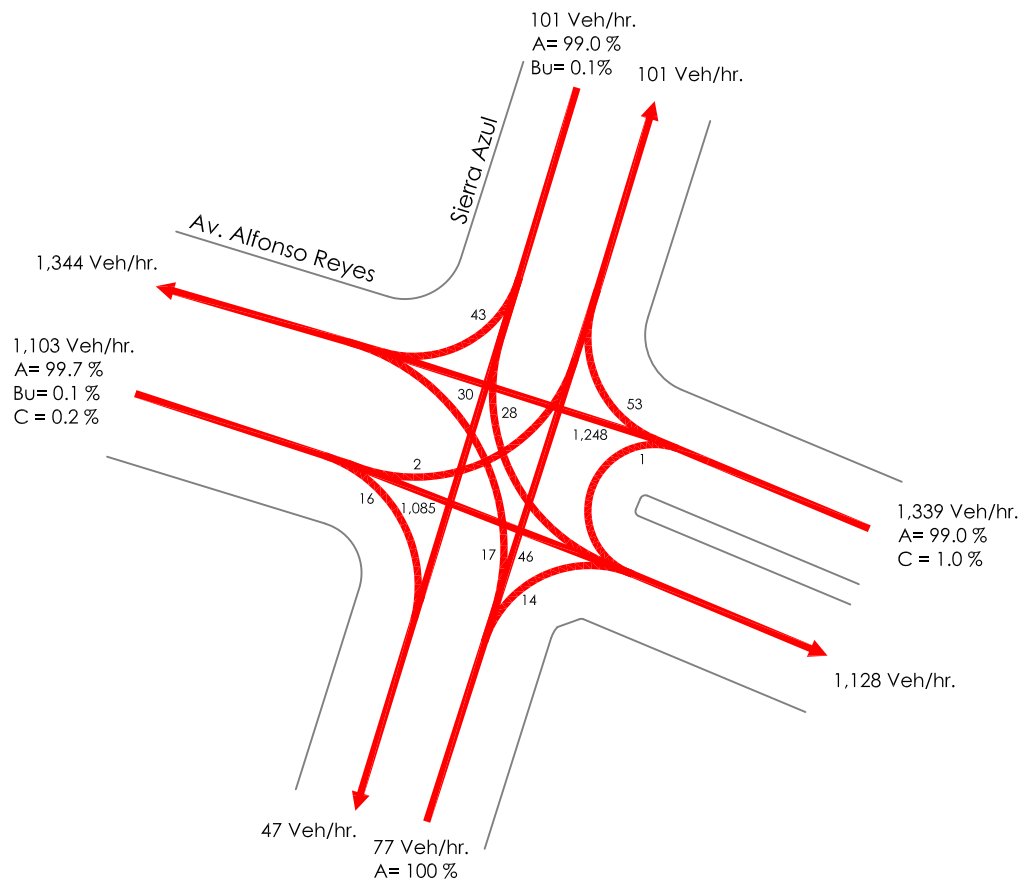
SIN ESCALA



ESTUDIO TÉCNICO VIAL

FIGURA 112

VOLUMENES VEHICULARES
Situación Actual



Vargas Torres y Asociados, S.A. de C.V.
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Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Viernes 7 de Febrero de 2020	17:30 - 18:30	A	99.4 %
PERÍODO	VOLUMEN TOTAL	Bu	0.1 %
17:00 - 20:00	2,620 Veh./hr.	C	0.6 %

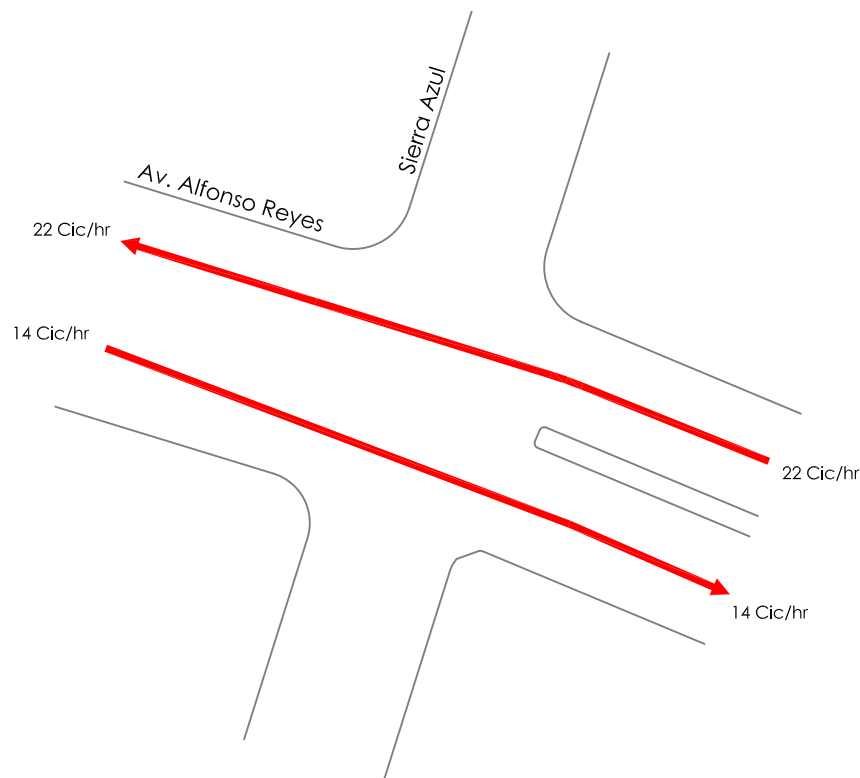
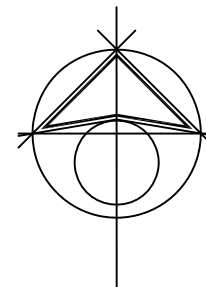
ETV- SP - 217 - AGO/21

SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 113

VOLUMENES CICLISTA



Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA

Viernes 22 de Mayo de 2020

HORA PICO

18:00 - 19:00

PERÍODO

17:00 - 20:00

VOLUMEN TOTAL

36 Cic/hr.

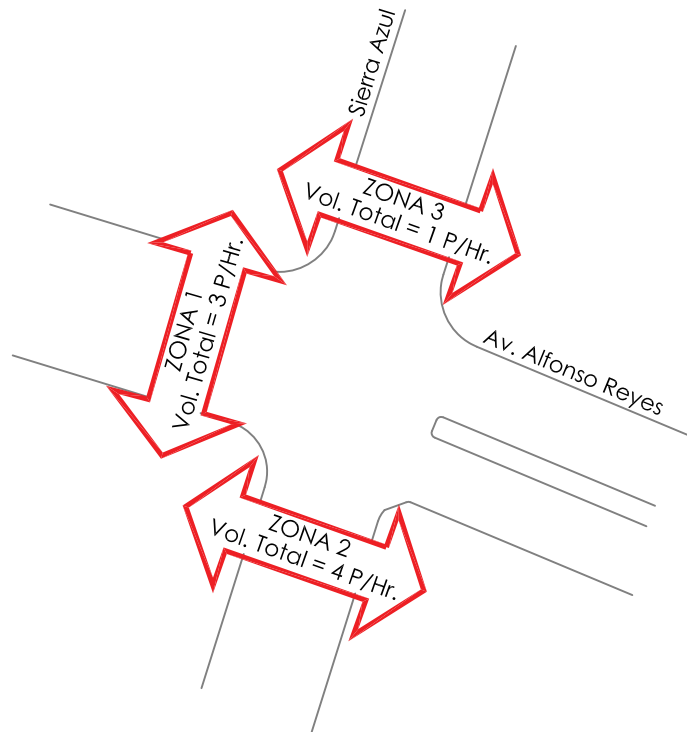
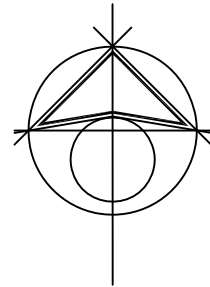
ETV- SP - 217 - AGO/21

SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 114

VOLUMENES PEATONALES
Situación Actual



FECHA

Viernes 7 de Febrero de 2020

PERÍODO

12:00 - 15:00

HORA PICO

13:00 - 14:00

VOLUMEN TOTAL

8 P/Hr.

ETV- SP - 217 - AGO/21

SIN ESCALA

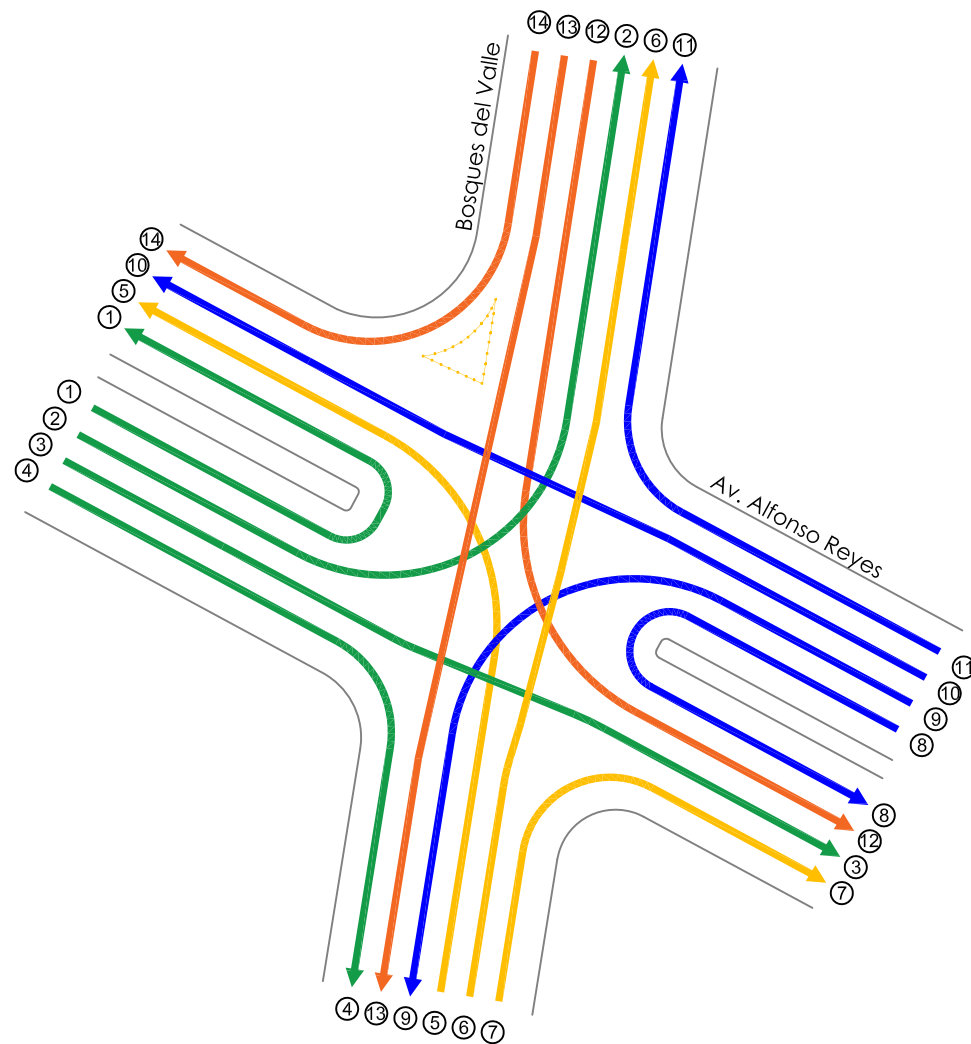
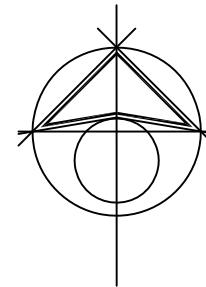


Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

ESTUDIO TÉCNICO VIAL

FIGURA 115

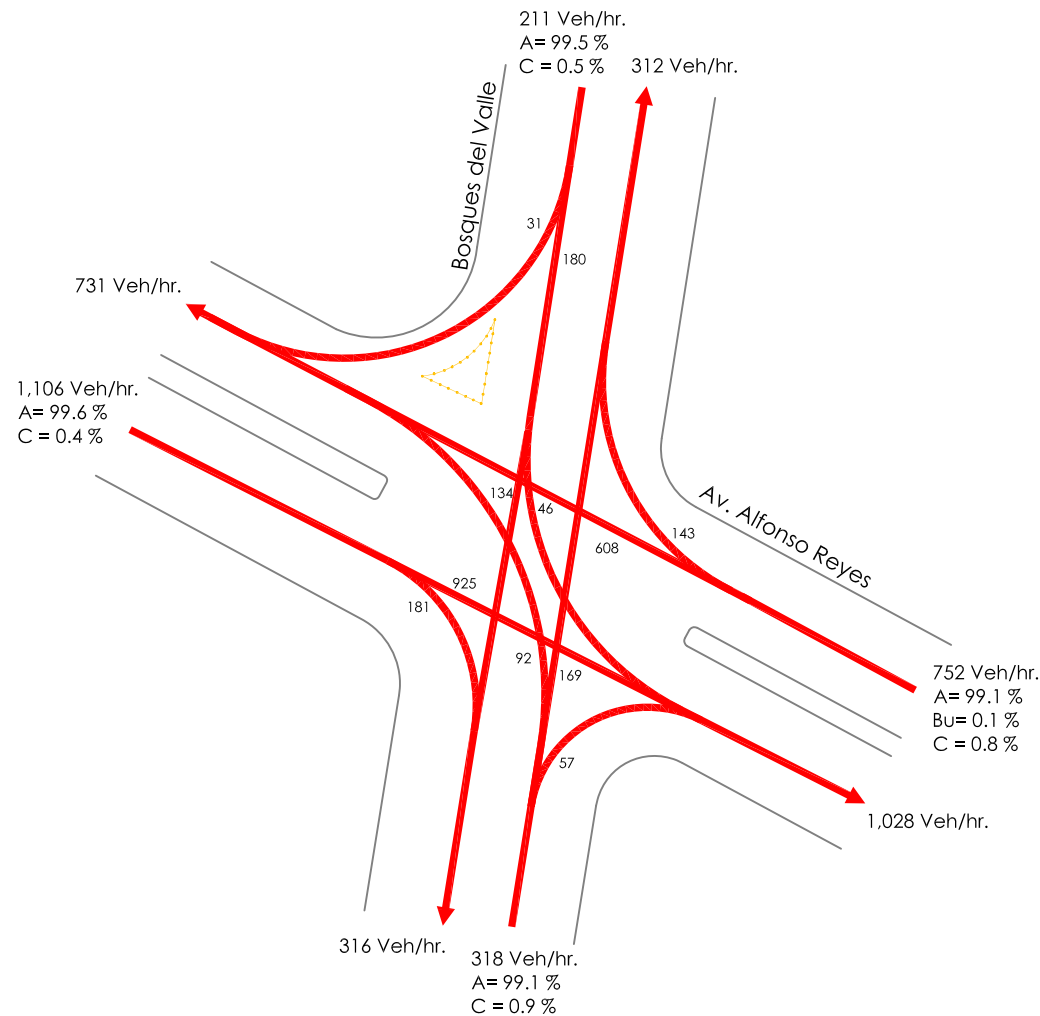
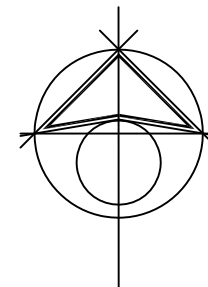
MOVIMIENTOS DIRECCIONALES
VEHÍCULOS Y CICLISTAS



ESTUDIO TÉCNICO VIAL

FIGURA 116

VOLUMENES VEHICULARES
Situación Actual



Vargas Torres y Asociados, S.A. de C.V.
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Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Viernes 7 de Febrero de 2020	08:30 - 09:30	A	99.4 %
PERÍODO	VOLUMEN TOTAL	Bu	0.0 %
07:00 - 10:00	2,387 Veh./hr.	C	0.6 %

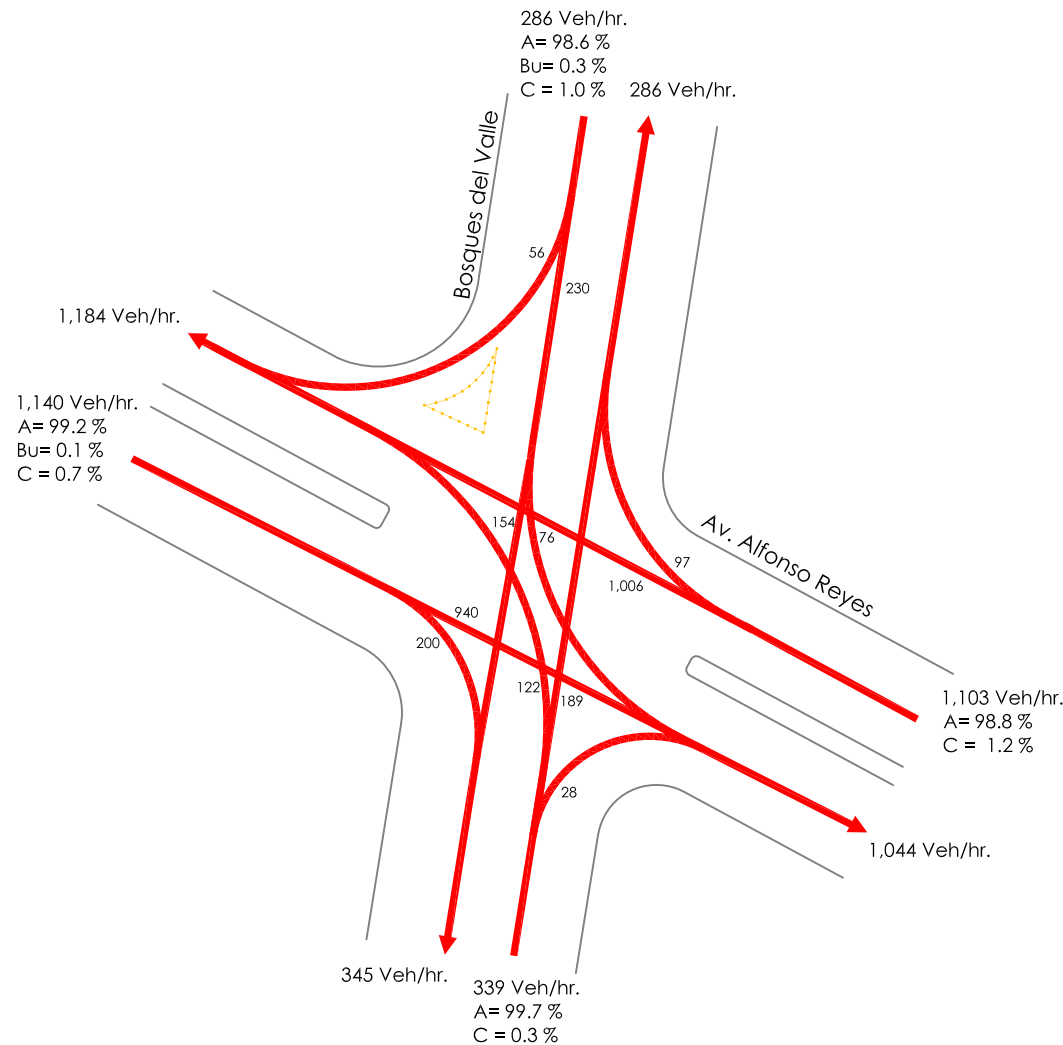
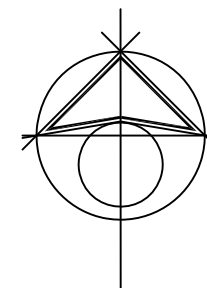
ETV- SP - 217 - AGO/21

SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 117

VOLUMENES VEHICULARES
Situación Actual



FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Viernes 7 de Febrero de 2020	13:15 - 14:15	A	99.1 %
PERÍODO	VOLUMEN TOTAL	Bu	0.1 %
12:00 - 15:00	2,868 Veh./hr.	C	0.9 %

ETV- SP - 217 - AGO/21

SIN ESCALA

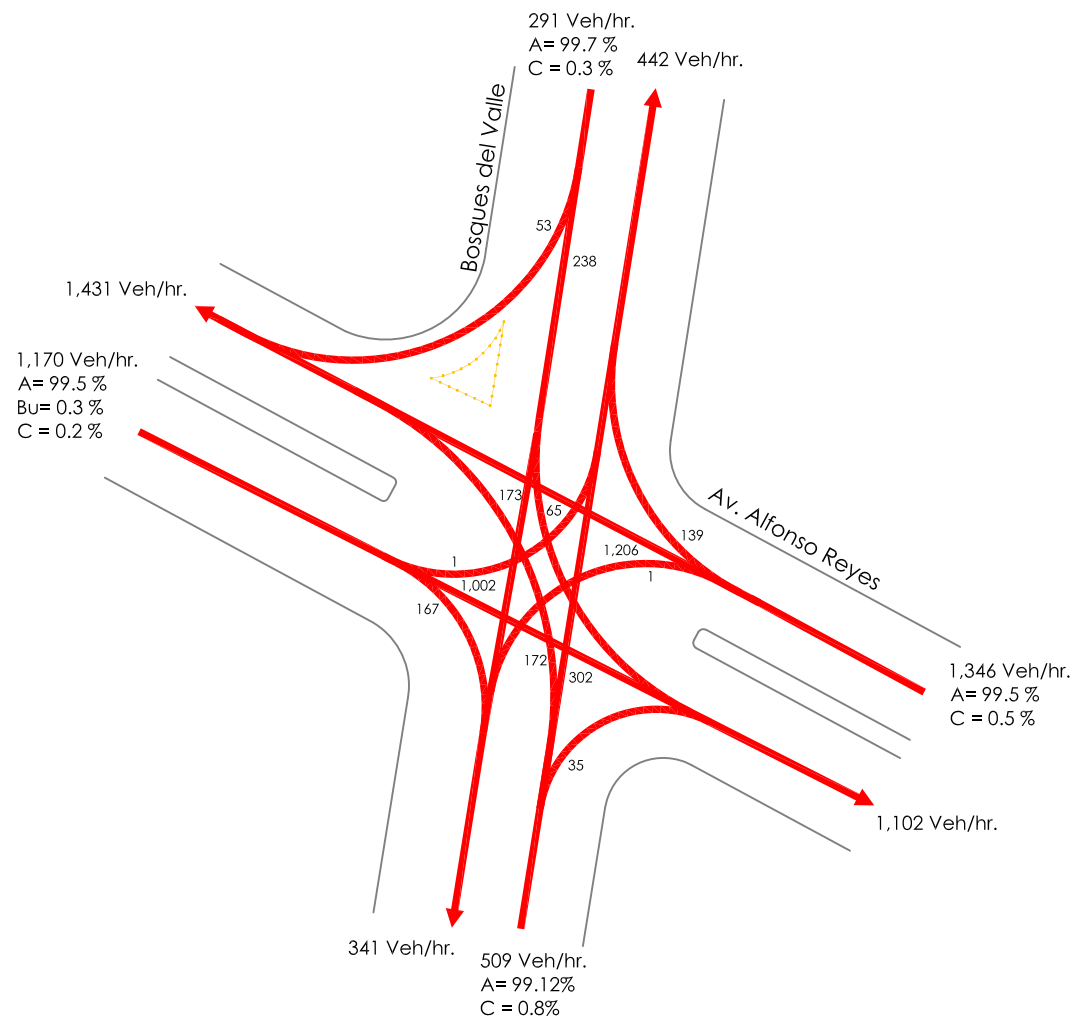
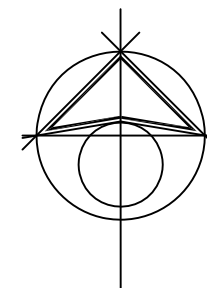


Vargas Torres y Asociados, S.A. de C.V.
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Tel. (81) 8346 0302 y (81) 8333 3700

ESTUDIO TÉCNICO VIAL

FIGURA 118

VOLUMENES VEHICULARES
Situación Actual

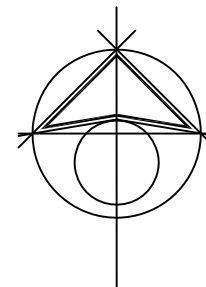


Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Viernes 7 de Febrero de 2020	17:00 - 18:00	A	99.5 %
PERÍODO	VOLUMEN TOTAL	Bu	0.1 %
17:00 - 20:00	3,316 Veh./hr.	C	0.4 %

ETV- SP - 217 - AGO/21

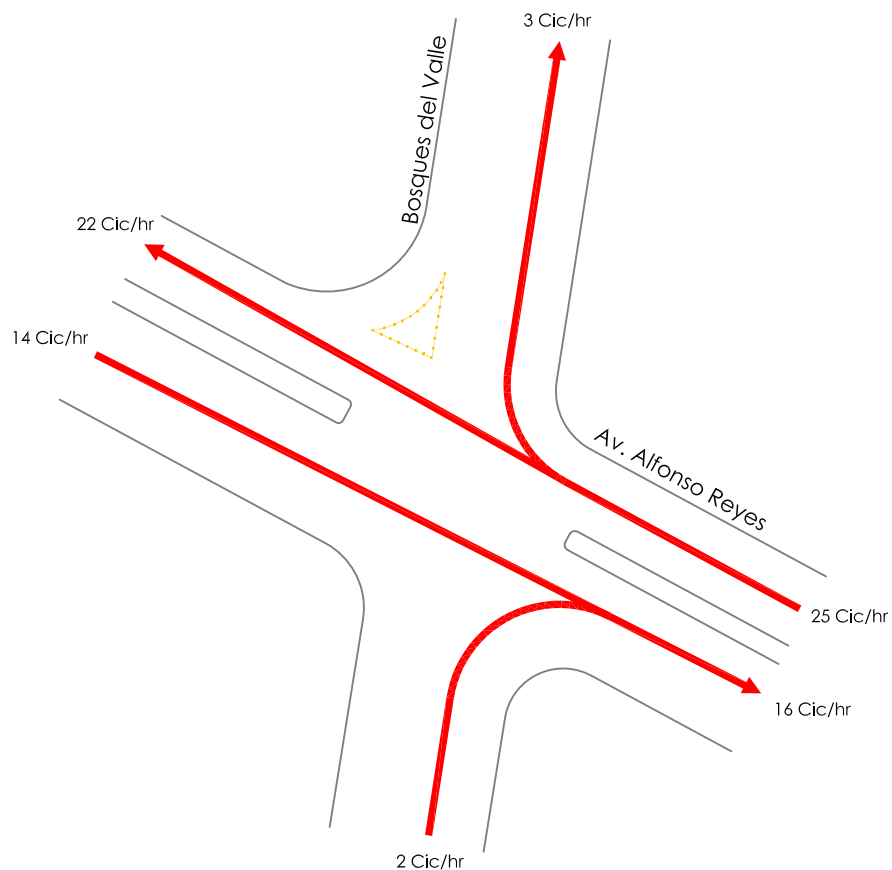
SIN ESCALA



ESTUDIO TÉCNICO VIAL

FIGURA 119

VOLUMENES CICLISTA



Vargas Torres y Asociados, S.A. de C.V.
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Tel. (81) 8346 0302 y (81) 8333 3700

FECHA

Viernes 22 de Mayo de 2020

HORA PICO

18:00 - 19:00

PERÍODO

17:00 - 20:00

VOLUMEN TOTAL

40 Cic/hr.

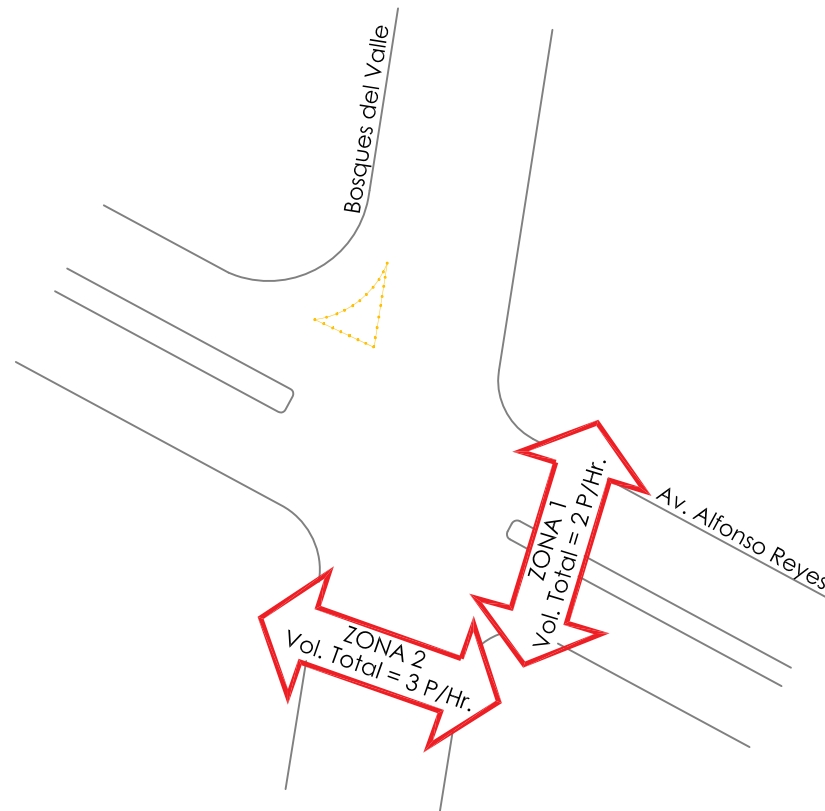
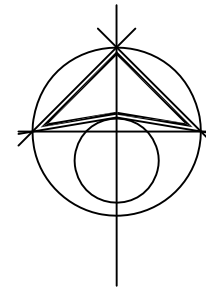
ETV- SP - 217 - AGO/21

SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 120

VOLUMENES PEATONALES
Situación Actual



FECHA

Viernes 7 de Febrero de 2020

PERÍODO

07:00 - 10:00

HORA PICO

08:00 - 09:00

VOLUMEN TOTAL

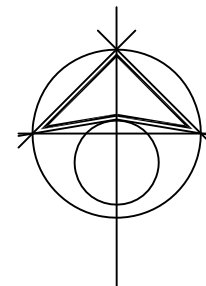
5 P/Hr.

ETV- SP - 217 - AGO/21

SIN ESCALA



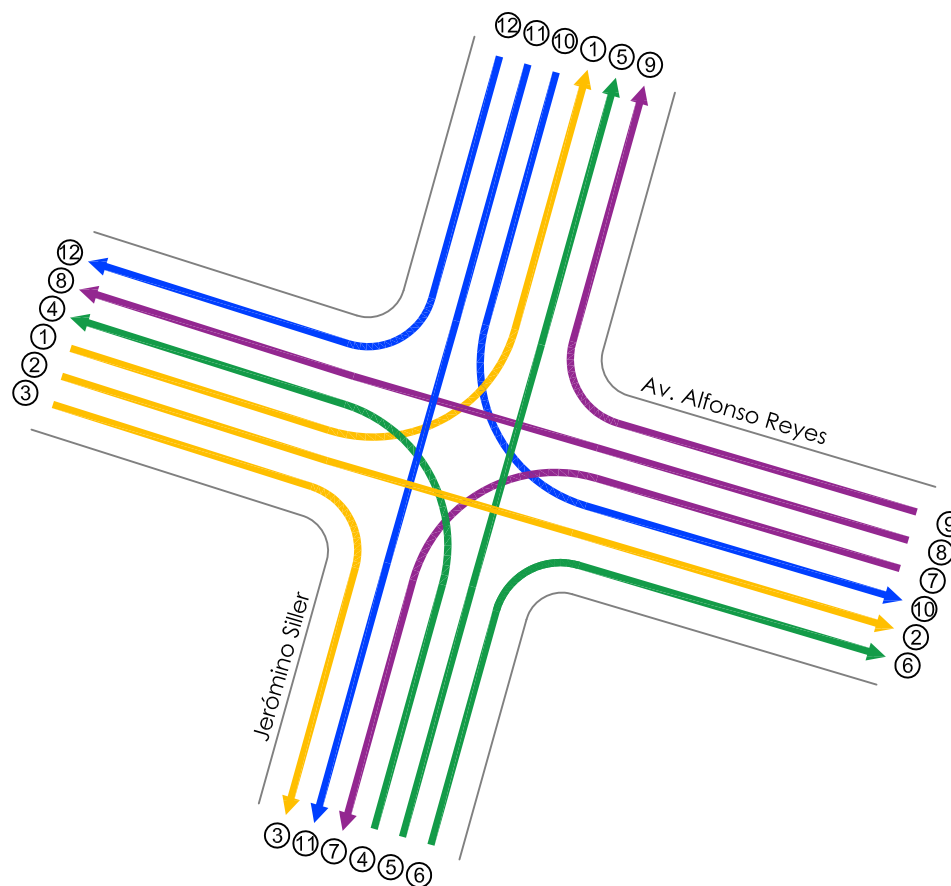
Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700



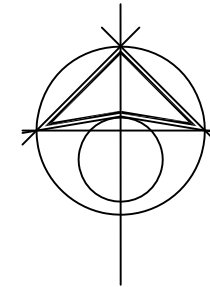
ESTUDIO TÉCNICO VIAL

FIGURA 121

MOVIMIENTOS DIRECCIONALES
VEHÍCULOS Y CICLISTAS



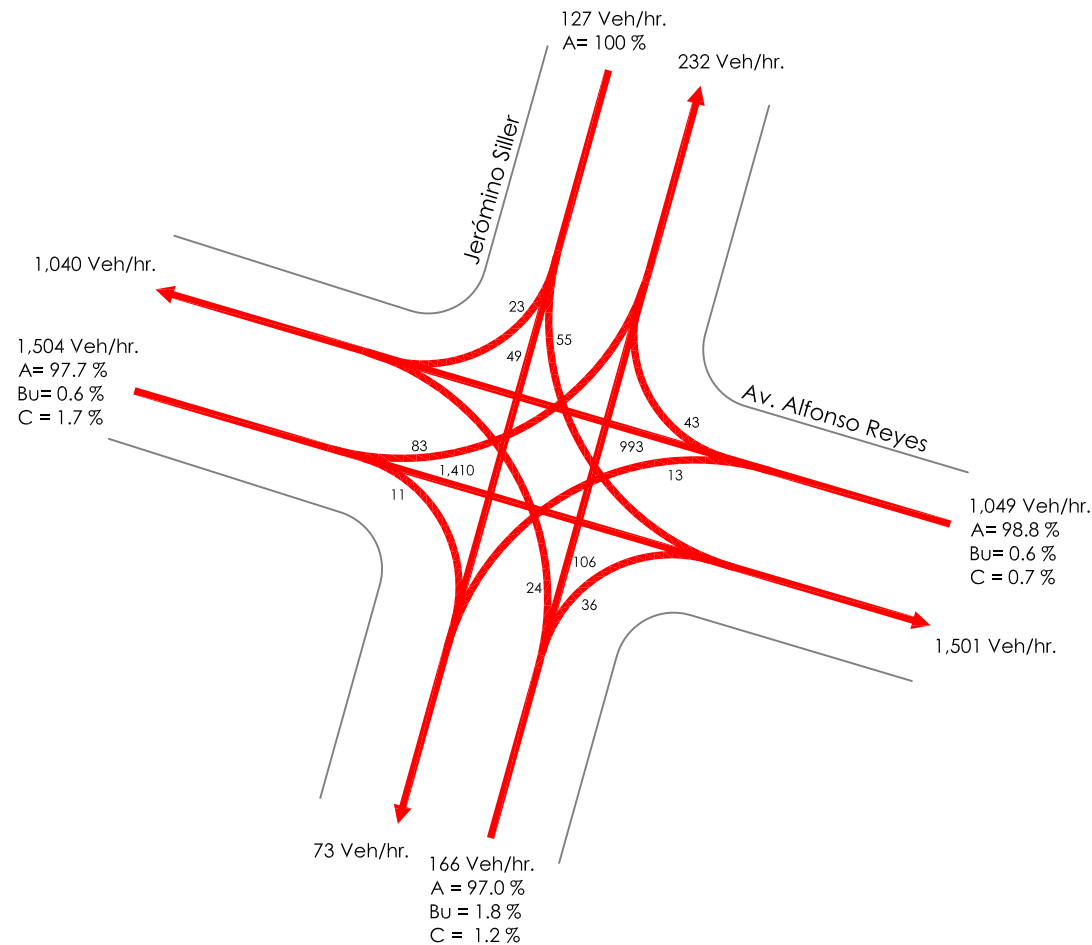
Vargas Torres y Asociados, S.A. de C.V.
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ESTUDIO TÉCNICO VIAL

FIGURA 122

VOLUMENES VEHICULARES
Situación Actual



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Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Viernes 7 de Febrero de 2020	08:30 - 09:30	A	98.2 %
PERÍODO	VOLUMEN TOTAL	Bu	0.6 %
07:00 - 10:00	2,846 Veh./hr.	C	1.2 %

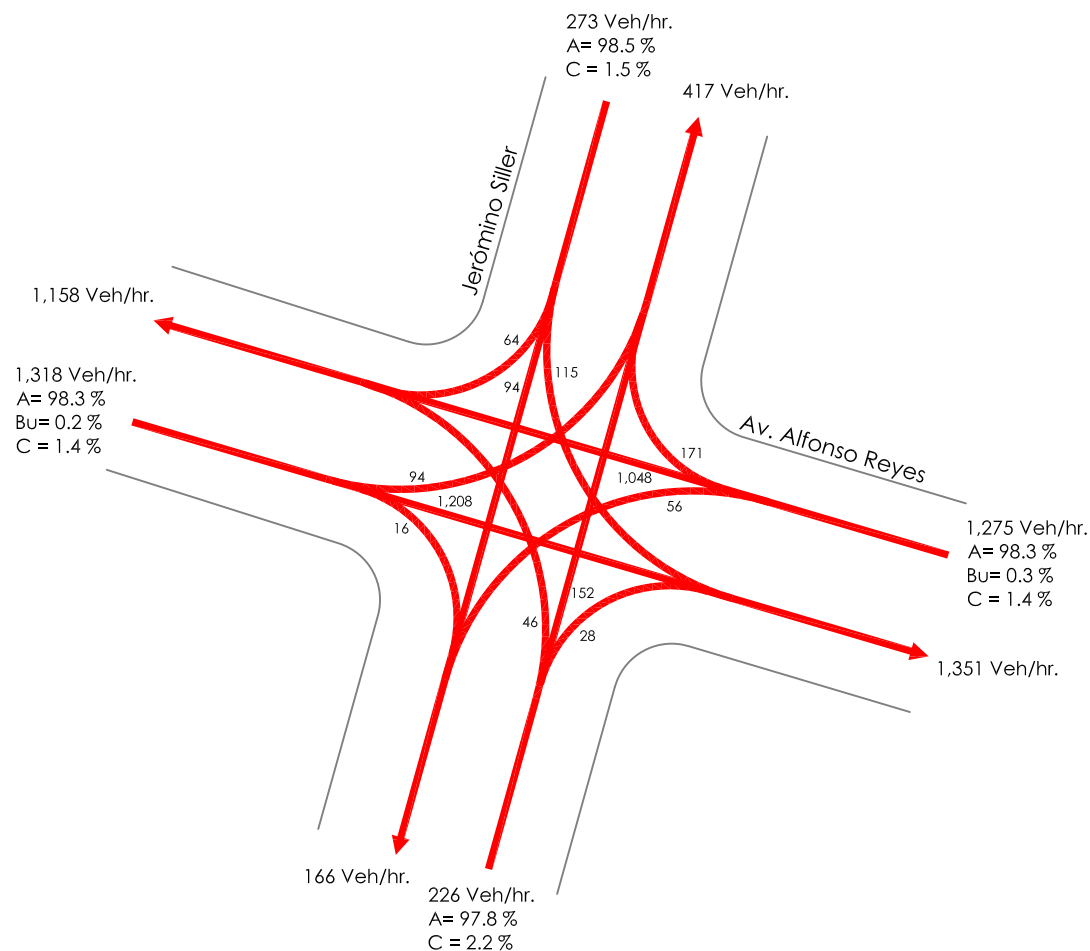
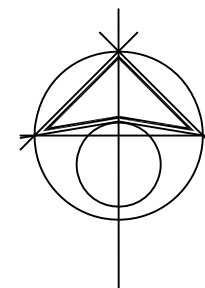
ETV- SP - 217 - AGO/21

SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 123

VOLUMENES VEHICULARES
Situación Actual



Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Viernes 7 de Febrero de 2020	13:30 - 14:30	A	98.3 %
PERÍODO	VOLUMEN TOTAL	Bu	0.2 %
12:00 - 15:00	3,092 Veh./hr.	C	1.5 %

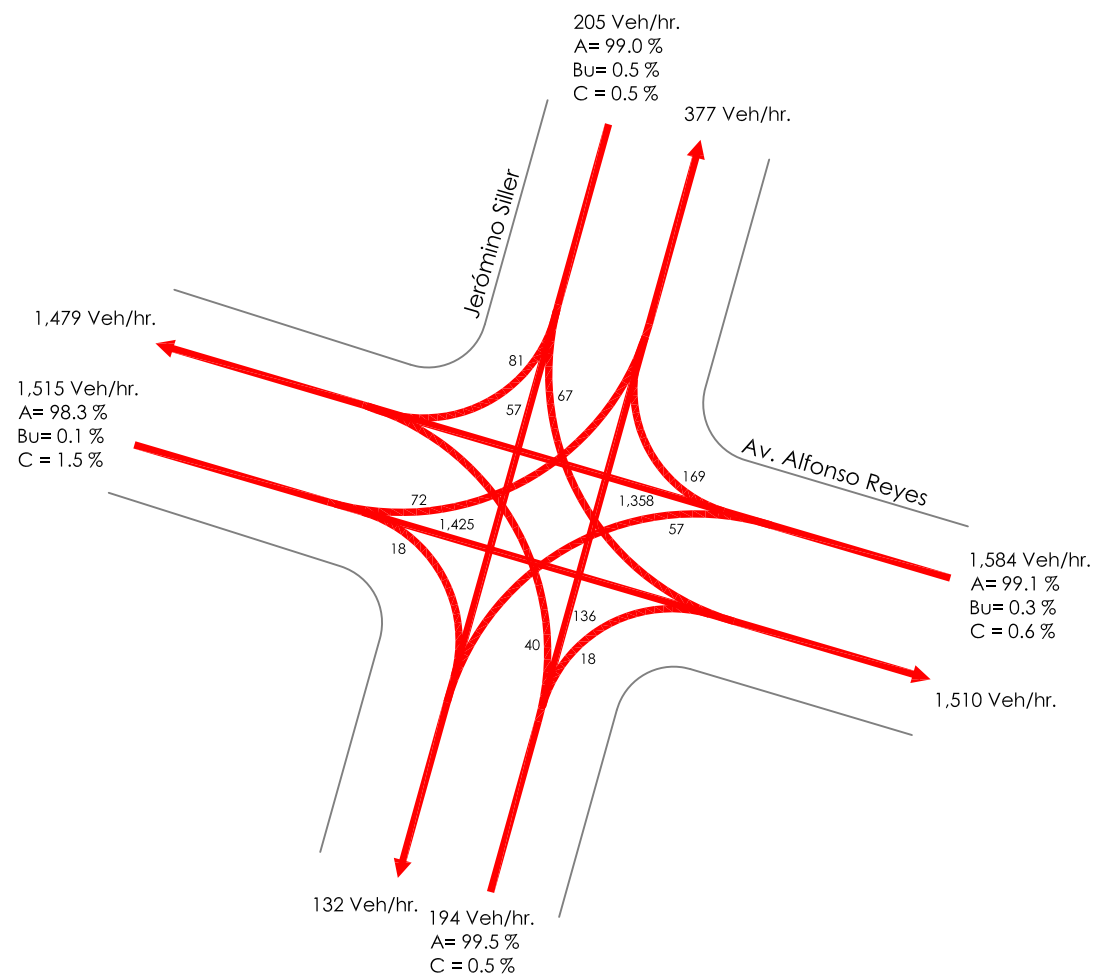
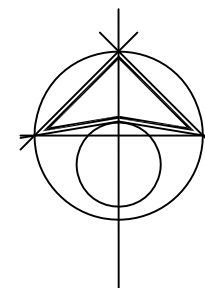
ETV- SP - 217 - AGO/21

SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 124

VOLUMENES VEHICULARES
Situación Actual



Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Viernes 7 de Febrero de 2020	17:30 - 18:30	A	98.8 %
PERÍODO	VOLUMEN TOTAL	Bu	
17:00 - 20:00	3,498 Veh./hr.	C	0.1 %

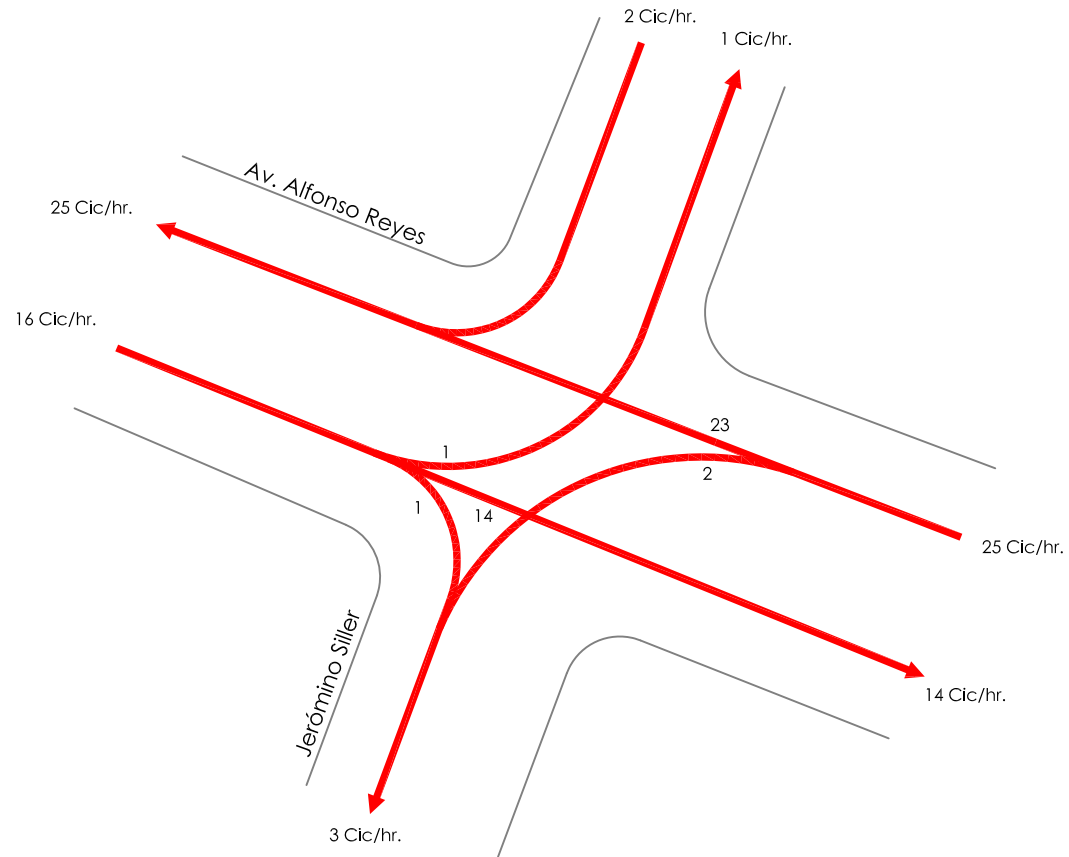
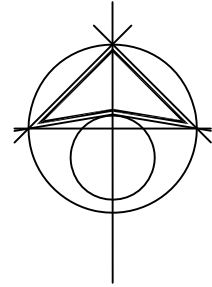
ETV- SP - 217 - AGO/21

SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 125

VOLUMENES CICLISTA



FECHA	HORA PICO
Viernes 22 de Mayo de 2020	18:00 - 19:00
PERÍODO	VOLUMEN TOTAL
18:00 - 20:00	43 Cic/hr.

ETV- SP - 217 - AGO/21

SIN ESCALA

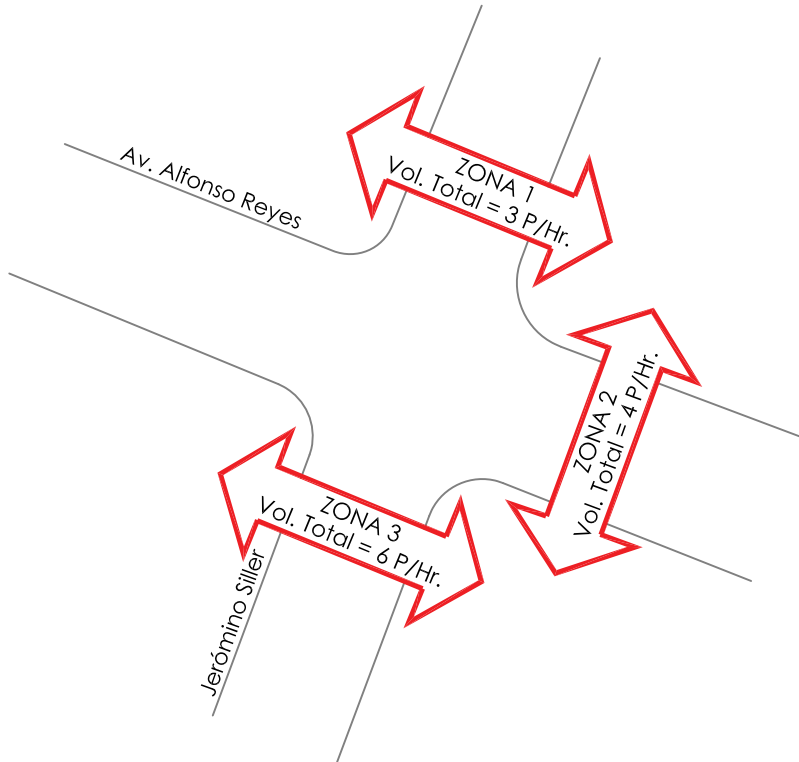
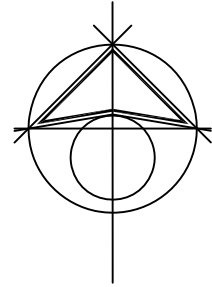


Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

ESTUDIO TÉCNICO VIAL

FIGURA 126

VOLUMENES PEATONALES
Situación Actual



FECHA

Viernes 7 de Febrero de 2020

PERÍODO

12:00 - 15:00

HORA PICO

12:45 - 13:45

VOLUMEN TOTAL

13 P/Hr.

ETV- SP - 217 - AGO/21

SIN ESCALA

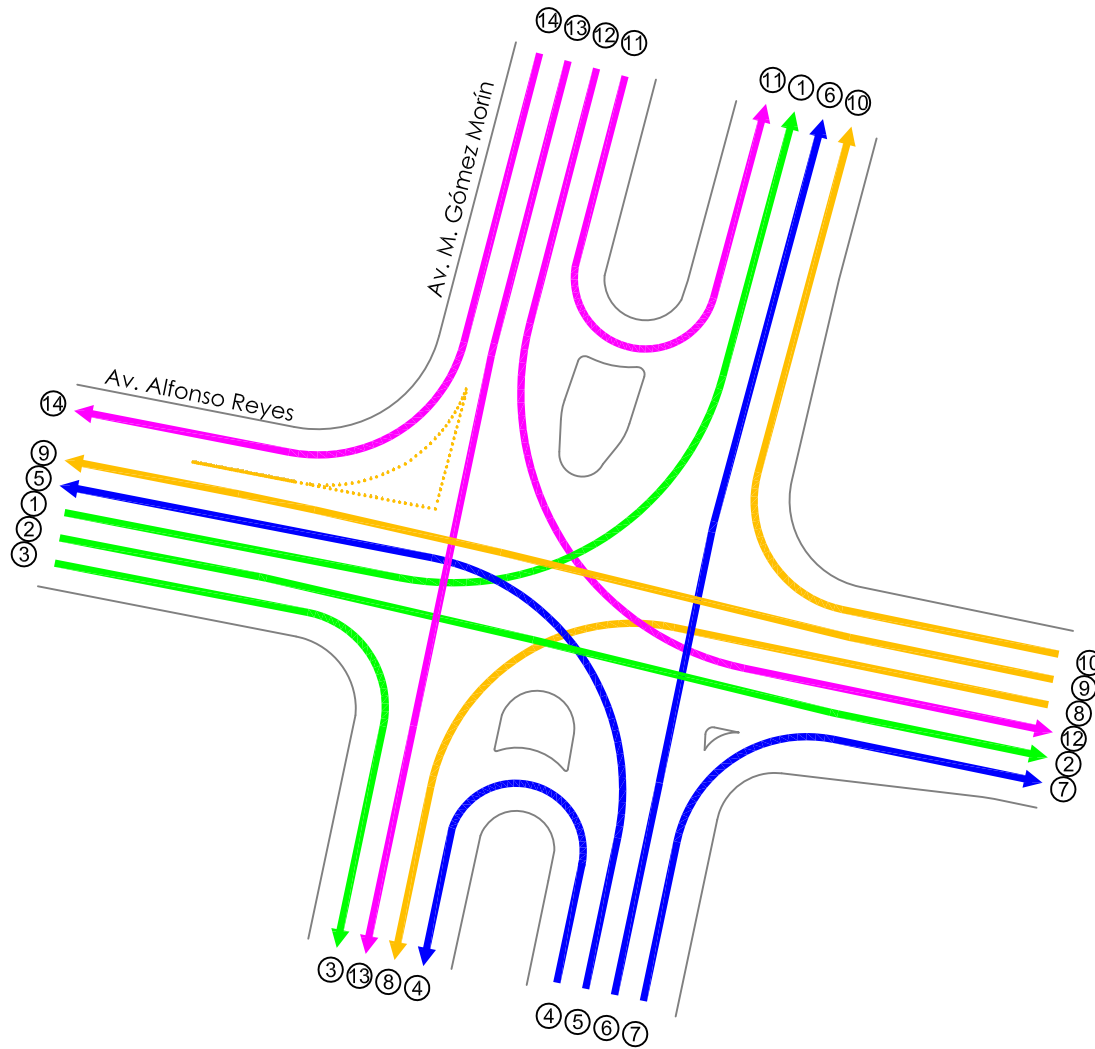
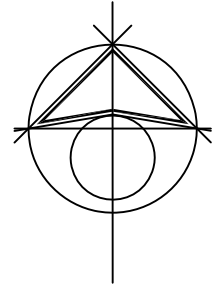


Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

ESTUDIO TÉCNICO VIAL

FIGURA 127

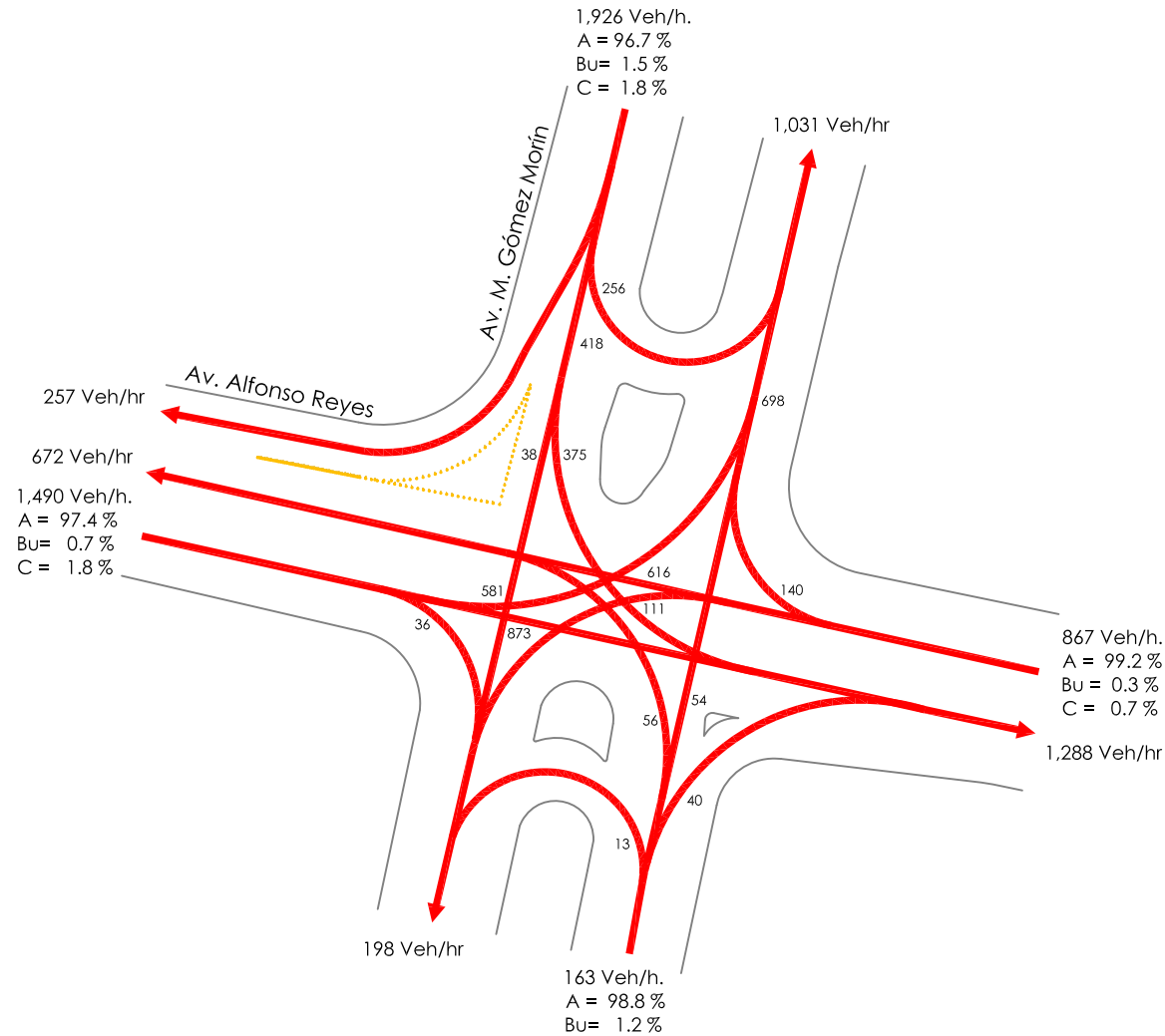
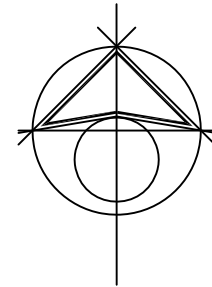
MOVIMIENTOS DIRECCIONALES
VEHÍCULOS Y CICLISTAS



ESTUDIO TÉCNICO VIAL

FIGURA 128

VOLUMENES VEHICULARES
Situación Actual



FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Miércoles 27 de Noviembre de 2019	08:30 - 09:30	A	97.7 %
PERÍODO	VOLUMEN TOTAL	Bu	C
07:00 - 10:00	3,446 Veh./hr.	0.9 %	1.5 %

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SIN ESCALA

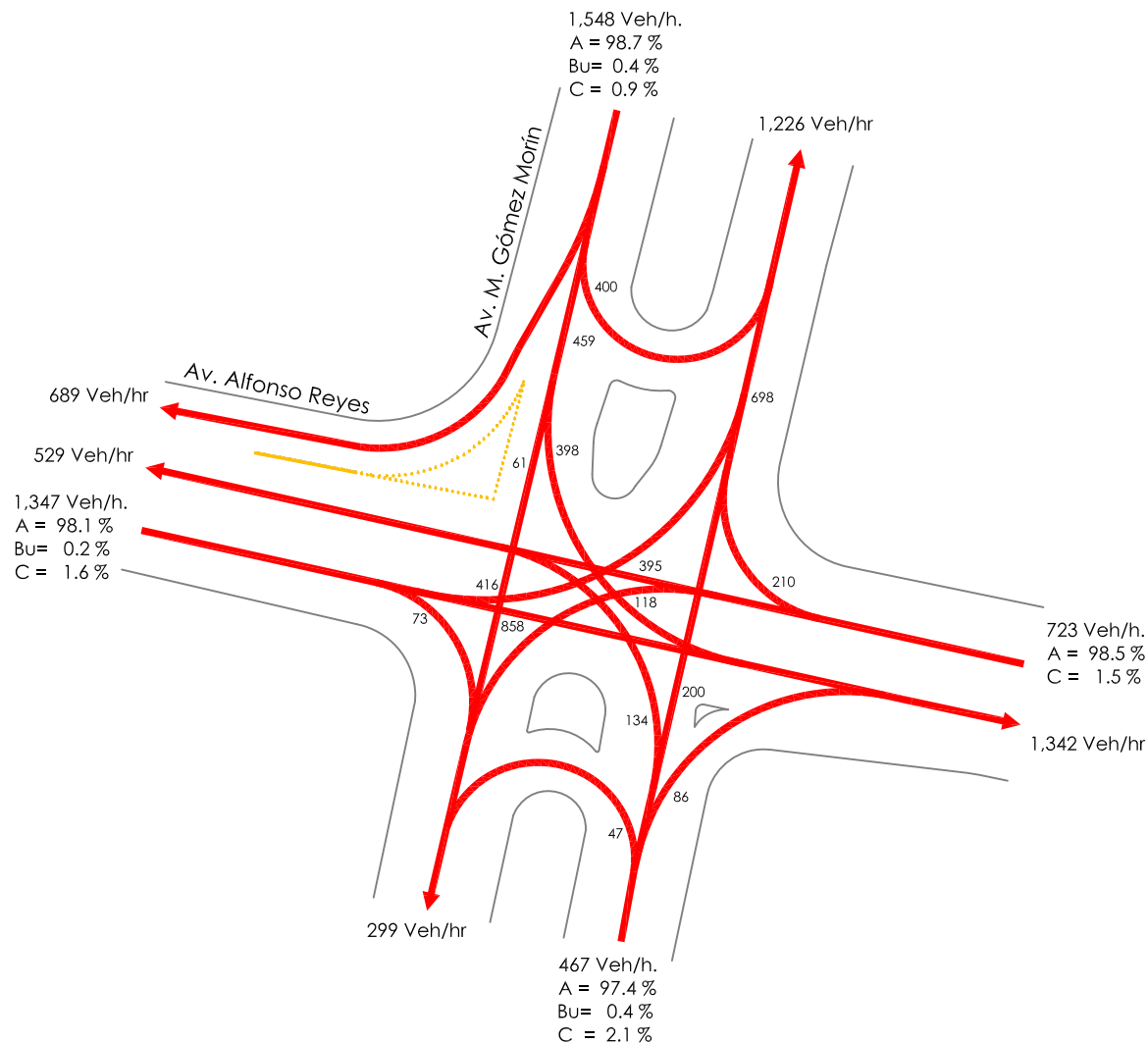
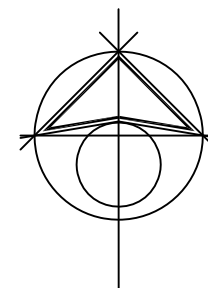


Vargas Torres y Asociados, S.A. de C.V.
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ESTUDIO TÉCNICO VIAL

FIGURA 129

VOLUMENES VEHICULARES
Situación Actual



Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Miércoles 27 de Noviembre de 2019	13:30 - 14:30	A	98.3 %
PERÍODO	VOLUMEN TOTAL	Bu	
12:00 - 15:00	4,085 Veh./hr.	C	1.4 %

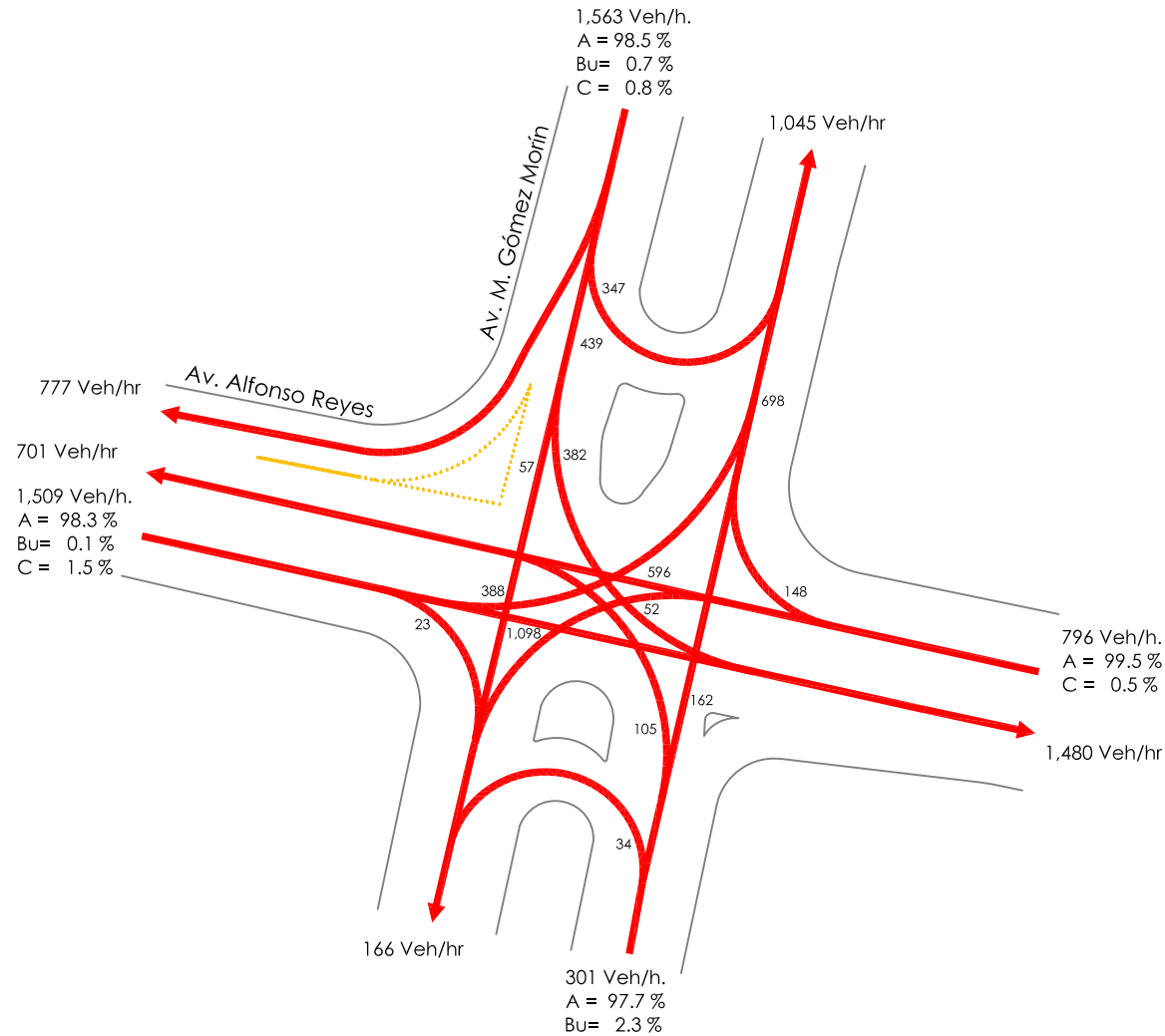
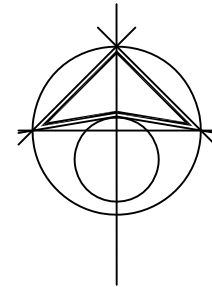
ETV- SP - 217 - AGO/21

SIN ESCALA

ESTUDIO TÉCNICO VIAL

FIGURA 130

VOLUMENES VEHICULARES
Situación Actual



FECHA	HORA PICO	CLASIFICACIÓN VEHICULAR	
Miércoles 27 de Noviembre de 2019	17:30 - 18:30	A	98.6 %
PERÍODO	VOLUMEN TOTAL	Bu	C
17:00 - 20:00	4,169 Veh./hr.	0.5 %	1.0 %

ETV- SP - 217 - AGO/21

SIN ESCALA

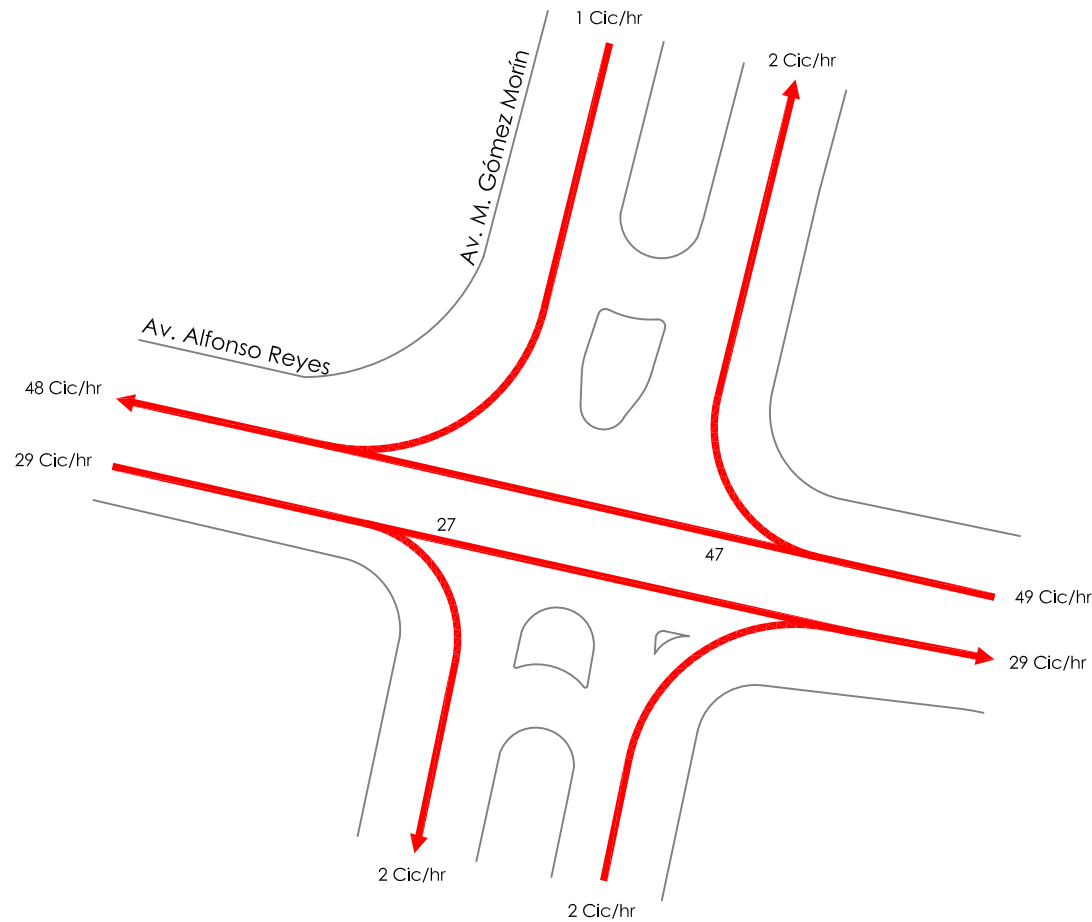
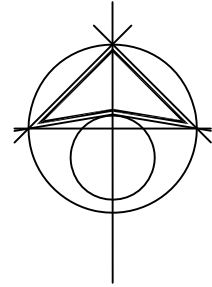


Vargas Torres y Asociados, S.A. de C.V.
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ESTUDIO TÉCNICO VIAL

FIGURA 131

VOLUMENES CICLISTA



FECHA	HORA PICO
Miércoles 27 de Noviembre de 2019	18:30 - 19:30
PERÍODO	VOLUMEN TOTAL
18:00 - 20:00	81 Cic/hr.

ETV- SP - 217 - AGO/21

SIN ESCALA

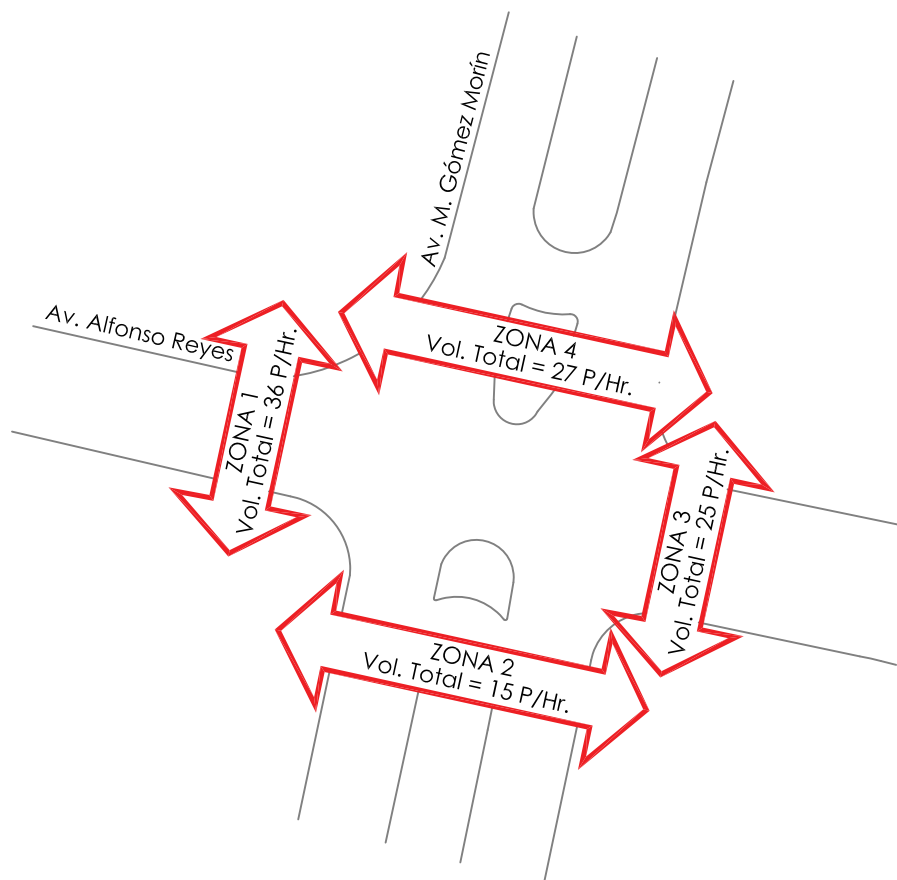
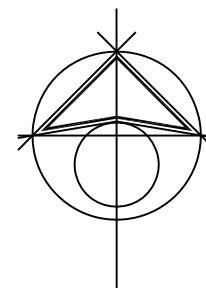


Vargas Torres y Asociados, S.A. de C.V.
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Tel. (81) 8346 0302 y (81) 8333 3700

ESTUDIO TÉCNICO VIAL

FIGURA 132

VOLUMENES PEATONALES
Situación Actual



FECHA

Miércoles 27 de Noviembre de 2019

PERÍODO

17:00 - 20:00

HORA PICO

17:00 - 18:00

VOLUMEN TOTAL

103 P/Hr.

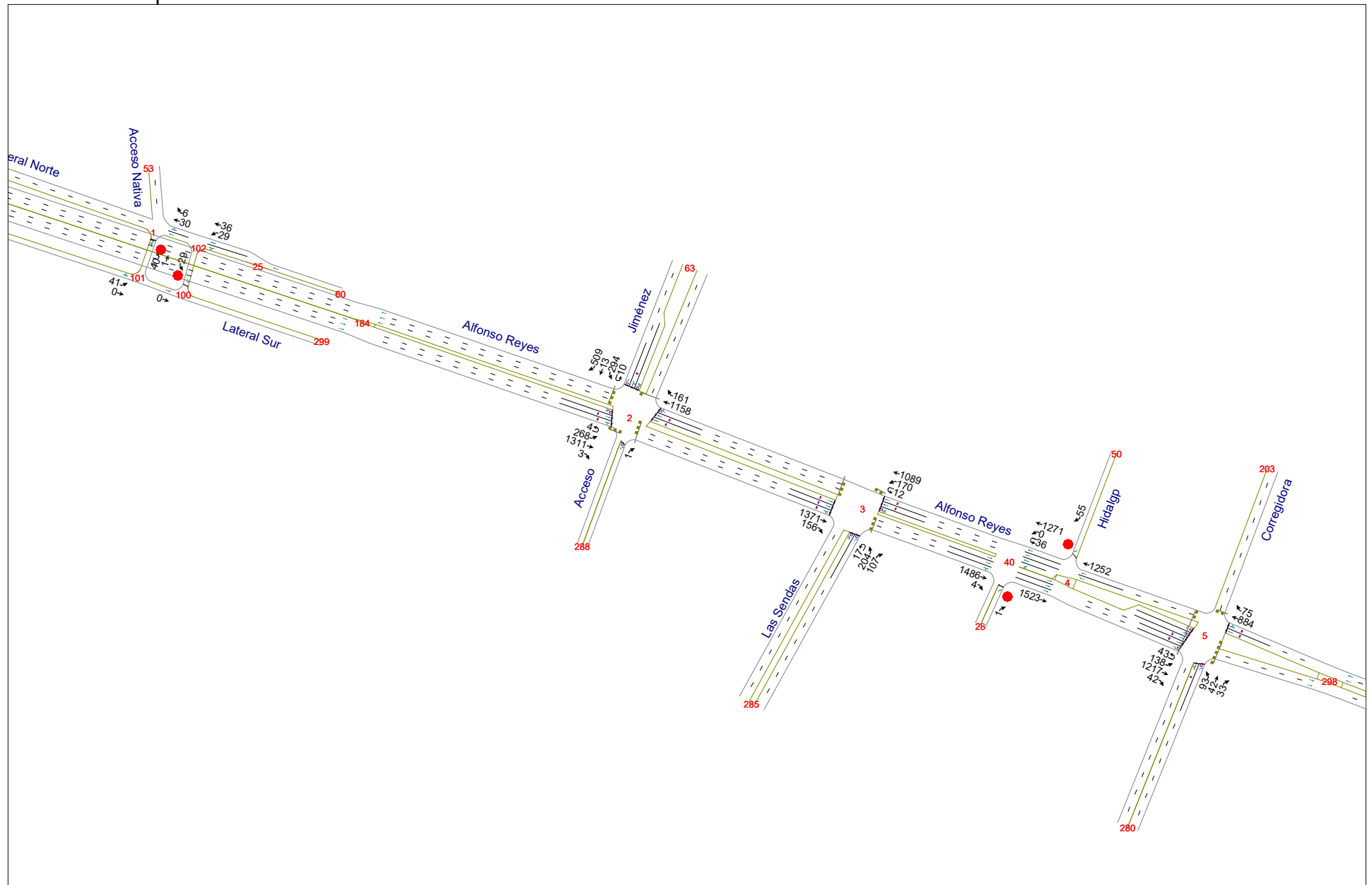
ETV- SP - 217 - AGO/21

SIN ESCALA



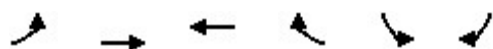
Vargas Torres y Asociados, S.A. de C.V.
Zimapan #201 Col. Miras Centro, Monterrey, N.L., C.P. 64460
Tel. (81) 8346 0302 y (81) 8333 3700

Map - Ciclovía Alfonso Reyes
Análisis de la operación actual - AM



Ciclovía Alfonso Reyes
Vargas Torres y Asociados, S.A. de C.V.

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	30	6	40	1	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.85	0.45	0.59	0.25	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	35	13	68	4	0	0	0	0
Pedestrians											21	
Lane Width (m)											0.0	
Walking Speed (m/s)											1.2	
Percent Blockage											0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	70			0			18	70	0	65	63	45
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	70			0			18	70	0	65	63	45
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			93	100	100	100	100	100
cM capacity (veh/h)	1544			1636			1000	825	1091	924	832	1021
Direction, Lane #	WB 1	WB 2	NB 1									
Volume Total	24	25	72									
Volume Left	0	0	68									
Volume Right	0	13	0									
cSH	1700	1700	988									
Volume to Capacity	0.01	0.01	0.07									
Queue Length 95th (m)	0.0	0.0	1.9									
Control Delay (s)	0.0	0.0	8.9									
Lane LOS			A									
Approach Delay (s)	0.0		8.9									
Approach LOS			A									
Intersection Summary												
Average Delay			5.3									
Intersection Capacity Utilization			18.4%	ICU Level of Service					A			
Analysis Period (min)			15									

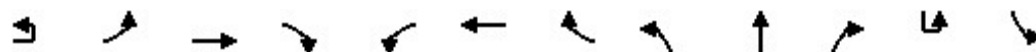


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑			↘	
Volume (veh/h)	0	0	0	0	29	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.60	0.92	0.92	0.52	0.92
Hourly flow rate (vph)	0	0	0	0	56	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	0				0	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				0	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				95	100
cM capacity (veh/h)	1636				1021	1091
Direction, Lane #	EB 1	SB 1				
Volume Total	0	56				
Volume Left	0	56				
Volume Right	0	0				
cSH	1700	1021				
Volume to Capacity	0.00	0.05				
Queue Length 95th (m)	0.0	1.4				
Control Delay (s)	0.0	8.7				
Lane LOS		A				
Approach Delay (s)	0.0	8.7				
Approach LOS		A				
Intersection Summary						
Average Delay		8.7				
Intersection Capacity Utilization		13.3%		ICU Level of Service		A
Analysis Period (min)		15				

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	4	268	1311	3	0	1158	161	0	0	1	10	294
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0		0.0	0.0		0.0	0.0		0.0		45.0
Storage Lanes		1		0	0		1	0		1		1
Taper Length (m)		7.5			7.5			7.5				7.5
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95
Ped Bike Factor		0.99	1.00				0.95			0.97		0.88
Frt			0.999				0.850			0.865		
Flt Protected		0.950										0.950
Satd. Flow (prot)	0	1785	3495	0	0	3570	1597	0	0	1625	0	1583
Flt Permitted		0.950										0.950
Satd. Flow (perm)	0	1766	3495	0	0	3570	1525	0	0	1583	0	1396
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)			1							305		
Link Speed (k/h)			50			50			50			
Link Distance (m)			182.0			160.4			87.6			
Travel Time (s)			13.1			11.5			6.3			
Confl. Peds. (#/hr)	14	16		11			16			47	16	47
Confl. Bikes (#/hr)				16			17					
Peak Hour Factor	0.50	0.72	0.94	0.37	0.92	0.95	0.88	0.92	0.92	0.25	0.50	0.93
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	8%
Adj. Flow (vph)	8	372	1395	8	0	1219	183	0	0	4	20	316
Shared Lane Traffic (%)												50%
Lane Group Flow (vph)	0	380	1403	0	0	1219	183	0	0	4	0	178
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	R NA	Left
Median Width(m)			6.0			4.0			0.0			
Link Offset(m)			0.0			0.0			0.0			
Crosswalk Width(m)			4.8			4.8			4.8			
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	15	25		15	25		15	25		15	15	25
Turn Type	custom	custom	NA			NA	custom			Free	custom	custom
Protected Phases	1	1	2			2	2				3	3
Permitted Phases	1	1	2			2	1 2 3			Free	3	3
Minimum Split (s)	15.0	15.0	20.0			20.0	20.0				15.0	15.0
Total Split (s)	26.0	26.0	55.0			55.0	55.0				19.0	19.0
Total Split (%)	26.0%	26.0%	55.0%			55.0%	55.0%				19.0%	19.0%
Maximum Green (s)	23.0	23.0	52.0			52.0	52.0				16.0	16.0
Yellow Time (s)	3.0	3.0	3.0			3.0	3.0				3.0	3.0
All-Red Time (s)	0.0	0.0	0.0			0.0	0.0				0.0	0.0
Lost Time Adjust (s)		0.0	0.0			0.0	0.0					0.0
Total Lost Time (s)		3.0	3.0			3.0	3.0					3.0
Lead/Lag	Lead	Lead	Lag			Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	Yes					
Walk Time (s)			5.0			5.0	5.0					
Flash Dont Walk (s)			11.0			11.0	11.0					
Pedestrian Calls (#/hr)			0			0	0					



Lane Group	SBT	SBR
Lane Configurations	↑	↑
Volume (vph)	13	509
Ideal Flow (vphpl)	1900	1900
Storage Length (m)		0.0
Storage Lanes		1
Taper Length (m)		
Lane Util. Factor	0.95	1.00
Ped Bike Factor	0.92	0.98
Frt		0.850
Flt Protected	0.958	
Satd. Flow (prot)	1599	1521
Flt Permitted	0.958	
Satd. Flow (perm)	1477	1496
Right Turn on Red		Yes
Satd. Flow (RTOR)		
Link Speed (k/h)	50	
Link Distance (m)	103.5	
Travel Time (s)	7.5	
Confl. Peds. (#/hr)		14
Confl. Bikes (#/hr)		
Peak Hour Factor	0.54	0.88
Heavy Vehicles (%)	0%	5%
Adj. Flow (vph)	24	578
Shared Lane Traffic (%)		
Lane Group Flow (vph)	182	578
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(m)	8.0	
Link Offset(m)	0.0	
Crosswalk Width(m)	4.8	
Two way Left Turn Lane		
Headway Factor	1.01	1.01
Turning Speed (k/h)		15
Turn Type	NA	custom
Protected Phases	3	3
Permitted Phases	3	1 2 3
Minimum Split (s)	15.0	15.0
Total Split (s)	19.0	19.0
Total Split (%)	19.0%	19.0%
Maximum Green (s)	16.0	16.0
Yellow Time (s)	3.0	3.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	3.0	3.0
Lead/Lag		
Lead-Lag Optimize?		
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Act Effct Green (s)		23.0	52.0			52.0	94.0			100.0		16.0
Actuated g/C Ratio		0.23	0.52			0.52	0.94			1.00		0.16
v/c Ratio		0.93	0.77			0.66	0.12			0.00		0.70
Control Delay		68.5	22.9			19.6	0.3			0.0		56.1
Queue Delay		0.0	0.0			1.3	0.0			0.0		0.0
Total Delay		68.5	22.9			20.9	0.3			0.0		56.1
LOS		E	C			C	A			A		E
Approach Delay			32.6			18.2						
Approach LOS			C			B						

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 65

Control Type: Pretimed

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 25.3

Intersection LOS: C

Intersection Capacity Utilization 90.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 2: Acceso/Jiménez & Alfonso Reyes

 ø1	 ø2 (R)	 ø3
26 s	55 s	19 s



Lane Group	SBT	SBR
Act Effct Green (s)	16.0	94.0
Actuated g/C Ratio	0.16	0.94
v/c Ratio	0.71	0.41
Control Delay	56.7	1.0
Queue Delay	0.0	0.0
Total Delay	56.7	1.0
LOS	E	A
Approach Delay	22.3	
Approach LOS	C	
Intersection Summary		

	→	↘	↶	↙	←	↗	↘	↖
Lane Group	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑			↶	↑↑		↶	↖
Volume (vph)	1371	156	12	170	1089	17	204	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.91	0.91	0.95	1.00	0.95	1.00	1.00	1.00
Ped Bike Factor	1.00			1.00			0.99	0.99
Frt	0.982							0.850
Flt Protected				0.950			0.950	
Satd. Flow (prot)	4822	0	0	1723	3570	0	1708	1521
Flt Permitted				0.950			0.950	
Satd. Flow (perm)	4822	0	0	1722	3570	0	1697	1499
Right Turn on Red		Yes						Yes
Satd. Flow (RTOR)	37							132
Link Speed (k/h)	50				50		50	
Link Distance (m)	160.4				100.0		144.1	
Travel Time (s)	11.5				7.2		10.4	
Confl. Peds. (#/hr)		5		5		5		2
Confl. Bikes (#/hr)		19						
Peak Hour Factor	0.94	0.81	0.50	0.85	0.93	0.61	0.82	0.81
Heavy Vehicles (%)	4%	5%	0%	4%	0%	0%	5%	5%
Adj. Flow (vph)	1459	193	24	200	1171	28	249	132
Shared Lane Traffic (%)								
Lane Group Flow (vph)	1652	0	0	224	1171	0	277	132
Enter Blocked Intersection	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	R NA	Left	Left	R NA	Left	Right
Median Width(m)	4.0				5.5		7.5	
Link Offset(m)	0.0				2.0		0.0	
Crosswalk Width(m)	4.8				4.8		4.8	
Two way Left Turn Lane								
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	15	25		15	25	15
Number of Detectors	2		1	1	2	1	1	1
Detector Template	Thru		Left	Left	Thru	Left	Left	Right
Leading Detector (m)	10.0		2.0	2.0	10.0	2.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	2.0	0.6	2.0	2.0	2.0
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel								
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4				9.4			
Detector 2 Size(m)	0.6				0.6			
Detector 2 Type	CI+Ex				CI+Ex			
Detector 2 Channel								
Detector 2 Extend (s)	0.0				0.0			
Turn Type	NA		custom	custom	NA	Prot	Prot	Prot
Protected Phases	1		2	2	1	3	3	3
Permitted Phases	1		2	2	1	3	3	3

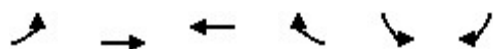
	→	↘	↶	↙	←	↗	↘	↗
Lane Group	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Detector Phase	1		2	2	1	3	3	3
Switch Phase								
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0		20.0	20.0	20.0	10.0	10.0	10.0
Total Split (s)	42.0		20.0	20.0	42.0	23.0	23.0	23.0
Total Split (%)	49.4%		23.5%	23.5%	49.4%	27.1%	27.1%	27.1%
Maximum Green (s)	39.0		17.0	17.0	39.0	20.0	20.0	20.0
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	3.0			3.0	3.0		3.0	3.0
Lead/Lag	Lead		Lag	Lag	Lead			
Lead-Lag Optimize?	Yes		Yes	Yes	Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min		None	None	C-Min	None	None	None
Walk Time (s)	5.0		5.0	5.0	5.0			
Flash Dont Walk (s)	11.0		11.0	11.0	11.0			
Pedestrian Calls (#/hr)	0		0	0	0			
Act Effct Green (s)	43.6			14.9	43.6		17.5	17.5
Actuated g/C Ratio	0.51			0.18	0.51		0.21	0.21
v/c Ratio	0.66			0.74	0.64		0.79	0.32
Control Delay	17.5			54.9	13.8		48.3	7.4
Queue Delay	0.0			0.0	0.0		0.0	0.0
Total Delay	17.5			54.9	13.8		48.3	7.4
LOS	B			D	B		D	A
Approach Delay	17.5				20.4		35.1	
Approach LOS	B				C		D	

Intersection Summary

Area Type: Other
 Cycle Length: 85
 Actuated Cycle Length: 85
 Offset: 35 (41%), Referenced to phase 1:EBWB, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 20.8
 Intersection LOS: C
 Intersection Capacity Utilization 62.3%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 3: Las Sendas & Alfonso Reyes

 01 (R)	 02	 03
42 s	20 s	23 s



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑			↑
Volume (veh/h)	0	1523	1252	0	0	55
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.97	0.94	0.92	0.92	0.60
Hourly flow rate (vph)	0	1570	1332	0	0	92
Pedestrians		14				
Lane Width (m)		3.5				
Walking Speed (m/s)		1.2				
Percent Blockage		1				
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)		140	94			
pX, platoon unblocked	0.78				0.89	0.78
vC, conflicting volume	1332				1855	680
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	859				232	23
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	89
cM capacity (veh/h)	616				659	813
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	523	523	523	666	666	92
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	92
cSH	1700	1700	1700	1700	1700	813
Volume to Capacity	0.31	0.31	0.31	0.39	0.39	0.11
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	3.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	10.0
Lane LOS						A
Approach Delay (s)	0.0			0.0		10.0
Approach LOS						A
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			49.3%		ICU Level of Service	A
Analysis Period (min)			15			

5: Alfonso Reyes & Corregidora
Análisis de la operación actual - AM

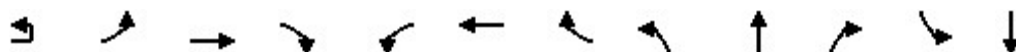
30/08/2021

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	43	138	1217	42	0	884	75	93	42	33	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		35.0		0.0	0.0		0.0	0.0		0.0	0.0	
Storage Lanes		2		1	0		0	0		1	0	
Taper Length (m)		7.5			7.5			7.5			7.5	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		0.98		1.00			1.00	0.99		
Frt				0.850		0.988				0.850		
Flt Protected	0.950	0.950							0.967			
Satd. Flow (prot)	1785	1293	3535	1521	0	3517	0	0	1817	1597	0	0
Flt Permitted	0.950	0.950							0.967			
Satd. Flow (perm)	1784	1293	3535	1492	0	3517	0	0	1815	1573	0	0
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				56		15				40		
Link Speed (k/h)			50			50			50			50
Link Distance (m)			94.4			85.3			132.7			114.2
Travel Time (s)			6.8			6.1			9.6			8.2
Confl. Peds. (#/hr)	1	2		1			2	1		2		
Confl. Bikes (#/hr)				12			24					
Peak Hour Factor	0.83	0.86	0.90	0.75	0.92	0.80	0.78	0.80	0.75	0.83	0.92	0.92
Heavy Vehicles (%)	0%	38%	1%	5%	0%	0%	1%	0%	0%	0%	0%	0%
Adj. Flow (vph)	52	160	1352	56	0	1105	96	116	56	40	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	160	1352	56	0	1201	0	0	172	40	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(m)			12.0			12.0			0.0			0.0
Link Offset(m)			0.0			0.0			0.0			0.0
Crosswalk Width(m)			4.8			4.8			4.8			4.8
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	15	25		15	25		15	25		15	25	
Number of Detectors	1	1	2	1		2		1	2	1		
Detector Template	Left	Left	Thru	Right		Thru		Left	Thru	Right		
Leading Detector (m)	2.0	2.0	10.0	2.0		10.0		2.0	10.0	2.0		
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0		
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0		
Detector 1 Size(m)	2.0	2.0	0.6	2.0		0.6		2.0	0.6	2.0		
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex		CI+Ex	CI+Ex	CI+Ex		
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0		
Detector 2 Position(m)			9.4			9.4			9.4			
Detector 2 Size(m)			0.6			0.6			0.6			
Detector 2 Type			CI+Ex			CI+Ex			CI+Ex			
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			

Lane Group	SBR
Lane Configurations	
Volume (vph)	0
Ideal Flow (vphpl)	1900
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	0.92
Heavy Vehicles (%)	0%
Adj. Flow (vph)	0
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	1.01
Turning Speed (k/h)	15
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	

5: Alfonso Reyes & Corregidora
Análisis de la operación actual - AM

30/08/2021



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Turn Type	custom	custom	NA	Perm		NA		custom	NA	custom		
Protected Phases	2	2	1			1		3	3	3		
Permitted Phases	2	2	1	1		1		3	3	3		
Detector Phase	2	2	1	1		1		3	3	3		
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0		4.0		4.0	4.0	4.0		
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		10.0	10.0	10.0		
Total Split (s)	20.0	20.0	44.0	44.0		44.0		21.0	21.0	21.0		
Total Split (%)	23.5%	23.5%	51.8%	51.8%		51.8%		24.7%	24.7%	24.7%		
Maximum Green (s)	17.0	17.0	41.0	41.0		41.0		18.0	18.0	18.0		
Yellow Time (s)	3.0	3.0	3.0	3.0		3.0		3.0	3.0	3.0		
All-Red Time (s)	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0			0.0	0.0		
Total Lost Time (s)	3.0	3.0	3.0	3.0		3.0			3.0	3.0		
Lead/Lag	Lag	Lag	Lead	Lead		Lead						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0	3.0	3.0		
Recall Mode	None	None	C-Min	C-Min		C-Min		None	None	None		
Walk Time (s)	5.0	5.0	5.0	5.0		5.0						
Flash Dont Walk (s)	11.0	11.0	11.0	11.0		11.0						
Pedestrian Calls (#/hr)	0	0	0	0		0						
Act Effct Green (s)	14.4	14.4	48.4	48.4		48.4			13.2	13.2		
Actuated g/C Ratio	0.17	0.17	0.57	0.57		0.57			0.16	0.16		
v/c Ratio	0.17	0.73	0.67	0.06		0.60			0.61	0.14		
Control Delay	25.8	43.4	31.5	14.9		14.6			42.2	10.8		
Queue Delay	0.0	0.0	0.0	0.0		0.3			0.0	0.0		
Total Delay	25.8	43.4	31.5	14.9		14.9			42.2	10.8		
LOS	C	D	C	B		B			D	B		
Approach Delay			31.9			14.9			36.3			
Approach LOS			C			B			D			

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 10 (12%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 25.5

Intersection LOS: C

Intersection Capacity Utilization 51.8%

ICU Level of Service A

Analysis Period (min) 15

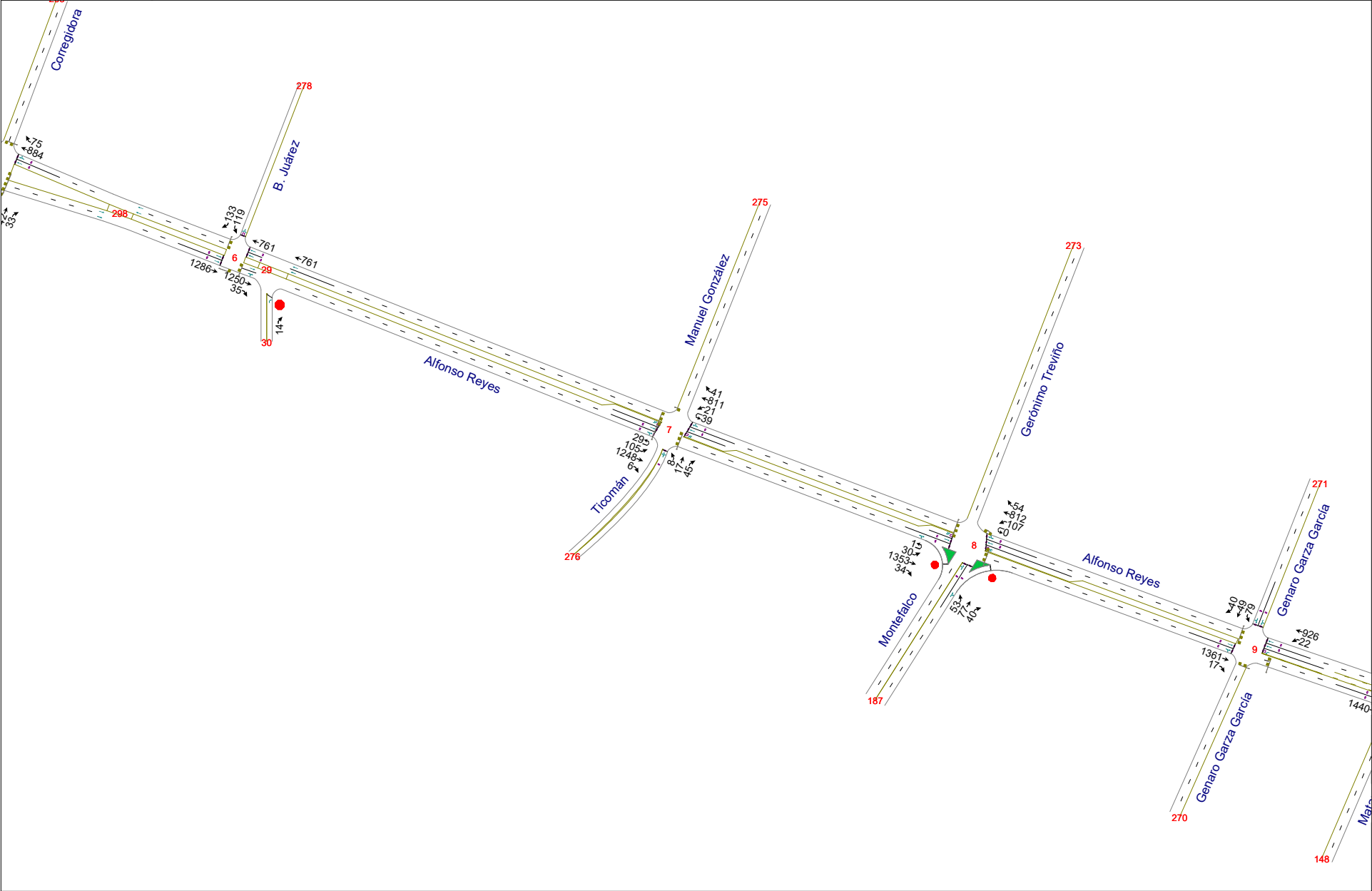
Splits and Phases: 5: Alfonso Reyes & Corregidora

 ø1 (R)	 ø2	 ø3
44 s	20 s	21 s

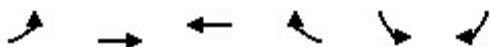


Lane Group	SBR
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

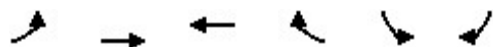
Map - Ciclovía Alfonso Reyes
Análisis de la operación actual - AM



Ciclovía Alfonso Reyes
Vargas Torres y Asociados, S.A. de C.V.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Volume (vph)	0	1286	761	0	119	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor					0.99	
Frt					0.917	
Flt Protected					0.981	
Satd. Flow (prot)	0	3535	3535	0	1662	0
Flt Permitted					0.981	
Satd. Flow (perm)	0	3535	3535	0	1662	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					108	
Link Speed (k/h)		50	50		50	
Link Distance (m)		78.3	21.5		117.7	
Travel Time (s)		5.6	1.5		8.5	
Confl. Peds. (#/hr)					1	2
Peak Hour Factor	0.92	0.93	0.67	0.92	0.81	0.57
Heavy Vehicles (%)	0%	1%	1%	0%	2%	0%
Adj. Flow (vph)	0	1383	1136	0	147	233
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1383	1136	0	380	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		4.0	4.0		3.5	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Number of Detectors		2	2		1	
Detector Template		Thru	Thru		Left	
Leading Detector (m)		10.0	10.0		2.0	
Trailing Detector (m)		0.0	0.0		0.0	
Detector 1 Position(m)		0.0	0.0		0.0	
Detector 1 Size(m)		0.6	0.6		2.0	
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	
Detector 1 Queue (s)		0.0	0.0		0.0	
Detector 1 Delay (s)		0.0	0.0		0.0	
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Prot	
Protected Phases		1	1		2	
Permitted Phases		1	1		2	
Detector Phase		1	1		2	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Switch Phase						
Minimum Initial (s)		4.0	4.0		4.0	
Minimum Split (s)		20.0	20.0		20.0	
Total Split (s)		50.0	50.0		20.0	
Total Split (%)		71.4%	71.4%		28.6%	
Maximum Green (s)		47.0	47.0		17.0	
Yellow Time (s)		3.0	3.0		3.0	
All-Red Time (s)		0.0	0.0		0.0	
Lost Time Adjust (s)		0.0	0.0		0.0	
Total Lost Time (s)		3.0	3.0		3.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)		3.0	3.0		3.0	
Recall Mode		C-Min	C-Min		None	
Act Effct Green (s)		48.6	48.6		15.4	
Actuated g/C Ratio		0.69	0.69		0.22	
v/c Ratio		0.56	0.46		0.84	
Control Delay		6.9	5.9		36.9	
Queue Delay		0.2	0.0		0.0	
Total Delay		7.1	5.9		36.9	
LOS		A	A		D	
Approach Delay		7.1	5.9		36.9	
Approach LOS		A	A		D	

Intersection Summary

Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	70
Offset:	20 (29%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.84
Intersection Signal Delay:	10.5
Intersection Capacity Utilization	57.1%
Analysis Period (min)	15
Intersection LOS:	B
ICU Level of Service	B

Splits and Phases: 6: Alfonso Reyes & B. Juárez

ø1 (R)	ø2
50 s	20 s



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (vph)	29	105	1248	6	39	21	811	41	8	17	45	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0		0.0		25.0		0.0	0.0		0.0	0.0
Storage Lanes		1		0		1		0	0		0	0
Taper Length (m)		7.5				7.5			7.5			7.5
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00	1.00			1.00	1.00			0.99		
Frt			0.999				0.992			0.919		
Flt Protected		0.950				0.950				0.994		
Satd. Flow (prot)	0	1759	3531	0	0	1785	3505	0	0	1701	0	0
Flt Permitted		0.950				0.950				0.994		
Satd. Flow (perm)	0	1757	3531	0	0	1782	3505	0	0	1700	0	0
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)			1				9			60		
Link Speed (k/h)			50				50			50		
Link Distance (m)			275.5				207.0			102.9		
Travel Time (s)			19.8				14.9			7.4		
Confl. Peds. (#/hr)	3	1		2	2	2		1	3		2	
Confl. Bikes (#/hr)				6				10				
Peak Hour Factor	0.66	0.85	0.89	0.50	0.70	0.66	0.71	0.64	0.67	0.61	0.75	0.92
Heavy Vehicles (%)	0%	2%	1%	0%	0%	0%	1%	0%	0%	0%	0%	0%
Adj. Flow (vph)	44	124	1402	12	56	32	1142	64	12	28	60	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	168	1414	0	0	88	1206	0	0	100	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(m)			4.0				4.0			0.0		
Link Offset(m)			0.0				0.0			0.0		
Crosswalk Width(m)			4.8				4.8			4.8		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	15	25		15	15	25		15	25		15	25
Number of Detectors	1	1	2		1	1	2		1	2		
Detector Template	Left	Left	Thru		Left	Left	Thru		Left	Thru		
Leading Detector (m)	2.0	2.0	10.0		2.0	2.0	10.0		2.0	10.0		
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0		
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0		
Detector 1 Size(m)	2.0	2.0	0.6		2.0	2.0	0.6		2.0	0.6		
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex		
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0		
Detector 2 Position(m)			9.4				9.4			9.4		
Detector 2 Size(m)			0.6				0.6			0.6		
Detector 2 Type			CI+Ex				CI+Ex			CI+Ex		
Detector 2 Channel												
Detector 2 Extend (s)			0.0				0.0			0.0		



Lane Group	SBT	SBR
Lane Configurations		
Volume (vph)	0	0
Ideal Flow (vphpl)	1900	1900
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)	0	0
Flt Permitted		
Satd. Flow (perm)	0	0
Right Turn on Red		Yes
Satd. Flow (RTOR)		
Link Speed (k/h)	50	
Link Distance (m)	155.8	
Travel Time (s)	11.2	
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor	0.92	0.92
Heavy Vehicles (%)	0%	0%
Adj. Flow (vph)	0	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	0	0
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(m)	0.0	
Link Offset(m)	0.0	
Crosswalk Width(m)	4.8	
Two way Left Turn Lane		
Headway Factor	1.01	1.01
Turning Speed (k/h)		15
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Turn Type	custom	custom	NA		custom	custom	NA		custom	NA		
Protected Phases	2	2	1		2	2	1		3	3		
Permitted Phases	2	2	1		2	2	1		3	3		
Detector Phase	2	2	1		2	2	1		3	3		
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0		
Minimum Split (s)	10.0	10.0	20.0		10.0	10.0	20.0		10.0	10.0		
Total Split (s)	20.0	20.0	50.0		20.0	20.0	50.0		20.0	20.0		
Total Split (%)	22.2%	22.2%	55.6%		22.2%	22.2%	55.6%		22.2%	22.2%		
Maximum Green (s)	17.0	17.0	47.0		17.0	17.0	47.0		17.0	17.0		
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0		
All-Red Time (s)	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0		
Lost Time Adjust (s)		0.0	0.0			0.0	0.0			0.0		
Total Lost Time (s)		3.0	3.0			3.0	3.0			3.0		
Lead/Lag	Lag	Lag	Lead		Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0		
Recall Mode	None	None	C-Min		None	None	C-Min		None	None		
Walk Time (s)	5.0	5.0			5.0	5.0			5.0	5.0		
Flash Dont Walk (s)	11.0	11.0			11.0	11.0			11.0	11.0		
Pedestrian Calls (#/hr)	0	0			0	0			0	0		
Act Effct Green (s)		13.4	61.3			13.4	61.3			8.0		
Actuated g/C Ratio		0.15	0.68			0.15	0.68			0.09		
v/c Ratio		0.64	0.59			0.33	0.50			0.49		
Control Delay		47.1	10.4			36.6	9.2			26.0		
Queue Delay		0.0	0.0			0.0	0.0			0.0		
Total Delay		47.1	10.4			36.6	9.2			26.0		
LOS		D	B			D	A			C		
Approach Delay			14.3				11.1			26.0		
Approach LOS			B				B			C		

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 40 (44%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 13.3

Intersection LOS: B

Intersection Capacity Utilization 52.9%

ICU Level of Service A

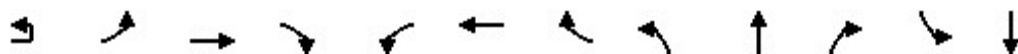
Analysis Period (min) 15

Splits and Phases: 7: Ticomán/Manuel González & Alfonso Reyes

 ø1 (R)	 ø2	 ø3
50 s	20 s	20 s

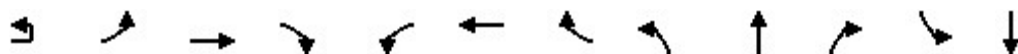


Lane Group	SBT	SBR
Turn Type		
Protected Phases		
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)		
Minimum Split (s)		
Total Split (s)		
Total Split (%)		
Maximum Green (s)		
Yellow Time (s)		
All-Red Time (s)		
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)		
Recall Mode		
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	1	30	1353	34	107	812	54	53	77	40	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		15.0		0.0	55.0		0.0	0.0		0.0	0.0	
Storage Lanes		1		0	1		0	0		0	0	
Taper Length (m)		7.5			7.5			7.5			7.5	
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor		0.98	1.00			1.00			0.98			
Frt			0.995			0.993			0.960			
Flt Protected		0.950			0.950				0.988			
Satd. Flow (prot)	0	1785	3543	0	1785	3502	0	0	3355	0	0	0
Flt Permitted		0.950			0.950				0.988			
Satd. Flow (perm)	0	1756	3543	0	1785	3502	0	0	3302	0	0	0
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)			7			11			45			
Link Speed (k/h)			50			50			50			50
Link Distance (m)			207.0			190.3			117.2			200.7
Travel Time (s)			14.9			13.7			8.4			14.5
Confl. Peds. (#/hr)	28	22					22	28		2		
Confl. Bikes (#/hr)				19			22					
Peak Hour Factor	0.25	0.75	0.92	0.71	0.92	0.70	0.90	0.88	0.62	0.59	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	6%	0%	1%	0%	2%	0%	0%	0%	0%
Adj. Flow (vph)	4	40	1471	48	116	1160	60	60	124	68	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	44	1519	0	116	1220	0	0	252	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(m)			4.0			4.0			0.0			0.0
Link Offset(m)			0.0			0.0			0.0			10.0
Crosswalk Width(m)			4.8			4.8			4.8			4.8
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	15	25		15	25		15	25		15	25	
Number of Detectors	1	1	2		1	2		1	2			
Detector Template	Left	Left	Thru		Left	Thru		Left	Thru			
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0		2.0	10.0			
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0		0.0	0.0			
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0		0.0	0.0			
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6		2.0	0.6			
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0			
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0			
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0			
Detector 2 Position(m)			9.4			9.4			9.4			
Detector 2 Size(m)			0.6			0.6			0.6			
Detector 2 Type			CI+Ex			CI+Ex			CI+Ex			
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			

Lane Group	SBR
Lane Configurations	
Volume (vph)	0
Ideal Flow (vphpl)	1900
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	0.92
Heavy Vehicles (%)	0%
Adj. Flow (vph)	0
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	1.01
Turning Speed (k/h)	15
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Turn Type	custom	custom	NA		custom	NA		custom	NA			
Protected Phases	1	1	2		1	2		3	3			
Permitted Phases	1	1	2		1	2		3	3			
Detector Phase	1	1	2		1	2		3	3			
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0		4.0	4.0			
Minimum Split (s)	15.0	15.0	20.0		15.0	20.0		15.0	15.0			
Total Split (s)	15.0	15.0	65.0		15.0	65.0		15.0	15.0			
Total Split (%)	15.8%	15.8%	68.4%		15.8%	68.4%		15.8%	15.8%			
Maximum Green (s)	12.0	12.0	62.0		12.0	62.0		12.0	12.0			
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0		3.0	3.0			
All-Red Time (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0			
Lost Time Adjust (s)		0.0	0.0		0.0	0.0			0.0			
Total Lost Time (s)		3.0	3.0		3.0	3.0			3.0			
Lead/Lag	Lead	Lead	Lag		Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0		3.0	3.0			
Recall Mode	C-Min	C-Min	None		C-Min	None		None	None			
Walk Time (s)			5.0			5.0						
Flash Dont Walk (s)			11.0			11.0						
Pedestrian Calls (#/hr)			0			0						
Act Effct Green (s)		17.7	57.8		17.7	57.8			10.5			
Actuated g/C Ratio		0.19	0.61		0.19	0.61			0.11			
v/c Ratio		0.13	0.70		0.35	0.57			0.61			
Control Delay		37.4	14.4		33.9	15.6			39.4			
Queue Delay		0.0	0.4		0.0	0.1			0.2			
Total Delay		37.4	14.8		33.9	15.7			39.6			
LOS		D	B		C	B			D			
Approach Delay			15.5			17.3			39.6			
Approach LOS			B			B			D			

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 80 (84%), Referenced to phase 1:EBWBL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 18.2

Intersection LOS: B

Intersection Capacity Utilization 59.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 8: Montefalco/Gerónimo Treviño & Alfonso Reyes

 ø1 (R)	 ø2	 ø3
15 s	65 s	15 s



Lane Group	SBR
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑						↑↑	
Volume (vph)	0	1361	17	22	926	0	0	0	0	79	49	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor		1.00		1.00							0.99	
Frt		0.998									0.962	
Flt Protected				0.950							0.975	
Satd. Flow (prot)	0	3562	0	1785	3570	0	0	0	0	0	3326	0
Flt Permitted				0.950							0.975	
Satd. Flow (perm)	0	3562	0	1784	3570	0	0	0	0	0	3323	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3									45	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		190.3			91.9			117.0			112.9	
Travel Time (s)		13.7			6.6			8.4			8.1	
Confl. Peds. (#/hr)			2	2						1		9
Confl. Bikes (#/hr)			16									
Peak Hour Factor	0.92	0.90	0.85	0.61	0.74	0.92	0.92	0.92	0.92	0.62	0.88	0.63
Adj. Flow (vph)	0	1512	20	36	1251	0	0	0	0	127	56	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1532	0	36	1251	0	0	0	0	0	246	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane					Yes							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2		1	2					1	2	
Detector Template		Thru		Left	Thru					Left	Thru	
Leading Detector (m)		10.0		2.0	10.0					2.0	10.0	
Trailing Detector (m)		0.0		0.0	0.0					0.0	0.0	
Detector 1 Position(m)		0.0		0.0	0.0					0.0	0.0	
Detector 1 Size(m)		0.6		2.0	0.6					2.0	0.6	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	
Detector 2 Position(m)		9.4			9.4						9.4	
Detector 2 Size(m)		0.6			0.6						0.6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA		custom	NA					custom	NA	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		1		2	1					3	3	
Permitted Phases		1		2	1					3	3	
Detector Phase		1		2	1					3	3	
Switch Phase												
Minimum Initial (s)		4.0		4.0	4.0					4.0	4.0	
Minimum Split (s)		20.0		10.0	20.0					20.0	20.0	
Total Split (s)		62.0		12.0	62.0					21.0	21.0	
Total Split (%)		65.3%		12.6%	65.3%					22.1%	22.1%	
Maximum Green (s)		59.0		9.0	59.0					18.0	18.0	
Yellow Time (s)		3.0		3.0	3.0					3.0	3.0	
All-Red Time (s)		0.0		0.0	0.0					0.0	0.0	
Lost Time Adjust (s)		0.0		0.0	0.0						0.0	
Total Lost Time (s)		3.0		3.0	3.0						3.0	
Lead/Lag		Lead		Lag	Lead							
Lead-Lag Optimize?		Yes		Yes	Yes							
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Recall Mode		C-Min		None	C-Min					None	None	
Walk Time (s)		5.0		5.0	5.0							
Flash Dont Walk (s)		11.0		11.0	11.0							
Pedestrian Calls (#/hr)		0		0	0							
Act Effct Green (s)		71.2		7.3	71.2						11.1	
Actuated g/C Ratio		0.75		0.08	0.75						0.12	
v/c Ratio		0.57		0.26	0.47						0.57	
Control Delay		13.2		45.6	6.4						37.3	
Queue Delay		0.9		0.0	1.6						0.0	
Total Delay		14.0		45.6	8.0						37.3	
LOS		B		D	A						D	
Approach Delay		14.0			9.0						37.3	
Approach LOS		B			A						D	

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 45 (47%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 13.8

Intersection LOS: B

Intersection Capacity Utilization 56.7%

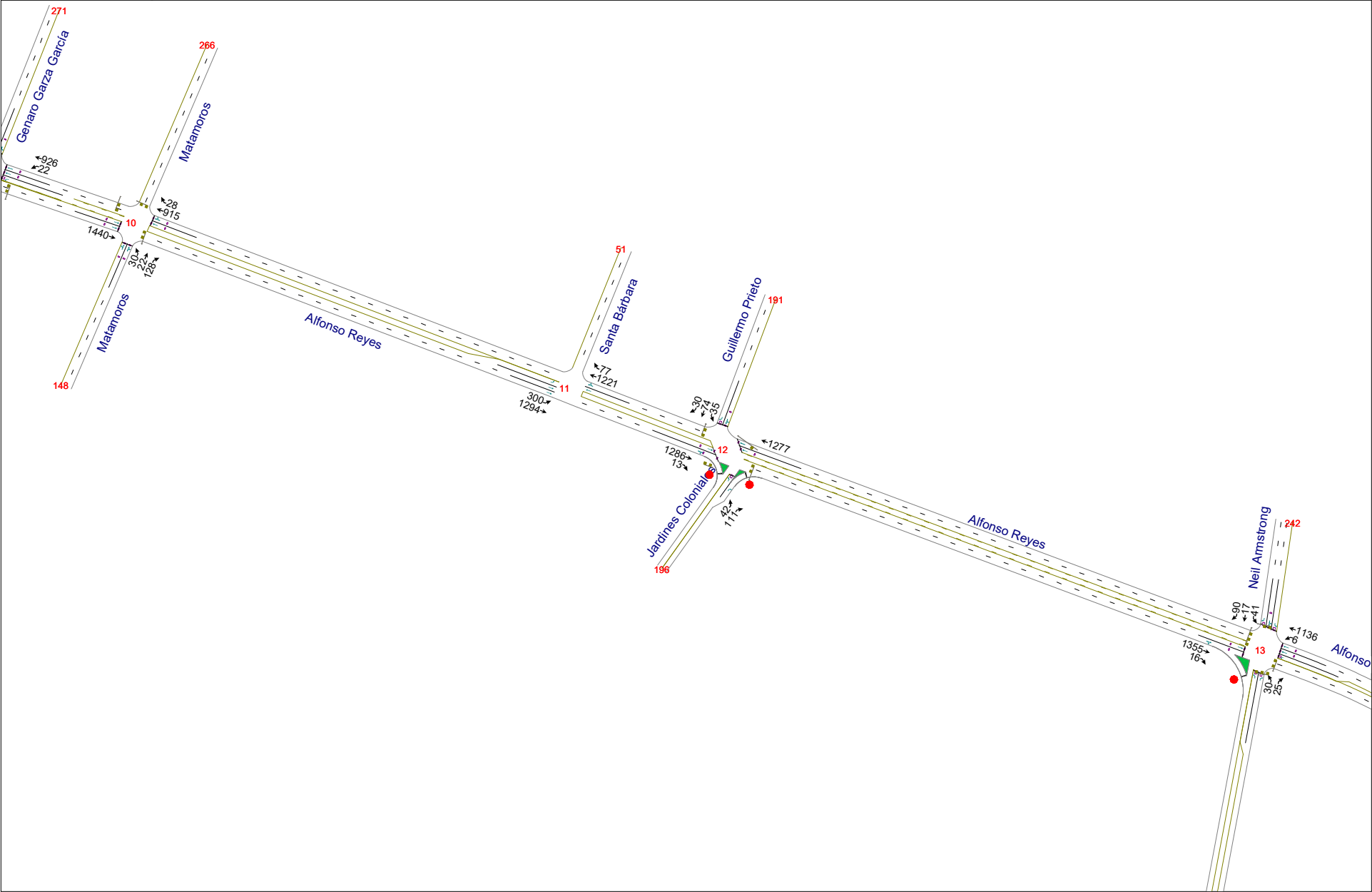
ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 9: Genaro Garza García & Alfonso Reyes

 $\phi 1$ (R)	 $\phi 2$	 $\phi 3$
62 s	12 s	21 s

Map - Ciclovía Alfonso Reyes
Análisis de la operación actual - AM



Ciclovía Alfonso Reyes
Vargas Torres y Asociados, S.A. de C.V.

10: Matamoros & Alfonso Reyes
Análisis de la operación actual - AM

30/08/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↑				
Volume (vph)	0	1440	0	0	915	28	30	22	128	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor					1.00			0.98				
Frt					0.996			0.900				
Flt Protected								0.991				
Satd. Flow (prot)	0	3570	0	0	3554	0	0	3091	0	0	0	0
Flt Permitted								0.991				
Satd. Flow (perm)	0	3570	0	0	3554	0	0	3088	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					9			42				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		91.9			294.9			112.5			123.1	
Travel Time (s)		6.6			21.2			8.1			8.9	
Confl. Peds. (#/hr)						1	4		13			
Confl. Bikes (#/hr)						10						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.75	0.78	0.75	0.61	0.84	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	3%	0%	1%	0%	0%	0%
Adj. Flow (vph)	0	1565	0	0	1220	36	40	36	152	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1565	0	0	1256	0	0	228	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			4.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2		1	2				
Detector Template		Thru			Thru		Left	Thru				
Leading Detector (m)		10.0			10.0		2.0	10.0				
Trailing Detector (m)		0.0			0.0		0.0	0.0				
Detector 1 Position(m)		0.0			0.0		0.0	0.0				
Detector 1 Size(m)		0.6			0.6		2.0	0.6				
Detector 1 Type		Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex				
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0		0.0	0.0				
Detector 1 Queue (s)		0.0			0.0		0.0	0.0				
Detector 1 Delay (s)		0.0			0.0		0.0	0.0				
Detector 2 Position(m)		9.4			9.4			9.4				
Detector 2 Size(m)		0.6			0.6			0.6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type		NA			NA		custom	NA				
Protected Phases		1			1		2	2				
Permitted Phases		1			1		2	2				

10: Matamoros & Alfonso Reyes
Análisis de la operación actual - AM

30/08/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1			1			2		2			
Switch Phase												
Minimum Initial (s)	4.0			4.0			4.0		4.0			
Minimum Split (s)	20.0			20.0			20.0		20.0			
Total Split (s)	45.0			45.0			20.0		20.0			
Total Split (%)	69.2%			69.2%			30.8%		30.8%			
Maximum Green (s)	42.0			42.0			17.0		17.0			
Yellow Time (s)	3.0			3.0			3.0		3.0			
All-Red Time (s)	0.0			0.0			0.0		0.0			
Lost Time Adjust (s)	0.0			0.0					0.0			
Total Lost Time (s)	3.0			3.0					3.0			
Lead/Lag	Lead			Lead			Lag		Lag			
Lead-Lag Optimize?	Yes			Yes			Yes		Yes			
Vehicle Extension (s)	3.0			3.0			3.0		3.0			
Recall Mode	C-Min			C-Min			None		None			
Act Effct Green (s)	49.7			49.7					9.3			
Actuated g/C Ratio	0.76			0.76					0.14			
v/c Ratio	0.57			0.46					0.48			
Control Delay	4.5			3.7					23.7			
Queue Delay	1.8			0.0					0.0			
Total Delay	6.3			3.7					23.7			
LOS	A			A					C			
Approach Delay	6.3			3.7					23.7			
Approach LOS	A			A					C			

Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

Offset: 20 (31%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 6.5

Intersection LOS: A

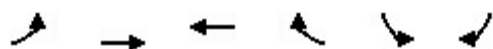
Intersection Capacity Utilization 56.7%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 10: Matamoros & Alfonso Reyes

					
ø1 (R)			ø2		
45 s			20 s		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	300	1294	1221	77	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.83	0.91	0.94	0.88	0.92	0.92
Hourly flow rate (vph)	361	1422	1299	88	0	0
Pedestrians					3	
Lane Width (m)					0.0	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)		295	108			
pX, platoon unblocked	0.79				0.85	0.79
vC, conflicting volume	1389				2780	696
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	961				2124	83
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	37				100	100
cM capacity (veh/h)	572				14	763
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	
Volume Total	361	711	711	866	520	
Volume Left	361	0	0	0	0	
Volume Right	0	0	0	0	88	
cSH	572	1700	1700	1700	1700	
Volume to Capacity	0.63	0.42	0.42	0.51	0.31	
Queue Length 95th (m)	35.3	0.0	0.0	0.0	0.0	
Control Delay (s)	21.5	0.0	0.0	0.0	0.0	
Lane LOS	C					
Approach Delay (s)	4.4			0.0		
Approach LOS						
Intersection Summary						
Average Delay			2.4			
Intersection Capacity Utilization			59.5%		ICU Level of Service	B
Analysis Period (min)			15			

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1286	13	0	1277	0	42	0	111	35	74	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		15.0	0.0		0.0
Storage Lanes	0		0	0		0	1		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00							0.99		1.00	
Frt		0.998							0.850			0.850
Flt Protected							0.950				0.983	
Satd. Flow (prot)	0	3564	0	0	3610	0	1770	0	1615	0	1855	1509
Flt Permitted							0.950				0.983	
Satd. Flow (perm)	0	3564	0	0	3610	0	1770	0	1594	0	1851	1509
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2										
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		107.8			364.5			85.4			100.9	
Travel Time (s)		7.8			26.2			6.1			7.3	
Confl. Peds. (#/hr)			2						3	3		
Confl. Bikes (#/hr)			8									
Peak Hour Factor	0.92	0.83	0.81	0.92	0.88	0.92	0.70	0.92	0.77	0.58	0.64	0.83
Heavy Vehicles (%)	0%	1%	7%	0%	0%	0%	2%	0%	0%	0%	1%	7%
Adj. Flow (vph)	0	1549	16	0	1451	0	60	0	144	60	116	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1565	0	0	1451	0	60	0	144	0	176	36
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.6			3.6	
Link Offset(m)		0.0			0.0			15.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2		1		1	1	2	1
Detector Template		Thru			Thru		Left		Right	Left	Thru	Right
Leading Detector (m)		10.0			10.0		2.0		2.0	2.0	10.0	2.0
Trailing Detector (m)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)		0.6			0.6		2.0		2.0	2.0	0.6	2.0
Detector 1 Type		Cl+Ex			Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4						9.4	
Detector 2 Size(m)		0.6			0.6						0.6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA			NA		Prot		custom	custom	NA	custom
Protected Phases		1			1		3		3	2	2	2
Permitted Phases		1			1		3		1 2 3	2	2	1 2 3
Detector Phase		1			1		3		3	2	2	2
Switch Phase												
Minimum Initial (s)		4.0			4.0		4.0		4.0	4.0	4.0	4.0
Minimum Split (s)		10.0			10.0		10.0		10.0	10.0	10.0	10.0
Total Split (s)		65.0			65.0		15.0		15.0	15.0	15.0	15.0
Total Split (%)		68.4%			68.4%		15.8%		15.8%	15.8%	15.8%	15.8%
Maximum Green (s)		62.0			62.0		12.0		12.0	12.0	12.0	12.0
Yellow Time (s)		3.0			3.0		3.0		3.0	3.0	3.0	3.0
All-Red Time (s)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Lost Time Adjust (s)		0.0			0.0		0.0		0.0		0.0	0.0
Total Lost Time (s)		3.0			3.0		3.0		3.0		3.0	3.0
Lead/Lag		Lead			Lead					Lag	Lag	Lag
Lead-Lag Optimize?		Yes			Yes					Yes	Yes	Yes
Vehicle Extension (s)		3.0			3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode		C-Min			C-Min		Min		Min	Min	Min	Min
Act Effct Green (s)		65.5			65.5		8.6		89.0		11.9	95.0
Actuated g/C Ratio		0.69			0.69		0.09		0.94		0.13	1.00
v/c Ratio		0.64			0.58		0.38		0.10		0.76	0.02
Control Delay		10.1			9.3		46.6		0.2		61.4	0.0
Queue Delay		0.0			0.0		0.0		0.0		0.0	0.0
Total Delay		10.1			9.3		46.6		0.2		61.4	0.0
LOS		B			A		D		A		E	A
Approach Delay		10.1			9.3						51.0	
Approach LOS		B			A						D	

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 30 (32%), Referenced to phase 1:WBEB, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 12.5

Intersection LOS: B

Intersection Capacity Utilization 59.0%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 12: Jardines Coloniales/Guillermo Prieto & Alfonso Reyes

											
ø1 (R)			ø2			ø3					
65 s			15 s			15 s					

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1355	16	6	1136	0	30	0	25	41	17	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.0	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	0.0		0.0	40.0		0.0	45.0		0.0	0.0		0.0
Storage Lanes	0		0	1		0	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor		1.00		1.00			0.99					0.99
Frt		0.998							0.850			0.850
Flt Protected				0.950			0.950			0.950	0.984	
Satd. Flow (prot)	0	3566	0	1685	3610	0	1805	0	1615	1715	1776	1599
Flt Permitted				0.070			0.950			0.950	0.984	
Satd. Flow (perm)	0	3566	0	124	3610	0	1794	0	1615	1715	1776	1579
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2										
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		364.5			130.4			170.2			83.6	
Travel Time (s)		26.2			9.4			12.3			6.0	
Confl. Peds. (#/hr)			1	1			2					2
Confl. Bikes (#/hr)			5									
Peak Hour Factor	0.92	0.87	0.67	0.30	0.95	0.92	0.83	0.92	0.69	0.85	0.71	0.90
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Adj. Flow (vph)	0	1557	24	20	1196	0	36	0	36	48	24	100
Shared Lane Traffic (%)										26%		
Lane Group Flow (vph)	0	1581	0	20	1196	0	36	0	36	36	36	100
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			-7.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.00	1.00	1.00	1.09	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2		1	2		1		1	1	2	1
Detector Template		Thru		Left	Thru		Left		Right	Left	Thru	Right
Leading Detector (m)		10.0		2.0	10.0		2.0		2.0	2.0	10.0	2.0
Trailing Detector (m)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)		0.6		2.0	0.6		2.0		2.0	2.0	0.6	2.0
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4						9.4	
Detector 2 Size(m)		0.6			0.6						0.6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA		pm+pt	NA		Prot		custom	custom	NA	custom
Protected Phases		2		1	1 2		4		4	3	3	3
Permitted Phases		2		1 2	1 2		4		1 2 3 4	3	3 1 2 3 4	4
Detector Phase		2		1	1 2		4		4	3	3	3
Switch Phase												
Minimum Initial (s)		4.0		4.0			4.0		4.0	4.0	4.0	4.0
Minimum Split (s)		10.0		10.0			10.0		10.0	10.0	10.0	10.0
Total Split (s)		57.0		13.0			13.0		13.0	17.0	17.0	17.0
Total Split (%)		57.0%		13.0%			13.0%		13.0%	17.0%	17.0%	17.0%
Maximum Green (s)		53.0		9.0			9.0		9.0	13.0	13.0	13.0
Yellow Time (s)		3.0		3.0			3.0		3.0	3.0	3.0	3.0
All-Red Time (s)		1.0		1.0			1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0			0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		4.0		4.0			4.0		4.0	4.0	4.0	4.0
Lead/Lag		Lag		Lead			Lag		Lag	Lead	Lead	Lead
Lead-Lag Optimize?		Yes		Yes			Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)		3.0		3.0			3.0		3.0	3.0	3.0	3.0
Recall Mode		C-Min		None			None		None	None	None	None
Act Effct Green (s)		59.1		72.7	77.5		7.5		100.0	7.6	7.6	92.8
Actuated g/C Ratio		0.59		0.73	0.78		0.08		1.00	0.08	0.08	0.93
v/c Ratio		0.75		0.07	0.43		0.27		0.02	0.28	0.27	0.07
Control Delay		20.4		5.2	5.9		47.8		0.0	48.2	47.8	0.3
Queue Delay		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Total Delay		20.4		5.2	5.9		47.8		0.0	48.2	47.8	0.3
LOS		C		A	A		D		A	D	D	A
Approach Delay		20.4			5.9						20.2	
Approach LOS		C			A						C	

Intersection Summary

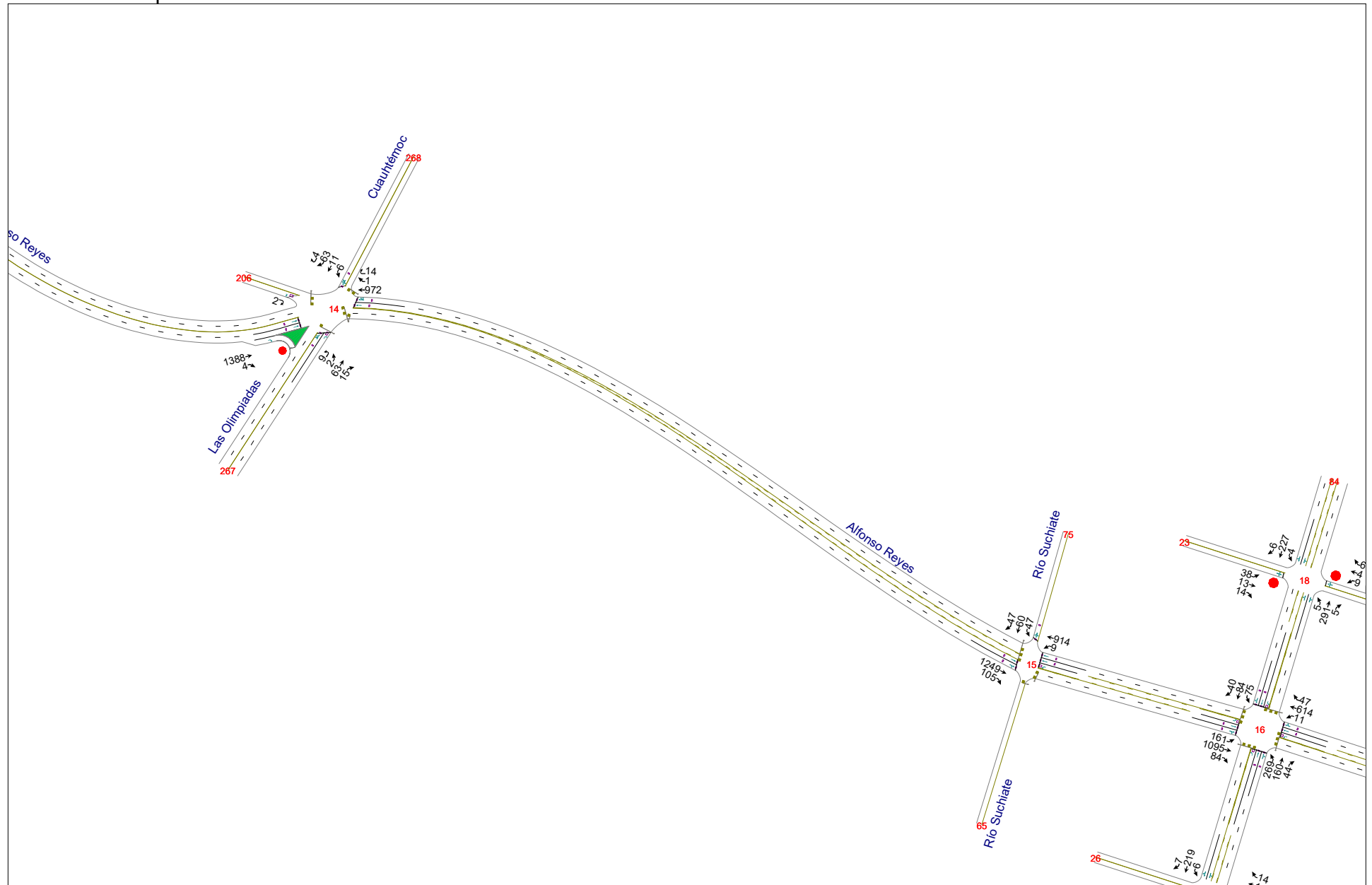
Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:WBEB, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 14.7
 Intersection Capacity Utilization 54.6%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 13: Neil Armstrong & Alfonso Reyes

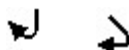


Map - Ciclovía Alfonso Reyes
Análisis de la operación actual - AM



Ciclovía Alfonso Reyes
Vargas Torres y Asociados, S.A. de C.V.

	→	↘	←	↖	↗	↙	↘	↑	↗	↘	↓	↙
Lane Group	EBT	EBR	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑	↑↑					↑	↑		↑	
Volume (vph)	1388	4	972	1	14	9	2	63	15	6	11	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Storage Length (m)		30.0		0.0			0.0		0.0	0.0		0.0
Storage Lanes		1		0			0		1	0		0
Taper Length (m)							7.5			7.5		
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99	1.00									
Frt		0.850	0.997						0.850		0.886	
Flt Protected								0.994			0.997	
Satd. Flow (prot)	3574	1615	3562	0	0	0	0	1809	1615	0	1678	0
Flt Permitted								0.994			0.997	
Satd. Flow (perm)	3574	1593	3562	0	0	0	0	1809	1615	0	1678	0
Right Turn on Red		Yes			Yes				Yes			
Satd. Flow (RTOR)		36	4						36		3	
Link Speed (k/h)	50		50					50			50	
Link Distance (m)	282.0		508.5					124.3			109.6	
Travel Time (s)	20.3		36.6					8.9			7.9	
Confl. Peds. (#/hr)						1						
Confl. Bikes (#/hr)		5			6							
Peak Hour Factor	0.92	0.50	0.87	0.25	0.70	0.75	0.50	0.54	0.63	0.75	0.94	0.61
Heavy Vehicles (%)	1%	0%	1%	0%	0%	0%	0%	5%	0%	0%	0%	0%
Adj. Flow (vph)	1509	8	1117	4	20	12	4	117	24	8	12	103
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1509	8	1141	0	0	0	0	133	24	0	131	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Right	Left	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0		0.0					0.0			0.0	
Link Offset(m)	0.0		0.0					0.0			0.0	
Crosswalk Width(m)	4.8		4.8					4.8			4.8	
Two way Left Turn Lane			Yes									
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15		15	15	25	25		15	25		15
Number of Detectors	2	1	2			1	1	2	1	1	2	
Detector Template	Thru	Right	Thru			Left	Left	Thru	Right	Left	Thru	
Leading Detector (m)	10.0	2.0	10.0			2.0	2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	0.6	2.0	0.6			2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex			CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)	9.4		9.4					9.4			9.4	
Detector 2 Size(m)	0.6		0.6					0.6			0.6	
Detector 2 Type	CI+Ex		CI+Ex					CI+Ex			CI+Ex	
Detector 2 Channel												



Lane Group	SBR2	SER2
Lane Configurations		↑
Volume (vph)	4	2
Ideal Flow (vphpl)	1900	1900
Lane Width (m)	3.6	3.6
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor		
Frt		0.865
Flt Protected		
Satd. Flow (prot)	0	1644
Flt Permitted		
Satd. Flow (perm)	0	1644
Right Turn on Red	Yes	Yes
Satd. Flow (RTOR)		278
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor	0.50	0.50
Heavy Vehicles (%)	0%	0%
Adj. Flow (vph)	8	4
Shared Lane Traffic (%)		
Lane Group Flow (vph)	0	4
Enter Blocked Intersection	No	No
Lane Alignment	Right	Right
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor	1.00	1.00
Turning Speed (k/h)	15	15
Number of Detectors		1
Detector Template		Right
Leading Detector (m)		2.0
Trailing Detector (m)		0.0
Detector 1 Position(m)		0.0
Detector 1 Size(m)		2.0
Detector 1 Type		CI+Ex
Detector 1 Channel		
Detector 1 Extend (s)		0.0
Detector 1 Queue (s)		0.0
Detector 1 Delay (s)		0.0
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		



Lane Group	EBT	EBR	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)	0.0		0.0					0.0			0.0	
Turn Type	NA	Perm	NA			custom	custom	NA	custom	custom	NA	
Protected Phases	1		1			2	2	2	2	3	3	
Permitted Phases	1	1	1			2	2	2	2	3	3	
Detector Phase	1	1	1			2	2	2	2	3	3	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0			4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	10.0	10.0	10.0			10.0	10.0	10.0	10.0	10.0	10.0	
Total Split (s)	60.0	60.0	60.0			15.0	15.0	15.0	15.0	15.0	15.0	
Total Split (%)	66.7%	66.7%	66.7%			16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	
Maximum Green (s)	57.0	57.0	57.0			12.0	12.0	12.0	12.0	12.0	12.0	
Yellow Time (s)	3.0	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0		0.0	
Total Lost Time (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Lead/Lag	Lead	Lead	Lead			Lag	Lag	Lag	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max			None	None	None	None	None	None	
Act Effct Green (s)	59.7	59.7	59.7					10.6	10.6		10.7	
Actuated g/C Ratio	0.66	0.66	0.66					0.12	0.12		0.12	
v/c Ratio	0.64	0.01	0.48					0.62	0.11		0.65	
Control Delay	11.0	0.0	8.8					50.6	9.1		52.1	
Queue Delay	0.0	0.0	0.0					0.0	0.0		0.0	
Total Delay	11.0	0.0	8.8					50.6	9.1		52.1	
LOS	B	A	A					D	A		D	
Approach Delay	10.9		8.8					44.3			52.1	
Approach LOS	B		A					D			D	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 30 (33%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 13.7

Intersection LOS: B

Intersection Capacity Utilization 56.7%

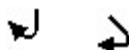
ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 14: Las Olimpiadas/Cuauhtémoc & Alfonso Reyes/Av. Alfonso Reyes



Análisis de la operación actual - AM



Lane Group	SBR2	SER2
Detector 2 Extend (s)		
Turn Type	Free	
Protected Phases		
Permitted Phases	Free	
Detector Phase		
Switch Phase		
Minimum Initial (s)		
Minimum Split (s)		
Total Split (s)		
Total Split (%)		
Maximum Green (s)		
Yellow Time (s)		
All-Red Time (s)		
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)		
Recall Mode		
Act Effct Green (s)	90.0	
Actuated g/C Ratio	1.00	
v/c Ratio	0.00	
Control Delay	0.0	
Queue Delay	0.0	
Total Delay	0.0	
LOS	A	
Approach Delay		
Approach LOS		
Intersection Summary		

15: Río Suchiate & Alfonso Reyes
Análisis de la operación actual - AM

30/08/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1249	105	9	914	0	0	0	0	47	60	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	25.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00										
Frt		0.988									0.956	
Flt Protected				0.950							0.983	
Satd. Flow (prot)	0	3478	0	1785	3535	0	0	0	0	0	1742	0
Flt Permitted				0.950							0.983	
Satd. Flow (perm)	0	3478	0	1785	3535	0	0	0	0	0	1742	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16									25	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		508.5			152.4			108.3			86.7	
Travel Time (s)		36.6			11.0			7.8			6.2	
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.92	0.89	0.88	0.38	0.94	0.92	0.92	0.92	0.92	0.62	0.83	0.65
Heavy Vehicles (%)	0%	1%	4%	0%	1%	0%	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	0	1403	119	24	972	0	0	0	0	76	72	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1522	0	24	972	0	0	0	0	0	220	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2		1	2					1	2	
Detector Template		Thru		Left	Thru					Left	Thru	
Leading Detector (m)		10.0		2.0	10.0					2.0	10.0	
Trailing Detector (m)		0.0		0.0	0.0					0.0	0.0	
Detector 1 Position(m)		0.0		0.0	0.0					0.0	0.0	
Detector 1 Size(m)		0.6		2.0	0.6					2.0	0.6	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	
Detector 2 Position(m)		9.4			9.4						9.4	
Detector 2 Size(m)		0.6			0.6						0.6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA		custom	NA					custom	NA	

15: Río Suchiate & Alfonso Reyes
Análisis de la operación actual - AM

30/08/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		2		1	1 2					3	3	
Permitted Phases		2		1	1 2					3	3	
Detector Phase		2		1	1 2					3	3	
Switch Phase												
Minimum Initial (s)		4.0		4.0						4.0	4.0	
Minimum Split (s)		20.0		10.0						10.0	10.0	
Total Split (s)		44.0		22.0						14.0	14.0	
Total Split (%)		55.0%		27.5%						17.5%	17.5%	
Maximum Green (s)		41.0		19.0						11.0	11.0	
Yellow Time (s)		3.0		3.0						3.0	3.0	
All-Red Time (s)		0.0		0.0						0.0	0.0	
Lost Time Adjust (s)		0.0		0.0							0.0	
Total Lost Time (s)		3.0		3.0							3.0	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0						3.0	3.0	
Recall Mode		C-Min		None						None	None	
Act Effct Green (s)		46.3		13.8	63.1						10.9	
Actuated g/C Ratio		0.58		0.17	0.79						0.14	
v/c Ratio		0.75		0.08	0.35						0.85	
Control Delay		16.1		26.9	2.9						60.4	
Queue Delay		0.0		0.0	0.0						0.0	
Total Delay		16.1		26.9	2.9						60.4	
LOS		B		C	A						E	
Approach Delay		16.1			3.4						60.4	
Approach LOS		B			A						E	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 8 (10%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 15.1

Intersection LOS: B

Intersection Capacity Utilization 53.2%

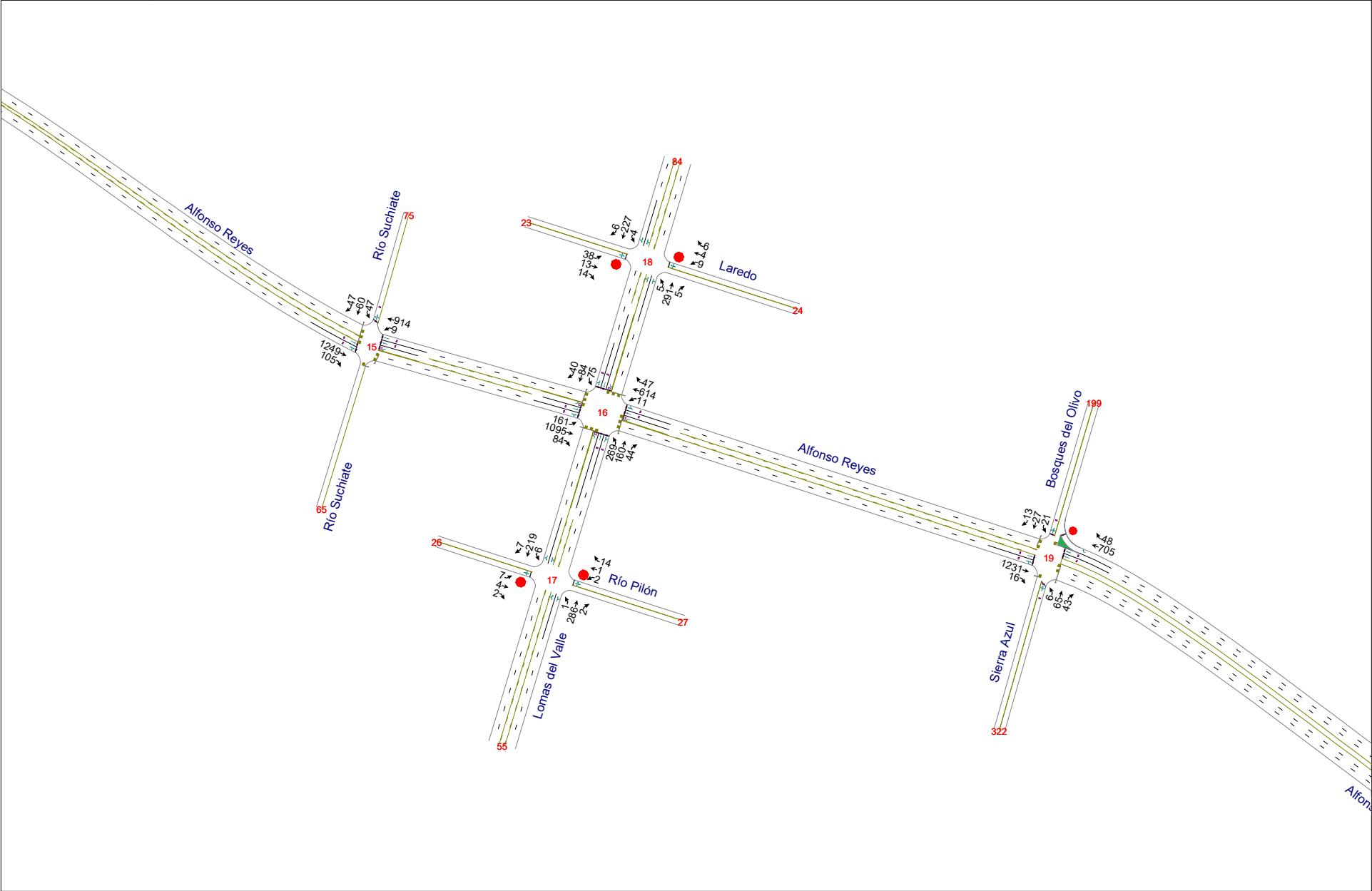
ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 15: Río Suchiate & Alfonso Reyes



Map - Ciclovía Alfonso Reyes
Análisis de la operación actual - AM



Ciclovía Alfonso Reyes
Vargas Torres y Asociados, S.A. de C.V.

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	161	1095	84	11	614	47	269	160	44	75	84	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	30.0		0.0	50.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		1.00			1.00							
Frt		0.988			0.988			0.965			0.950	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1785	3480	0	1785	3485	0	1785	3445	0	1785	3391	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1785	3480	0	1785	3485	0	1785	3445	0	1785	3391	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			8			33			48	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		152.4			298.2			111.2			99.7	
Travel Time (s)		11.0			21.5			8.0			7.2	
Confl. Peds. (#/hr)			1			3						
Confl. Bikes (#/hr)			5			4						
Peak Hour Factor	0.75	0.89	0.81	0.92	0.80	0.73	0.67	0.80	0.73	0.72	0.88	0.83
Heavy Vehicles (%)	0%	1%	4%	0%	1%	2%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	215	1230	104	12	768	64	401	200	60	104	95	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	215	1334	0	12	832	0	401	260	0	104	143	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes			Yes			Yes			Yes	
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	custom	NA		custom	NA		custom	NA		custom	NA	
Protected Phases	1	2		1	2		3	3		4	4	
Permitted Phases	1	2		1	2		3	3		4	4	
Detector Phase	1	2		1	2		3	3		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	21.0	42.0		21.0	42.0		29.0	29.0		20.0	20.0	
Total Split (%)	18.8%	37.5%		18.8%	37.5%		25.9%	25.9%		17.9%	17.9%	
Maximum Green (s)	18.0	39.0		18.0	39.0		26.0	26.0		17.0	17.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Min	Min		C-Min	Min		Min	Min		Min	Min	
Act Effct Green (s)	21.5	40.7		21.5	40.7		26.0	26.0		11.8	11.8	
Actuated g/C Ratio	0.19	0.36		0.19	0.36		0.23	0.23		0.11	0.11	
v/c Ratio	0.63	1.05		0.04	0.66		0.97	0.32		0.55	0.36	
Control Delay	51.2	75.4		38.3	32.9		80.5	32.2		58.1	32.3	
Queue Delay	0.0	19.5		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	51.2	94.9		38.3	32.9		80.5	32.2		58.1	32.3	
LOS	D	F		D	C		F	C		E	C	
Approach Delay		88.9			33.0			61.5			43.1	
Approach LOS		F			C			E			D	

Intersection Summary

Area Type: Other

Cycle Length: 112

Actuated Cycle Length: 112

Offset: 60 (54%), Referenced to phase 1:EBWBL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 65.7

Intersection LOS: E

Intersection Capacity Utilization 68.1%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 16: Lomas del Valle & Alfonso Reyes

			
ø1 (R)	ø2	ø3	ø4
21 s	42 s	29 s	20 s

17: Lomas del Valle & Río Pílon
Análisis de la operación actual - AM

30/08/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	7	4	2	2	1	14	1	286	2	6	219	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			5%	
Peak Hour Factor	0.58	0.50	0.50	0.50	0.25	0.58	0.25	0.92	0.50	0.50	0.81	0.58
Hourly flow rate (vph)	12	8	4	4	4	24	4	311	4	12	270	12
Pedestrians		5			21			4				
Lane Width (m)		3.5			3.5			3.5				
Walking Speed (m/s)		1.2			1.2			1.2				
Percent Blockage		0			2			0				
Right turn flare (veh)												
Median type								TW	LT		TW	LT
Median storage veh								2			2	
Upstream signal (m)											111	
pX, platoon unblocked												
vC, conflicting volume	495	649	150	513	653	178	287			336		
vC1, stage 1 conf vol	305	305		342	342							
vC2, stage 2 conf vol	190	344		171	311							
vCu, unblocked vol	495	649	150	513	653	178	287			336		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	99	100	99	99	97	100			99		
cM capacity (veh/h)	602	535	869	586	538	826	1281			1214		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	24	32	159	159	147	147						
Volume Left	12	4	4	0	12	0						
Volume Right	4	24	0	4	0	12						
cSH	608	739	1281	1700	1214	1700						
Volume to Capacity	0.04	0.04	0.00	0.09	0.01	0.09						
Queue Length 95th (m)	1.0	1.1	0.1	0.0	0.2	0.0						
Control Delay (s)	11.2	10.1	0.2	0.0	0.7	0.0						
Lane LOS	B	B	A		A							
Approach Delay (s)	11.2	10.1	0.1		0.4							
Approach LOS	B	B										
Intersection Summary												
Average Delay			1.1									
Intersection Capacity Utilization			22.3%		ICU Level of Service				A			
Analysis Period (min)			15									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	38	13	14	9	4	6	5	291	5	4	227	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.79	0.65	0.58	0.75	0.50	0.50	0.42	0.86	0.42	0.50	0.85	0.50
Hourly flow rate (vph)	48	20	24	12	8	12	12	338	12	8	267	12
Pedestrians		1			7			3			4	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			1			0			0	
Right turn flare (veh)												
Median type								TWLT			TWLT	
Median storage (veh)								2			2	
Upstream signal (m)								100				
pX, platoon unblocked												
vC, conflicting volume	503	671	144	562	671	186	280			357		
vC1, stage 1 conf vol	290	290		375	375							
vC2, stage 2 conf vol	213	381		187	296							
vCu, unblocked vol	503	671	144	562	671	186	280			357		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	92	96	97	98	98	99	99			99		
cM capacity (veh/h)	606	530	881	553	531	823	1293			1206		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	92	32	181	181	142	146						
Volume Left	48	12	12	0	8	0						
Volume Right	24	12	0	12	0	12						
cSH	638	624	1293	1700	1206	1700						
Volume to Capacity	0.14	0.05	0.01	0.11	0.01	0.09						
Queue Length 95th (m)	4.0	1.3	0.2	0.0	0.2	0.0						
Control Delay (s)	11.6	11.1	0.6	0.0	0.5	0.0						
Lane LOS	B	B	A		A							
Approach Delay (s)	11.6	11.1	0.3		0.2							
Approach LOS	B	B										
Intersection Summary												
Average Delay			2.1									
Intersection Capacity Utilization			24.6%		ICU Level of Service				A			
Analysis Period (min)			15									

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1231	16	0	705	48	6	65	43	21	27	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00				0.98		1.00			1.00	
Frt		0.997				0.850		0.951			0.974	
Flt Protected								0.997			0.981	
Satd. Flow (prot)	0	3523	0	0	3500	1566	0	1761	0	0	1791	0
Flt Permitted								0.997			0.981	
Satd. Flow (perm)	0	3523	0	0	3500	1530	0	1761	0	0	1791	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5						26			11	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		298.2			545.9			114.8			102.4	
Travel Time (s)		21.5			39.3			8.3			7.4	
Confl. Peds. (#/hr)			2			1	1					1
Confl. Bikes (#/hr)			5			5						
Peak Hour Factor	0.92	0.88	0.50	0.92	0.94	0.80	0.50	0.65	0.67	0.66	0.75	0.81
Heavy Vehicles (%)	0%	1%	0%	0%	2%	2%	0%	2%	0%	0%	0%	0%
Adj. Flow (vph)	0	1399	32	0	750	60	12	100	64	32	36	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1431	0	0	750	60	0	176	0	0	84	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2	1	1	2		1	2	
Detector Template		Thru			Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)		10.0			10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)		0.6			0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type		Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type		NA			NA	custom	custom	NA		custom	NA	
Protected Phases		1			1	1	2	2		3	3	
Permitted Phases		1			1	1 2 3	2	2		3	3	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1			1			2	2		3	3	
Switch Phase												
Minimum Initial (s)	4.0			4.0			4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0			20.0			10.0	10.0		10.0	10.0	
Total Split (s)	59.0			59.0			14.0	14.0		17.0	17.0	
Total Split (%)	65.6%			65.6%			15.6%	15.6%		18.9%	18.9%	
Maximum Green (s)	56.0			56.0			11.0	11.0		14.0	14.0	
Yellow Time (s)	3.0			3.0			3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0			0.0			0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	0.0			0.0				0.0			0.0	
Total Lost Time (s)	3.0			3.0				3.0			3.0	
Lead/Lag	Lead			Lead			Lag	Lag				
Lead-Lag Optimize?	Yes			Yes			Yes	Yes				
Vehicle Extension (s)	3.0			3.0			3.0	3.0		3.0	3.0	
Recall Mode	C-Max			C-Max			Min	Min		Min	Min	
Act Effct Green (s)	61.5			61.5				10.4			9.1	
Actuated g/C Ratio	0.68			0.68				0.12			0.10	
v/c Ratio	0.59			0.31				0.78			0.44	
Control Delay	9.4			4.5			0.1	56.3			39.7	
Queue Delay	0.0			0.0				0.0			0.0	
Total Delay	9.4			4.5			0.1	56.3			39.7	
LOS	A			A			A	E			D	
Approach Delay	9.4			4.2				56.3			39.7	
Approach LOS	A			A				E			D	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 45 (50%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 12.0

Intersection LOS: B

Intersection Capacity Utilization 51.3%

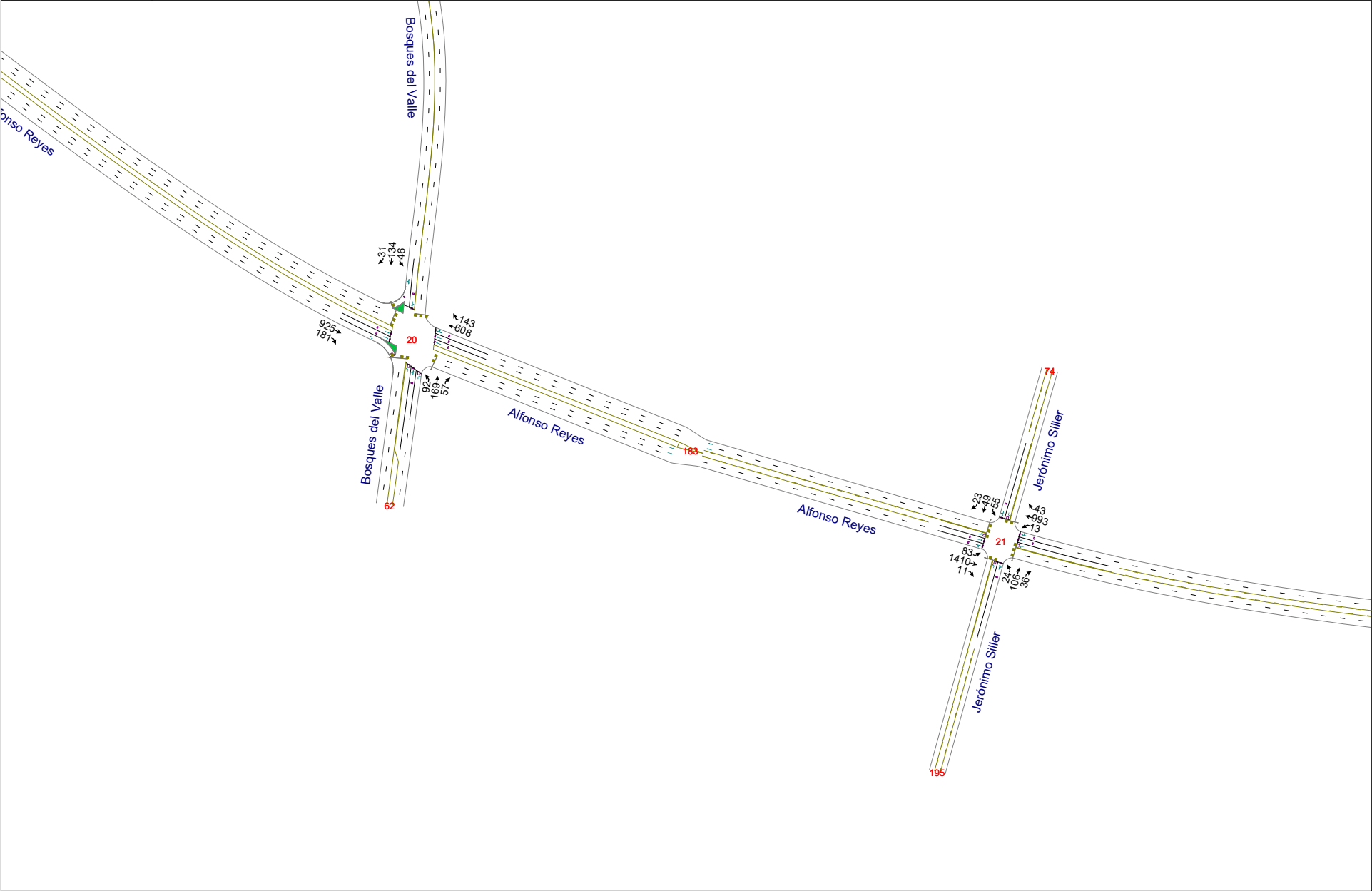
ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 19: Sierra Azul/Bosques del Olivo & Alfonso Reyes

														
ø1 (R)			ø2			ø3								
59 s			14 s			17 s								

Map - Ciclovía Alfonso Reyes
Análisis de la operación actual - AM



Ciclovía Alfonso Reyes
Vargas Torres y Asociados, S.A. de C.V.

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑↑		↑	↑	↑		↑↑	
Volume (vph)	0	925	181	0	608	143	92	169	57	46	134	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-5%			5%	
Storage Length (m)	0.0		0.0	60.0		0.0	50.0		0.0	0.0		0.0
Storage Lanes	0		1	0		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.95	0.95	1.00	0.95	0.95	0.95
Ped Bike Factor			0.98		1.00				0.99			
Frt			0.850		0.970				0.850		0.975	
Flt Protected							0.950	0.997			0.989	
Satd. Flow (prot)	0	3570	1581	0	4921	0	1704	1805	1637	0	3336	0
Flt Permitted							0.950	0.997			0.989	
Satd. Flow (perm)	0	3570	1554	0	4921	0	1704	1805	1614	0	3336	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			203		86				72		22	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		545.9			190.7			106.6			313.3	
Travel Time (s)		39.3			13.7			7.7			22.6	
Confl. Peds. (#/hr)			3						2			
Confl. Bikes (#/hr)			7			7						
Peak Hour Factor	0.92	0.94	0.89	0.92	0.84	0.79	0.82	0.86	0.79	0.77	0.84	0.71
Heavy Vehicles (%)	0%	0%	1%	0%	1%	0%	2%	1%	0%	0%	1%	0%
Adj. Flow (vph)	0	984	203	0	724	181	112	197	72	60	160	44
Shared Lane Traffic (%)							10%					
Lane Group Flow (vph)	0	984	203	0	905	0	101	208	72	0	264	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.0			3.0			4.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	0.98	0.98	0.98	1.05	1.05	1.05
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2	1		2		1	2	1	1	2	
Detector Template		Thru	Right		Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)		10.0	2.0		10.0		2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)		0.6	2.0		0.6		2.0	0.6	2.0	2.0	0.6	
Detector 1 Type		CI+Ex	CI+Ex		CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type		NA custom			NA		custom	NA custom	custom		NA	
Protected Phases		1	1		1		2	2	2	3	3	
Permitted Phases		1	1		1		2	2	2	3	3	
Detector Phase		1	1		1		2	2	2	3	3	
Switch Phase												
Minimum Initial (s)		4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)		20.0	20.0		20.0		10.0	10.0	10.0	10.0	10.0	
Total Split (s)		43.0	43.0		43.0		31.0	31.0	31.0	16.0	16.0	
Total Split (%)		47.8%	47.8%		47.8%		34.4%	34.4%	34.4%	17.8%	17.8%	
Maximum Green (s)		40.0	40.0		40.0		28.0	28.0	28.0	13.0	13.0	
Yellow Time (s)		3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0	0.0		0.0	
Total Lost Time (s)		3.0	3.0		3.0		3.0	3.0	3.0		3.0	
Lead/Lag		Lead	Lead		Lead		Lag	Lag	Lag			
Lead-Lag Optimize?		Yes	Yes		Yes		Yes	Yes	Yes			
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode		C-Min	C-Min		C-Min		Min	Min	Min	Min	Min	
Act Effct Green (s)		53.5	53.5		53.5		15.7	15.7	15.7		11.8	
Actuated g/C Ratio		0.59	0.59		0.59		0.17	0.17	0.17		0.13	
v/c Ratio		0.46	0.20		0.31		0.34	0.66	0.21		0.58	
Control Delay		11.8	4.9		9.3		34.4	44.4	8.9		38.5	
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0		0.0	
Total Delay		11.8	4.9		9.3		34.4	44.4	8.9		38.5	
LOS		B	A		A		C	D	A		D	
Approach Delay		10.7			9.3			35.0			38.5	
Approach LOS		B			A			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 28 (31%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 40

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 16.3

Intersection LOS: B

Intersection Capacity Utilization 50.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 20: Bosques del Valle & Alfonso Reyes

  $\phi 1 (R)$	 $\phi 2$	 $\phi 3$
43 s	31 s	16 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	83	1410	11	13	993	43	24	106	36	55	49	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	60.0		0.0	50.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00			0.99		1.00		
Frt		0.998			0.994			0.947			0.941	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1785	3493	0	1552	3502	0	1653	1717	0	1785	1768	0
Flt Permitted	0.216			0.072			0.588			0.444		
Satd. Flow (perm)	406	3493	0	118	3502	0	1023	1717	0	831	1768	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			8			20			22	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		205.5			589.5			152.6			112.8	
Travel Time (s)		14.8			42.4			11.0			8.1	
Confl. Peds. (#/hr)	2		2	2		2			3	3		
Confl. Bikes (#/hr)			4			5						
Peak Hour Factor	0.80	0.95	0.55	0.65	0.95	1.00	0.86	0.91	0.56	0.86	0.87	0.64
Heavy Vehicles (%)	0%	2%	0%	15%	1%	7%	8%	1%	6%	0%	0%	0%
Adj. Flow (vph)	104	1484	20	20	1045	43	28	116	64	64	56	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	104	1504	0	20	1088	0	28	180	0	64	92	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes			Yes			Yes			Yes	
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	*0.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	ø2
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (m)	
Storage Lanes	
Taper Length (m)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (k/h)	
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	custom	NA	custom	NA	custom	NA	custom	NA	custom	NA	custom	NA
Protected Phases	3	2 3	1	1 2	4	4	5	5				
Permitted Phases	1 2 3	2 3	1 2 3	1 2	4 5	4	4 5	4	4 5	5		
Detector Phase	3	2 3	1	1 2	4	4	5	5				
Switch Phase												
Minimum Initial (s)	4.0		1.0		4.0	4.0	4.0	4.0				
Minimum Split (s)	10.0		10.0		10.0	10.0	10.0	10.0				
Total Split (s)	10.0		41.0		12.0	12.0	10.0	10.0				
Total Split (%)	9.1%		37.3%		10.9%	10.9%	9.1%	9.1%				
Maximum Green (s)	7.0		38.0		9.0	9.0	7.0	7.0				
Yellow Time (s)	3.0		3.0		3.0	3.0	3.0	3.0				
All-Red Time (s)	0.0		0.0		0.0	0.0	0.0	0.0				
Lost Time Adjust (s)	0.0		0.0		0.0	0.0	0.0	0.0				
Total Lost Time (s)	3.0		3.0		3.0	3.0	3.0	3.0				
Lead/Lag	Lead		Lead		Lag	Lag						
Lead-Lag Optimize?	Yes		Yes		Yes	Yes						
Vehicle Extension (s)	3.0		3.0		3.0	3.0	3.0	3.0				
Recall Mode	None		None		None	None	None	None				
Act Effct Green (s)	82.2	55.5	79.2	75.0	15.8	9.0	15.8	6.8				
Actuated g/C Ratio	0.75	0.50	0.72	0.68	0.14	0.08	0.14	0.06				
v/c Ratio	0.26	0.85	0.05	0.46	0.14	1.14	0.36	0.71				
Control Delay	4.0	24.7	2.8	8.7	33.6	155.0	37.9	67.4				
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Total Delay	4.0	24.7	2.8	8.7	33.6	155.0	37.9	67.4				
LOS	A	C	A	A	C	F	D	E				
Approach Delay		23.4		8.6		138.6		55.3				
Approach LOS		C		A		F		E				

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.14

Intersection Signal Delay: 27.5

Intersection LOS: C

Intersection Capacity Utilization 67.2%

ICU Level of Service C

Analysis Period (min) 15

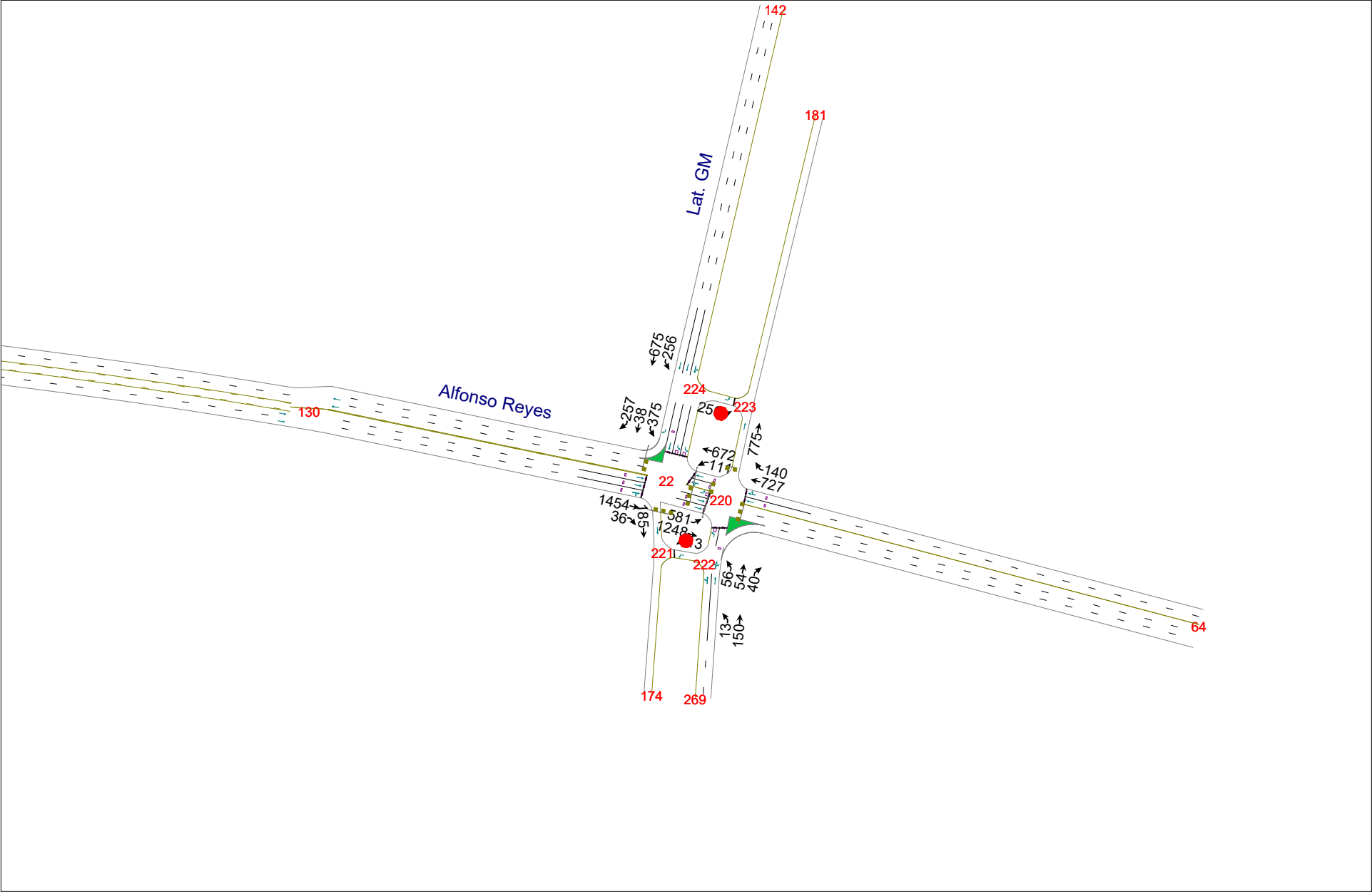
* User Entered Value

Splits and Phases: 21: Jerónimo Siller & Alfonso Reyes

														
ø1	ø2 (R)	ø5	ø3	ø4										
41 s	37 s	10 s	10 s	12 s										

Lane Group	ø2
Turn Type	
Protected Phases	2
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	37.0
Total Split (%)	34%
Maximum Green (s)	34.0
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	C-Min
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Map - Ciclovía Alfonso Rey
Análisis de la operación actual - AM



Ciclovía Alfonso Reyes
Vargas Torres y Asociados, S.A. de C.V.

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑					↑↑	↑	↑
Volume (vph)	0	1454	36	111	672	0	0	0	0	375	38	257
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Ped Bike Factor		1.00			1.00					0.94		0.95
Frt		0.996										0.850
Flt Protected					0.993					0.950		
Satd. Flow (prot)	0	4981	0	0	3500	0	0	0	0	3395	1457	1536
Flt Permitted					0.993					0.950		
Satd. Flow (perm)	0	4981	0	0	3500	0	0	0	0	3202	1457	1453
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4										325
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		163.4			26.0			32.5			43.2	
Travel Time (s)		11.8			1.9			2.3			3.1	
Confl. Peds. (#/hr)			9	9						28		21
Confl. Bikes (#/hr)			8									
Peak Hour Factor	0.92	0.90	0.75	0.93	0.90	0.92	0.92	0.92	0.92	0.89	0.79	0.79
Heavy Vehicles (%)	0%	2%	17%	3%	1%	0%	0%	0%	0%	2%	29%	4%
Adj. Flow (vph)	0	1616	48	119	747	0	0	0	0	421	48	325
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1664	0	0	866	0	0	0	0	421	48	325
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			-3.5	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2		1	2					1	2	1
Detector Template		Thru		Left	Thru					Left	Thru	Right
Leading Detector (m)		10.0		2.0	10.0					2.0	10.0	2.0
Trailing Detector (m)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Position(m)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Size(m)		0.6		2.0	0.6					2.0	0.6	2.0
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4						9.4	
Detector 2 Size(m)		0.6			0.6						0.6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA		custom	NA					custom	NA	custom
Protected Phases		3		1 4	1 4					2	2	2
Permitted Phases		3		1 4	1 4					2	2	2

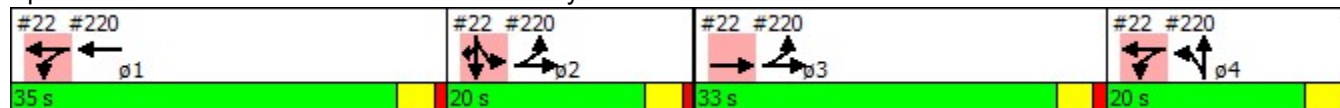
Lane Group	ø1	ø4
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	1	4
Permitted Phases		

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase		3		1 4	1 4					2	2	2
Switch Phase												
Minimum Initial (s)		4.0								4.0	4.0	4.0
Minimum Split (s)		10.0								10.0	10.0	10.0
Total Split (s)		33.0								20.0	20.0	20.0
Total Split (%)		30.6%								18.5%	18.5%	18.5%
Maximum Green (s)		29.0								16.0	16.0	16.0
Yellow Time (s)		3.0								3.0	3.0	3.0
All-Red Time (s)		1.0								1.0	1.0	1.0
Lost Time Adjust (s)		0.0								0.0	0.0	0.0
Total Lost Time (s)		4.0								4.0	4.0	4.0
Lead/Lag		Lead								Lag	Lag	Lag
Lead-Lag Optimize?		Yes								Yes	Yes	Yes
Vehicle Extension (s)		3.0								3.0	3.0	3.0
Recall Mode		Min								Min	Min	Min
Act Effct Green (s)		29.0			51.0					16.0	16.0	16.0
Actuated g/C Ratio		0.27			0.47					0.15	0.15	0.15
v/c Ratio		1.24			0.52					0.84	0.22	0.64
Control Delay		150.2			3.1					60.7	43.6	11.2
Queue Delay		0.5			0.0					0.1	0.0	0.0
Total Delay		150.7			3.1					60.8	43.6	11.2
LOS		F			A					E	D	B
Approach Delay		150.7			3.1						39.4	
Approach LOS		F			A						D	

Intersection Summary

Area Type: Other
 Cycle Length: 108
 Actuated Cycle Length: 108
 Natural Cycle: 90
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.24
 Intersection Signal Delay: 85.7
 Intersection LOS: F
 Intersection Capacity Utilization 71.4%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 22: Lat. GM & Alfonso Reyes



Lane Group	ø1	ø4
Detector Phase		
Switch Phase		
Minimum Initial (s)	4.0	4.0
Minimum Split (s)	10.0	10.0
Total Split (s)	35.0	20.0
Total Split (%)	32%	19%
Maximum Green (s)	31.0	16.0
Yellow Time (s)	3.0	3.0
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	581	1248	0	0	727	140	56	54	40	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				0.99		0.96	0.97				
Frt					0.976			0.941				
Flt Protected	0.950						0.950	0.998				
Satd. Flow (prot)	1750	3500	0	0	3427	0	1696	1632	0	0	0	0
Flt Permitted	0.950						0.950	0.998				
Satd. Flow (perm)	1746	3500	0	0	3427	0	1624	1628	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					20			25				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		26.0			221.6			29.9			43.1	
Travel Time (s)		1.9			16.0			2.2			3.1	
Confl. Peds. (#/hr)	7					7	21		28			
Confl. Bikes (#/hr)						7						
Peak Hour Factor	0.87	0.95	0.92	0.92	0.90	0.92	0.93	0.79	0.83	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	668	1314	0	0	808	152	60	68	48	0	0	0
Shared Lane Traffic (%)							10%					
Lane Group Flow (vph)	668	1314	0	0	960	0	54	122	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2			2		1	2				
Detector Template	Left	Thru			Thru		Left	Thru				
Leading Detector (m)	2.0	10.0			10.0		2.0	10.0				
Trailing Detector (m)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Position(m)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Size(m)	2.0	0.6			0.6		2.0	0.6				
Detector 1 Type	CI+Ex	CI+Ex			CI+Ex		CI+Ex	CI+Ex				
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				
Detector 2 Position(m)		9.4			9.4			9.4				
Detector 2 Size(m)		0.6			0.6			0.6				
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	custom	NA			NA		custom	NA				
Protected Phases	2 3	2 3			1		4	4				
Permitted Phases	2 3	2 3			1		4	4				

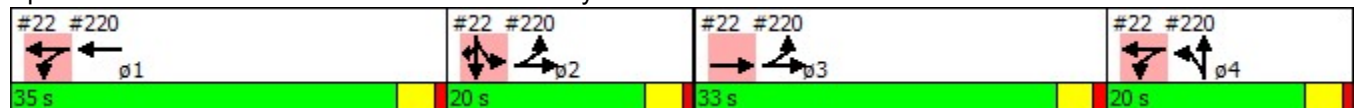
Lane Group	ø2	ø3
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	2	3
Permitted Phases		

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2 3	2 3			1		4	4				
Switch Phase												
Minimum Initial (s)					4.0		4.0	4.0				
Minimum Split (s)					10.0		10.0	10.0				
Total Split (s)					35.0		20.0	20.0				
Total Split (%)					32.4%		18.5%	18.5%				
Maximum Green (s)					31.0		16.0	16.0				
Yellow Time (s)					3.0		3.0	3.0				
All-Red Time (s)					1.0		1.0	1.0				
Lost Time Adjust (s)					0.0		0.0	0.0				
Total Lost Time (s)					4.0		4.0	4.0				
Lead/Lag					Lead		Lag	Lag				
Lead-Lag Optimize?					Yes		Yes	Yes				
Vehicle Extension (s)					3.0		3.0	3.0				
Recall Mode					None		None	None				
Act Effct Green (s)	49.0	49.0			31.0		16.0	16.0				
Actuated g/C Ratio	0.45	0.45			0.29		0.15	0.15				
v/c Ratio	0.84	0.83			0.96		0.22	0.46				
Control Delay	27.4	5.7			58.6		43.1	39.7				
Queue Delay	0.0	0.0			0.3		0.0	0.0				
Total Delay	27.4	5.7			58.9		43.1	39.7				
LOS	C	A			E		D	D				
Approach Delay		13.0			58.9			40.7				
Approach LOS		B			E			D				

Intersection Summary

Area Type: Other
Cycle Length: 108
Actuated Cycle Length: 108
Natural Cycle: 90
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.24
Intersection Signal Delay: 28.7
Intersection LOS: C
Intersection Capacity Utilization 71.7%
ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 220: Lat. GM & Alfonso Reyes

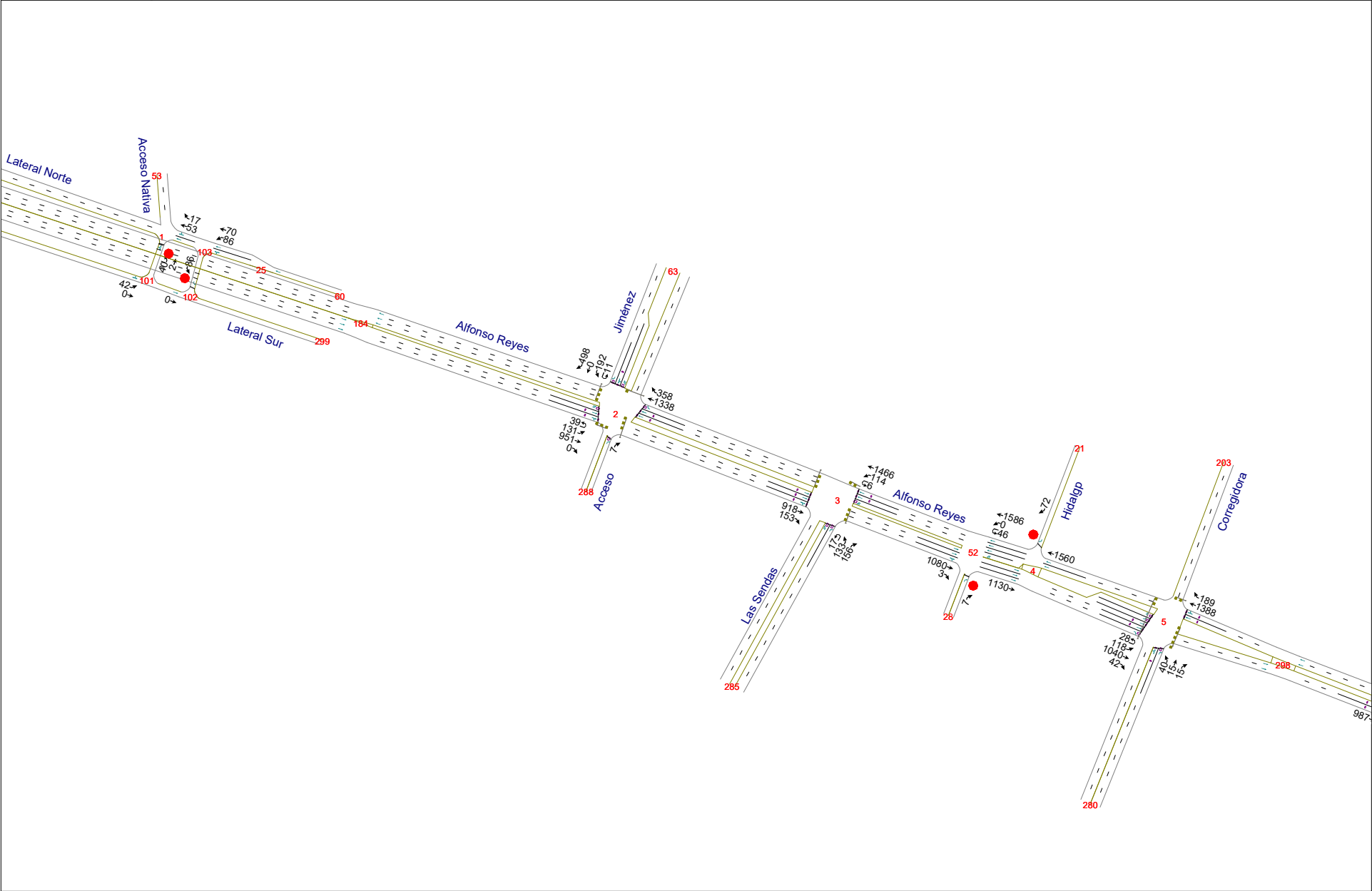


Lane Group	ø2	ø3
Detector Phase		
Switch Phase		
Minimum Initial (s)	4.0	4.0
Minimum Split (s)	10.0	10.0
Total Split (s)	20.0	33.0
Total Split (%)	19%	31%
Maximum Green (s)	16.0	29.0
Yellow Time (s)	3.0	3.0
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

Zone 22 Totals

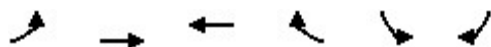
Number of Intersections	2
Control Delay / Veh (s/v)	58
Queue Delay / Veh (s/v)	0
Total Delay / Veh (s/v)	58
Total Delay (hr)	93
Stops / Veh	0.51
Stops (#)	2924
Average Speed (km/hr)	12
Total Travel Time (hr)	121
Distance Traveled (km)	1415
Fuel Consumed (l)	457
Fuel Economy (km/l)	3.1
CO Emissions (kg)	8.51
NOx Emissions (kg)	1.64
VOC Emissions (kg)	1.96
Unserved Vehicles (#)	290
Vehicles in dilemma zone (#)	0
Performance Index	101.0

Map - Ciclovía Alfonso Reyes
Análisis de la operación actual - PM



Ciclovía Alfonso Reyes
Vargas Torres y Asociados, S.A. de C.V.

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	53	17	40	2	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.78	0.47	0.87	0.50	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	68	36	46	4	0	0	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	104			0			34	104	0	88	86	52
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	104			0			34	104	0	88	86	52
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			95	99	100	100	100	100
cM capacity (veh/h)	1500			1636			974	790	1091	890	808	1011
Direction, Lane #	WB 1	WB 2	NB 1									
Volume Total	45	59	50									
Volume Left	0	0	46									
Volume Right	0	36	0									
cSH	1700	1700	956									
Volume to Capacity	0.03	0.03	0.05									
Queue Length 95th (m)	0.0	0.0	1.3									
Control Delay (s)	0.0	0.0	9.0									
Lane LOS			A									
Approach Delay (s)	0.0		9.0									
Approach LOS			A									
Intersection Summary												
Average Delay			2.9									
Intersection Capacity Utilization			13.3%		ICU Level of Service				A			
Analysis Period (min)			15									

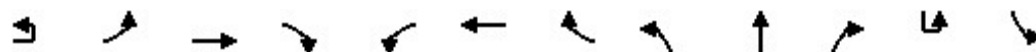


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑			↘	
Volume (veh/h)	0	0	0	0	86	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.60	0.92	0.92	0.89	0.92
Hourly flow rate (vph)	0	0	0	0	97	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	0				0	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				0	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				91	100
cM capacity (veh/h)	1636				1029	1091
Direction, Lane #	EB 1	SB 1				
Volume Total	0	97				
Volume Left	0	97				
Volume Right	0	0				
cSH	1700	1029				
Volume to Capacity	0.00	0.09				
Queue Length 95th (m)	0.0	2.5				
Control Delay (s)	0.0	8.9				
Lane LOS		A				
Approach Delay (s)	0.0	8.9				
Approach LOS		A				
Intersection Summary						
Average Delay		8.9				
Intersection Capacity Utilization		14.4%		ICU Level of Service		A
Analysis Period (min)		15				

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	39	131	951	0	0	1338	358	0	0	7	11	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0		0.0	0.0		0.0	0.0		0.0		45.0
Storage Lanes		1		0	0		1	0		1		1
Taper Length (m)		7.5			7.5			7.5				7.5
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95
Ped Bike Factor		0.99					0.94			0.98		0.88
Frt							0.850			0.865		
Flt Protected		0.950										0.950
Satd. Flow (prot)	0	1785	3535	0	0	3570	1581	0	0	1625	0	1575
Flt Permitted		0.950										0.950
Satd. Flow (perm)	0	1767	3535	0	0	3570	1492	0	0	1585	0	1392
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)										351		
Link Speed (k/h)			50			50			50			
Link Distance (m)			182.0			160.4			56.3			
Travel Time (s)			13.1			11.5			4.1			
Confl. Peds. (#/hr)	20	19		16			19			43	19	43
Confl. Bikes (#/hr)				40			43					
Peak Hour Factor	0.75	0.88	0.90	0.37	0.92	0.93	0.89	0.92	0.92	0.41	0.69	0.96
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	1%	0%	0%	0%	0%	9%
Adj. Flow (vph)	52	149	1057	0	0	1439	402	0	0	17	16	200
Shared Lane Traffic (%)												54%
Lane Group Flow (vph)	0	201	1057	0	0	1439	402	0	0	17	0	108
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	R NA	Left
Median Width(m)			6.0			4.0			0.0			
Link Offset(m)			0.0			0.0			0.0			
Crosswalk Width(m)			4.8			4.8			4.8			
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	15	25		15	25		15	25		15	15	25
Turn Type	custom	custom	NA			NA	custom			Free	custom	custom
Protected Phases	1	1	2			2	2				3	3
Permitted Phases	1	1	2			2	1 2 3			Free	3	3
Minimum Split (s)	15.0	15.0	20.0			20.0	20.0				15.0	15.0
Total Split (s)	26.0	26.0	55.0			55.0	55.0				19.0	19.0
Total Split (%)	26.0%	26.0%	55.0%			55.0%	55.0%				19.0%	19.0%
Maximum Green (s)	23.0	23.0	52.0			52.0	52.0				16.0	16.0
Yellow Time (s)	3.0	3.0	3.0			3.0	3.0				3.0	3.0
All-Red Time (s)	0.0	0.0	0.0			0.0	0.0				0.0	0.0
Lost Time Adjust (s)		0.0	0.0			0.0	0.0					0.0
Total Lost Time (s)		3.0	3.0			3.0	3.0					3.0
Lead/Lag	Lead	Lead	Lag			Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	Yes					
Walk Time (s)			5.0			5.0	5.0					
Flash Dont Walk (s)			11.0			11.0	11.0					
Pedestrian Calls (#/hr)			0			0	0					



Lane Group	SBT	SBR
Lane Configurations	↕	↗
Volume (vph)	0	498
Ideal Flow (vphpl)	1900	1900
Storage Length (m)		0.0
Storage Lanes		1
Taper Length (m)		
Lane Util. Factor	0.95	1.00
Ped Bike Factor	0.92	0.98
Frt		0.850
Flt Protected	0.950	
Satd. Flow (prot)	1556	1551
Flt Permitted	0.950	
Satd. Flow (perm)	1430	1522
Right Turn on Red		Yes
Satd. Flow (RTOR)		
Link Speed (k/h)	50	
Link Distance (m)	103.5	
Travel Time (s)	7.5	
Confl. Peds. (#/hr)		20
Confl. Bikes (#/hr)		
Peak Hour Factor	0.54	0.91
Heavy Vehicles (%)	0%	3%
Adj. Flow (vph)	0	547
Shared Lane Traffic (%)		
Lane Group Flow (vph)	108	547
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(m)	8.0	
Link Offset(m)	0.0	
Crosswalk Width(m)	4.8	
Two way Left Turn Lane		
Headway Factor	1.01	1.01
Turning Speed (k/h)		15
Turn Type	NA	custom
Protected Phases	3	3
Permitted Phases	3	1 2 3
Minimum Split (s)	15.0	15.0
Total Split (s)	19.0	19.0
Total Split (%)	19.0%	19.0%
Maximum Green (s)	16.0	16.0
Yellow Time (s)	3.0	3.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	3.0	3.0
Lead/Lag		
Lead-Lag Optimize?		
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Act Effct Green (s)		23.0	52.0			52.0	94.0			100.0		16.0
Actuated g/C Ratio		0.23	0.52			0.52	0.94			1.00		0.16
v/c Ratio		0.49	0.58			0.78	0.28			0.01		0.43
Control Delay		38.2	18.0			23.0	0.6			0.0		43.9
Queue Delay		0.0	0.0			5.5	0.0			0.0		0.0
Total Delay		38.2	18.0			28.5	0.6			0.0		43.9
LOS		D	B			C	A			A		D
Approach Delay			21.2			22.4						
Approach LOS			C			C						

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 60

Control Type: Pretimed

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 20.1

Intersection LOS: C

Intersection Capacity Utilization 89.2%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 2: Acceso/Jiménez & Alfonso Reyes

 ø1	 ø2 (R)	 ø3
26 s	55 s	19 s



Lane Group	SBT	SBR
Act Effct Green (s)	16.0	94.0
Actuated g/C Ratio	0.16	0.94
v/c Ratio	0.44	0.38
Control Delay	44.2	0.9
Queue Delay	0.0	0.0
Total Delay	44.2	0.9
LOS	D	A
Approach Delay	13.1	
Approach LOS	B	
Intersection Summary		

								
Lane Group	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑			↓	↑↑		↓	↑
Volume (vph)	918	153	6	114	1466	17	133	156
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.91	0.91	0.95	1.00	0.95	1.00	1.00	1.00
Ped Bike Factor	1.00			1.00				0.99
Frt	0.979							0.850
Flt Protected				0.950			0.950	
Satd. Flow (prot)	4915	0	0	1785	3570	0	1659	1536
Flt Permitted				0.950			0.950	
Satd. Flow (perm)	4915	0	0	1784	3570	0	1659	1515
Right Turn on Red		Yes						Yes
Satd. Flow (RTOR)	47							220
Link Speed (k/h)	50				50		50	
Link Distance (m)	160.4				97.5		144.1	
Travel Time (s)	11.5				7.0		10.4	
Confl. Peds. (#/hr)		1	1	1				1
Confl. Bikes (#/hr)		42						
Peak Hour Factor	0.81	0.85	0.50	0.86	0.83	0.61	0.90	0.71
Heavy Vehicles (%)	1%	6%	0%	0%	0%	0%	9%	4%
Adj. Flow (vph)	1133	180	12	133	1766	28	148	220
Shared Lane Traffic (%)								
Lane Group Flow (vph)	1313	0	0	145	1766	0	176	220
Enter Blocked Intersection	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	R NA	Left	Left	R NA	Left	Right
Median Width(m)	4.0				5.5		7.5	
Link Offset(m)	0.0				2.0		0.0	
Crosswalk Width(m)	4.8				4.8		4.8	
Two way Left Turn Lane								
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	15	25		15	25	15
Number of Detectors	2		1	1	2	1	1	1
Detector Template	Thru		Left	Left	Thru	Left	Left	Right
Leading Detector (m)	10.0		2.0	2.0	10.0	2.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	2.0	0.6	2.0	2.0	2.0
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel								
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4				9.4			
Detector 2 Size(m)	0.6				0.6			
Detector 2 Type	CI+Ex				CI+Ex			
Detector 2 Channel								
Detector 2 Extend (s)	0.0				0.0			
Turn Type	NA	custom	custom		NA	Prot	Prot	Prot
Protected Phases	1		2	2	1	3	3	3
Permitted Phases	1		2	2	1	3	3	3

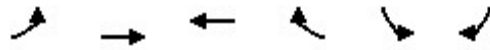
	→	↘	↶	↙	←	↗	↘	↗
Lane Group	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Detector Phase	1		2	2	1	3	3	3
Switch Phase								
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0		20.0	20.0	20.0	10.0	10.0	10.0
Total Split (s)	42.0		20.0	20.0	42.0	23.0	23.0	23.0
Total Split (%)	49.4%		23.5%	23.5%	49.4%	27.1%	27.1%	27.1%
Maximum Green (s)	39.0		17.0	17.0	39.0	20.0	20.0	20.0
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	3.0			3.0	3.0		3.0	3.0
Lead/Lag	Lead		Lag	Lag	Lead			
Lead-Lag Optimize?	Yes		Yes	Yes	Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min		None	None	C-Min	None	None	None
Walk Time (s)	5.0		5.0	5.0	5.0			
Flash Dont Walk (s)	11.0		11.0	11.0	11.0			
Pedestrian Calls (#/hr)	0		0	0	0			
Act Effct Green (s)	49.6			12.1	49.6		14.2	14.2
Actuated g/C Ratio	0.58			0.14	0.58		0.17	0.17
v/c Ratio	0.45			0.57	0.85		0.64	0.50
Control Delay	11.4			46.1	17.9		42.8	8.5
Queue Delay	0.0			0.0	0.0		0.0	0.0
Total Delay	11.4			46.1	17.9		42.8	8.5
LOS	B			D	B		D	A
Approach Delay	11.4				20.0		23.7	
Approach LOS	B				C		C	

Intersection Summary

Area Type:	Other
Cycle Length:	85
Actuated Cycle Length:	85
Offset:	35 (41%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.85
Intersection Signal Delay:	17.3
Intersection LOS:	B
Intersection Capacity Utilization	55.5%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 3: Las Sendas & Alfonso Reyes

 01 (R)	 02	 03
42 s	20 s	23 s



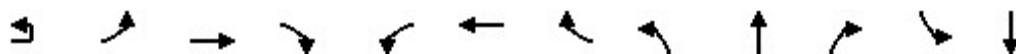
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑			↗
Volume (veh/h)	0	1130	1560	0	0	72
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.86	0.82	0.92	0.92	0.69
Hourly flow rate (vph)	0	1314	1902	0	0	104
Pedestrians		15				
Lane Width (m)		3.5				
Walking Speed (m/s)		1.2				
Percent Blockage		1				
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)		140	94			
pX, platoon unblocked	0.68				0.74	0.68
vC, conflicting volume	1902				2340	966
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1388				1215	14
tC, single (s)	4.1				6.8	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	85
cM capacity (veh/h)	340				130	711
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	438	438	438	951	951	104
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	104
cSH	1700	1700	1700	1700	1700	711
Volume to Capacity	0.26	0.26	0.26	0.56	0.56	0.15
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	4.1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	10.9
Lane LOS						B
Approach Delay (s)	0.0			0.0		10.9
Approach LOS						B
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			58.6%		ICU Level of Service	B
Analysis Period (min)			15			

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	28	118	1040	42	0	1388	189	40	15	15	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		35.0		0.0	0.0		0.0	0.0		0.0	0.0	
Storage Lanes		2		1	0		0	0		1	0	
Taper Length (m)		7.5			7.5			7.5			7.5	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		0.97		1.00			1.00	0.99		
Frt				0.850		0.982				0.850		
Flt Protected	0.950	0.950							0.972			
Satd. Flow (prot)	1716	1342	3535	1597	0	3478	0	0	1826	1597	0	0
Flt Permitted	0.950	0.950							0.972			
Satd. Flow (perm)	1716	1342	3535	1545	0	3478	0	0	1823	1573	0	0
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				64		24				39		
Link Speed (k/h)			50			50			50			50
Link Distance (m)			94.4			85.3			132.7			114.2
Travel Time (s)			6.8			6.1			9.6			8.2
Confl. Peds. (#/hr)	2	2		1			2	2		2		
Confl. Bikes (#/hr)				42			43					
Peak Hour Factor	0.70	0.89	0.95	0.66	0.92	0.96	0.95	0.83	0.42	0.63	0.92	0.92
Heavy Vehicles (%)	4%	33%	1%	0%	0%	0%	3%	0%	0%	0%	0%	0%
Adj. Flow (vph)	40	133	1095	64	0	1446	199	48	36	24	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	133	1095	64	0	1645	0	0	84	24	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(m)			12.0			12.0			0.0			0.0
Link Offset(m)			0.0			0.0			0.0			0.0
Crosswalk Width(m)			4.8			4.8			4.8			4.8
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	15	25		15	25		15	25		15	25	
Number of Detectors	1	1	2	1		2		1	2	1		
Detector Template	Left	Left	Thru	Right		Thru		Left	Thru	Right		
Leading Detector (m)	2.0	2.0	10.0	2.0		10.0		2.0	10.0	2.0		
Trailing Detector (m)	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0		
Detector 1 Position(m)	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0		
Detector 1 Size(m)	2.0	2.0	0.6	2.0		0.6		2.0	0.6	2.0		
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex		CI+Ex	CI+Ex	CI+Ex		
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0		
Detector 2 Position(m)			9.4			9.4			9.4			
Detector 2 Size(m)			0.6			0.6			0.6			
Detector 2 Type			CI+Ex			CI+Ex			CI+Ex			
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			

Lane Group	SBR
Lane Configurations	
Volume (vph)	0
Ideal Flow (vphpl)	1900
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	0.92
Heavy Vehicles (%)	0%
Adj. Flow (vph)	0
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	1.01
Turning Speed (k/h)	15
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	

5: Alfonso Reyes & Corregidora
Análisis de la operación actual - PM

31/08/2021



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Turn Type	custom	custom	NA	Perm		NA		custom	NA	custom		
Protected Phases	2	2	1			1		3	3	3		
Permitted Phases	2	2	1	1		1		3	3	3		
Detector Phase	2	2	1	1		1		3	3	3		
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0		4.0		4.0	4.0	4.0		
Minimum Split (s)	20.0	20.0	20.0	20.0		20.0		10.0	10.0	10.0		
Total Split (s)	20.0	20.0	44.0	44.0		44.0		21.0	21.0	21.0		
Total Split (%)	23.5%	23.5%	51.8%	51.8%		51.8%		24.7%	24.7%	24.7%		
Maximum Green (s)	17.0	17.0	41.0	41.0		41.0		18.0	18.0	18.0		
Yellow Time (s)	3.0	3.0	3.0	3.0		3.0		3.0	3.0	3.0		
All-Red Time (s)	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0			0.0	0.0		
Total Lost Time (s)	3.0	3.0	3.0	3.0		3.0			3.0	3.0		
Lead/Lag	Lag	Lag	Lead	Lead		Lead						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0	3.0	3.0		
Recall Mode	None	None	C-Min	C-Min		C-Min		None	None	None		
Walk Time (s)	5.0	5.0	5.0	5.0		5.0						
Flash Dont Walk (s)	11.0	11.0	11.0	11.0		11.0						
Pedestrian Calls (#/hr)	0	0	0	0		0						
Act Effct Green (s)	13.1	13.1	55.4	55.4		55.4			9.2	9.2		
Actuated g/C Ratio	0.15	0.15	0.65	0.65		0.65			0.11	0.11		
v/c Ratio	0.15	0.65	0.48	0.06		0.72			0.42	0.12		
Control Delay	21.7	37.5	16.8	9.8		14.2			41.2	7.5		
Queue Delay	0.0	0.0	0.0	0.0		0.8			0.0	0.0		
Total Delay	21.7	37.5	16.8	9.8		15.1			41.2	7.5		
LOS	C	D	B	A		B			D	A		
Approach Delay			18.7			15.1			33.7			
Approach LOS			B			B			C			

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 10 (12%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 17.3

Intersection LOS: B

Intersection Capacity Utilization 64.3%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 5: Alfonso Reyes & Corregidora

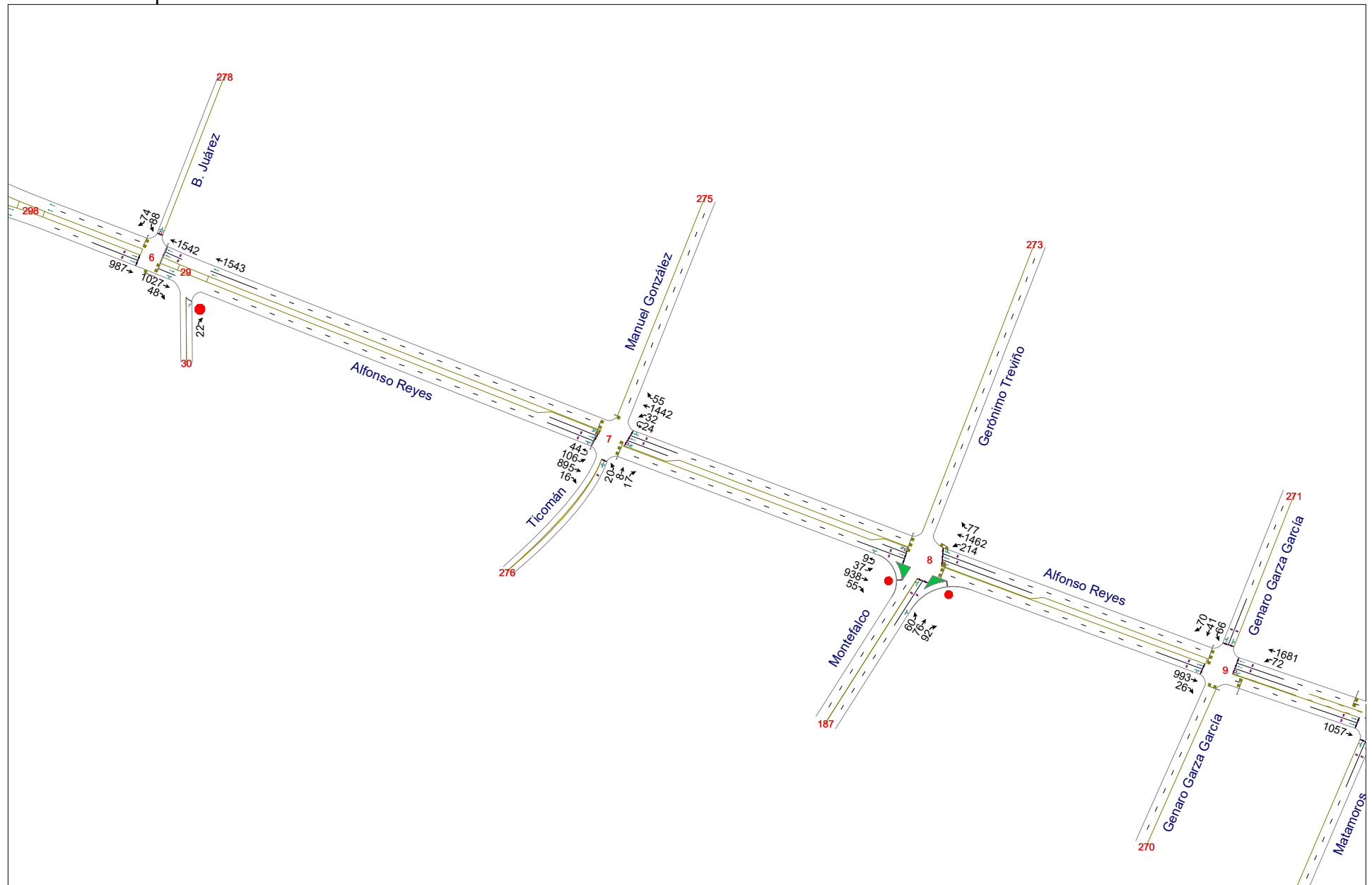
ø1 (R)	ø2	ø3
44 s	20 s	21 s



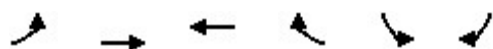
Lane Group	SBR
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Map - Ciclovía Alfonso Reyes

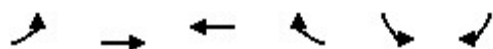
Análisis de la operación actual - PM



Ciclovía Alfonso Reyes
Vargas Torres y Asociados, S.A. de C.V.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Volume (vph)	0	987	1542	0	88	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor					0.99	
Frt					0.942	
Flt Protected					0.972	
Satd. Flow (prot)	0	3570	3570	0	1699	0
Flt Permitted					0.972	
Satd. Flow (perm)	0	3570	3570	0	1698	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					38	
Link Speed (k/h)		50	50		50	
Link Distance (m)		78.3	22.5		117.7	
Travel Time (s)		5.6	1.6		8.5	
Confl. Peds. (#/hr)					1	3
Confl. Bikes (#/hr)				46		
Peak Hour Factor	0.92	0.95	0.92	0.92	0.71	0.80
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%
Adj. Flow (vph)	0	1039	1676	0	124	92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1039	1676	0	216	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		4.0	4.0		3.5	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Number of Detectors		2	2		1	
Detector Template		Thru	Thru		Left	
Leading Detector (m)		10.0	10.0		2.0	
Trailing Detector (m)		0.0	0.0		0.0	
Detector 1 Position(m)		0.0	0.0		0.0	
Detector 1 Size(m)		0.6	0.6		2.0	
Detector 1 Type		CI+Ex	CI+Ex		CI+Ex	
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	
Detector 1 Queue (s)		0.0	0.0		0.0	
Detector 1 Delay (s)		0.0	0.0		0.0	
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Prot	
Protected Phases		1	1		2	
Permitted Phases		1	1		2	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase		1	1		2	
Switch Phase						
Minimum Initial (s)		4.0	4.0		4.0	
Minimum Split (s)		20.0	20.0		20.0	
Total Split (s)		50.0	50.0		20.0	
Total Split (%)		71.4%	71.4%		28.6%	
Maximum Green (s)		47.0	47.0		17.0	
Yellow Time (s)		3.0	3.0		3.0	
All-Red Time (s)		0.0	0.0		0.0	
Lost Time Adjust (s)		0.0	0.0		0.0	
Total Lost Time (s)		3.0	3.0		3.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)		3.0	3.0		3.0	
Recall Mode		C-Min	C-Min		None	
Act Effct Green (s)		51.5	51.5		12.5	
Actuated g/C Ratio		0.74	0.74		0.18	
v/c Ratio		0.40	0.64		0.65	
Control Delay		4.4	6.6		30.6	
Queue Delay		0.0	0.0		0.0	
Total Delay		4.4	6.6		30.6	
LOS		A	A		C	
Approach Delay		4.4	6.6		30.6	
Approach LOS		A	A		C	

Intersection Summary

Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	70
Offset:	20 (29%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle:	55
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.65
Intersection Signal Delay:	7.6
Intersection LOS:	A
Intersection Capacity Utilization	58.8%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 6: Alfonso Reyes & B. Juárez

 Ø1 (R)	 Ø2
50 s	20 s



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (vph)	44	106	895	16	24	32	1442	55	20	8	17	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0		0.0		25.0		0.0	0.0		0.0	0.0
Storage Lanes		1		0		1		0	0		0	0
Taper Length (m)		7.5				7.5			7.5			7.5
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor			1.00				1.00					
Frt			0.996				0.993			0.955		
Flt Protected		0.950				0.950				0.976		
Satd. Flow (prot)	0	1773	3551	0	0	1754	3538	0	0	1709	0	0
Flt Permitted		0.950				0.950				0.976		
Satd. Flow (perm)	0	1773	3551	0	0	1754	3538	0	0	1709	0	0
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)			4				8			24		
Link Speed (k/h)			50				50			50		
Link Distance (m)			274.5				207.0			102.9		
Travel Time (s)			19.8				14.9			7.4		
Confl. Bikes (#/hr)				40				53				
Peak Hour Factor	0.73	0.86	0.83	0.57	0.75	0.73	0.90	0.72	0.56	0.67	0.71	0.92
Heavy Vehicles (%)	0%	1%	0%	0%	0%	3%	0%	1%	5%	0%	0%	0%
Adj. Flow (vph)	60	123	1078	28	32	44	1602	76	36	12	24	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	183	1106	0	0	76	1678	0	0	72	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	R NA	Left	Left	Right	Left	Left	Right	Left
Median Width(m)			4.0				4.0			0.0		
Link Offset(m)			0.0				0.0			0.0		
Crosswalk Width(m)			4.8				4.8			4.8		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	15	25		15	15	25		15	25		15	25
Number of Detectors	1	1	2		1	1	2		1	2		
Detector Template	Left	Left	Thru		Left	Left	Thru		Left	Thru		
Leading Detector (m)	2.0	2.0	10.0		2.0	2.0	10.0		2.0	10.0		
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0		
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0		
Detector 1 Size(m)	2.0	2.0	0.6		2.0	2.0	0.6		2.0	0.6		
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex		
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0		
Detector 2 Position(m)			9.4				9.4			9.4		
Detector 2 Size(m)			0.6				0.6			0.6		
Detector 2 Type			CI+Ex				CI+Ex			CI+Ex		
Detector 2 Channel												
Detector 2 Extend (s)			0.0				0.0			0.0		
Turn Type	custom	custom	NA		custom	custom	NA		custom	NA		



Lane Group	SBT	SBR
Lane Configurations		
Volume (vph)	0	0
Ideal Flow (vphpl)	1900	1900
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)	0	0
Flt Permitted		
Satd. Flow (perm)	0	0
Right Turn on Red		Yes
Satd. Flow (RTOR)		
Link Speed (k/h)	50	
Link Distance (m)	155.8	
Travel Time (s)	11.2	
Confl. Bikes (#/hr)		
Peak Hour Factor	0.92	0.92
Heavy Vehicles (%)	0%	0%
Adj. Flow (vph)	0	0
Shared Lane Traffic (%)		
Lane Group Flow (vph)	0	0
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(m)	0.0	
Link Offset(m)	0.0	
Crosswalk Width(m)	4.8	
Two way Left Turn Lane		
Headway Factor	1.01	1.01
Turning Speed (k/h)		15
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Protected Phases	2	2	1		2	2	1		3	3		
Permitted Phases	2	2	1		2	2	1		3	3		
Detector Phase	2	2	1		2	2	1		3	3		
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0		
Minimum Split (s)	10.0	10.0	20.0		10.0	10.0	20.0		10.0	10.0		
Total Split (s)	20.0	20.0	50.0		20.0	20.0	50.0		20.0	20.0		
Total Split (%)	22.2%	22.2%	55.6%		22.2%	22.2%	55.6%		22.2%	22.2%		
Maximum Green (s)	17.0	17.0	47.0		17.0	17.0	47.0		17.0	17.0		
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0		
All-Red Time (s)	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0		
Lost Time Adjust (s)		0.0	0.0			0.0	0.0			0.0		
Total Lost Time (s)		3.0	3.0			3.0	3.0			3.0		
Lead/Lag	Lag	Lag	Lead		Lag	Lag	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0		
Recall Mode	None	None	C-Min		None	None	C-Min		None	None		
Walk Time (s)	5.0	5.0			5.0	5.0			5.0	5.0		
Flash Dont Walk (s)	11.0	11.0			11.0	11.0			11.0	11.0		
Pedestrian Calls (#/hr)	0	0			0	0			0	0		
Act Effct Green (s)		13.9	60.6			13.9	60.6			8.2		
Actuated g/C Ratio		0.15	0.67			0.15	0.67			0.09		
v/c Ratio		0.67	0.46			0.28	0.70			0.41		
Control Delay		47.8	9.0			35.2	12.9			34.1		
Queue Delay		0.0	0.0			0.0	0.3			0.0		
Total Delay		47.8	9.0			35.2	13.2			34.1		
LOS		D	A			D	B			C		
Approach Delay			14.5				14.2			34.1		
Approach LOS			B				B			C		

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 40 (44%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 14.8

Intersection LOS: B

Intersection Capacity Utilization 63.3%

ICU Level of Service B

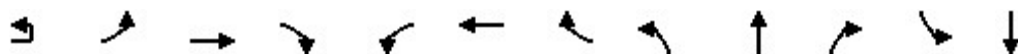
Analysis Period (min) 15

Splits and Phases: 7: Ticomán/Manuel González & Alfonso Reyes



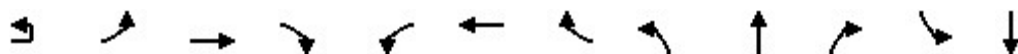


Lane Group	SBT	SBR
Protected Phases		
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)		
Minimum Split (s)		
Total Split (s)		
Total Split (%)		
Maximum Green (s)		
Yellow Time (s)		
All-Red Time (s)		
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)		
Recall Mode		
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	9	37	938	55	214	1462	77	60	76	92	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		15.0		0.0	55.0		0.0	0.0		0.0	0.0	
Storage Lanes		1		0	1		0	0		0	0	
Taper Length (m)		7.5			7.5			7.5			7.5	
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor		1.00	1.00		1.00	1.00			0.99			
Frt			0.991			0.993			0.941			
Flt Protected		0.950			0.950				0.986			
Satd. Flow (prot)	0	1785	3531	0	1767	3539	0	0	3291	0	0	0
Flt Permitted		0.950			0.950				0.986			
Satd. Flow (perm)	0	1783	3531	0	1765	3539	0	0	3278	0	0	0
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)			14			11			108			
Link Speed (k/h)			50			50			50			50
Link Distance (m)			207.0			190.3			117.2			200.7
Travel Time (s)			14.9			13.7			8.4			14.5
Confl. Peds. (#/hr)	6	1		4	4		1	6		2		
Confl. Bikes (#/hr)				44			55					
Peak Hour Factor	0.56	0.66	0.83	0.76	0.87	0.90	0.92	0.79	0.83	0.85	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	16	56	1130	72	246	1624	84	76	92	108	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	72	1202	0	246	1708	0	0	276	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(m)			4.0			4.0			0.0			0.0
Link Offset(m)			0.0			0.0			0.0			10.0
Crosswalk Width(m)			4.8			4.8			4.8			4.8
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	15	25		15	25		15	25		15	25	
Number of Detectors	1	1	2		1	2		1	2			
Detector Template	Left	Left	Thru		Left	Thru		Left	Thru			
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0		2.0	10.0			
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0		0.0	0.0			
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0		0.0	0.0			
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6		2.0	0.6			
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0			
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0			
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0			
Detector 2 Position(m)			9.4			9.4			9.4			
Detector 2 Size(m)			0.6			0.6			0.6			
Detector 2 Type			CI+Ex			CI+Ex			CI+Ex			
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			

Lane Group	SBR
Lane Configurations	
Volume (vph)	0
Ideal Flow (vphpl)	1900
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	0.92
Heavy Vehicles (%)	0%
Adj. Flow (vph)	0
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	1.01
Turning Speed (k/h)	15
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Turn Type	custom	custom	NA		custom	NA		custom	NA			
Protected Phases	1	1	2		1	2		3	3			
Permitted Phases	1	1	2		1	2		3	3			
Detector Phase	1	1	2		1	2		3	3			
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0		4.0	4.0			
Minimum Split (s)	15.0	15.0	20.0		15.0	20.0		15.0	15.0			
Total Split (s)	15.0	15.0	65.0		15.0	65.0		15.0	15.0			
Total Split (%)	15.8%	15.8%	68.4%		15.8%	68.4%		15.8%	15.8%			
Maximum Green (s)	12.0	12.0	62.0		12.0	62.0		12.0	12.0			
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0		3.0	3.0			
All-Red Time (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0			
Lost Time Adjust (s)		0.0	0.0		0.0	0.0			0.0			
Total Lost Time (s)		3.0	3.0		3.0	3.0			3.0			
Lead/Lag	Lead	Lead	Lag		Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0		3.0	3.0			
Recall Mode	C-Min	C-Min	None		C-Min	None		None	None			
Walk Time (s)			5.0			5.0						
Flash Dont Walk (s)			11.0			11.0						
Pedestrian Calls (#/hr)			0			0						
Act Effct Green (s)		16.0	60.1		16.0	60.1			9.9			
Actuated g/C Ratio		0.17	0.63		0.17	0.63			0.10			
v/c Ratio		0.24	0.54		0.83	0.76			0.63			
Control Delay		39.3	10.4		54.6	21.4			30.9			
Queue Delay		0.0	0.0		0.0	1.2			0.0			
Total Delay		39.3	10.4		54.6	22.5			30.9			
LOS		D	B		D	C			C			
Approach Delay			12.0			26.6			30.9			
Approach LOS			B			C			C			

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 80 (84%), Referenced to phase 1:EBWBL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 21.6

Intersection LOS: C

Intersection Capacity Utilization 63.1%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 8: Montefalco/Gerónimo Treviño & Alfonso Reyes

 ø1 (R)	 ø2	 ø3
15 s	65 s	15 s



Lane Group	SBR
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	993	26	72	1681	0	0	0	0	66	41	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor		1.00		1.00							0.99	
Frt		0.996									0.938	
Flt Protected				0.950							0.984	
Satd. Flow (prot)	0	3552	0	1785	3570	0	0	0	0	0	3238	0
Flt Permitted				0.950							0.984	
Satd. Flow (perm)	0	3552	0	1782	3570	0	0	0	0	0	3238	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6									96	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		190.3			91.9			117.0			112.9	
Travel Time (s)		13.7			6.6			8.4			8.1	
Confl. Peds. (#/hr)			5	5								5
Confl. Bikes (#/hr)			44									
Peak Hour Factor	0.92	0.82	0.72	0.72	0.91	0.92	0.92	0.92	0.92	0.87	0.68	0.73
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	1%	0%
Adj. Flow (vph)	0	1211	36	100	1847	0	0	0	0	76	60	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1247	0	100	1847	0	0	0	0	0	232	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane					Yes							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2		1	2					1	2	
Detector Template		Thru		Left	Thru					Left	Thru	
Leading Detector (m)		10.0		2.0	10.0					2.0	10.0	
Trailing Detector (m)		0.0		0.0	0.0					0.0	0.0	
Detector 1 Position(m)		0.0		0.0	0.0					0.0	0.0	
Detector 1 Size(m)		0.6		2.0	0.6					2.0	0.6	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	
Detector 2 Position(m)		9.4			9.4						9.4	
Detector 2 Size(m)		0.6			0.6						0.6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type		NA		custom		NA				custom		NA
Protected Phases		1		2		1				3		3
Permitted Phases		1		2		1				3		3
Detector Phase		1		2		1				3		3
Switch Phase												
Minimum Initial (s)		4.0		4.0		4.0				4.0		4.0
Minimum Split (s)		20.0		10.0		20.0				20.0		20.0
Total Split (s)		62.0		12.0		62.0				21.0		21.0
Total Split (%)		65.3%		12.6%		65.3%				22.1%		22.1%
Maximum Green (s)		59.0		9.0		59.0				18.0		18.0
Yellow Time (s)		3.0		3.0		3.0				3.0		3.0
All-Red Time (s)		0.0		0.0		0.0				0.0		0.0
Lost Time Adjust (s)		0.0		0.0		0.0						0.0
Total Lost Time (s)		3.0		3.0		3.0						3.0
Lead/Lag		Lead		Lag		Lead						
Lead-Lag Optimize?		Yes		Yes		Yes						
Vehicle Extension (s)		3.0		3.0		3.0				3.0		3.0
Recall Mode		C-Min		None		C-Min				None		None
Walk Time (s)		5.0		5.0		5.0						
Flash Dont Walk (s)		11.0		11.0		11.0						
Pedestrian Calls (#/hr)		0		0		0						
Act Effct Green (s)		69.9		8.6		69.9						9.5
Actuated g/C Ratio		0.74		0.09		0.74						0.10
v/c Ratio		0.48		0.62		0.70						0.57
Control Delay		13.7		59.2		9.9						28.8
Queue Delay		0.5		0.0		24.1						0.0
Total Delay		14.2		59.2		34.0						28.8
LOS		B		E		C						C
Approach Delay		14.2				35.3						28.8
Approach LOS		B				D						C

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 45 (47%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 27.2

Intersection LOS: C

Intersection Capacity Utilization 61.2%

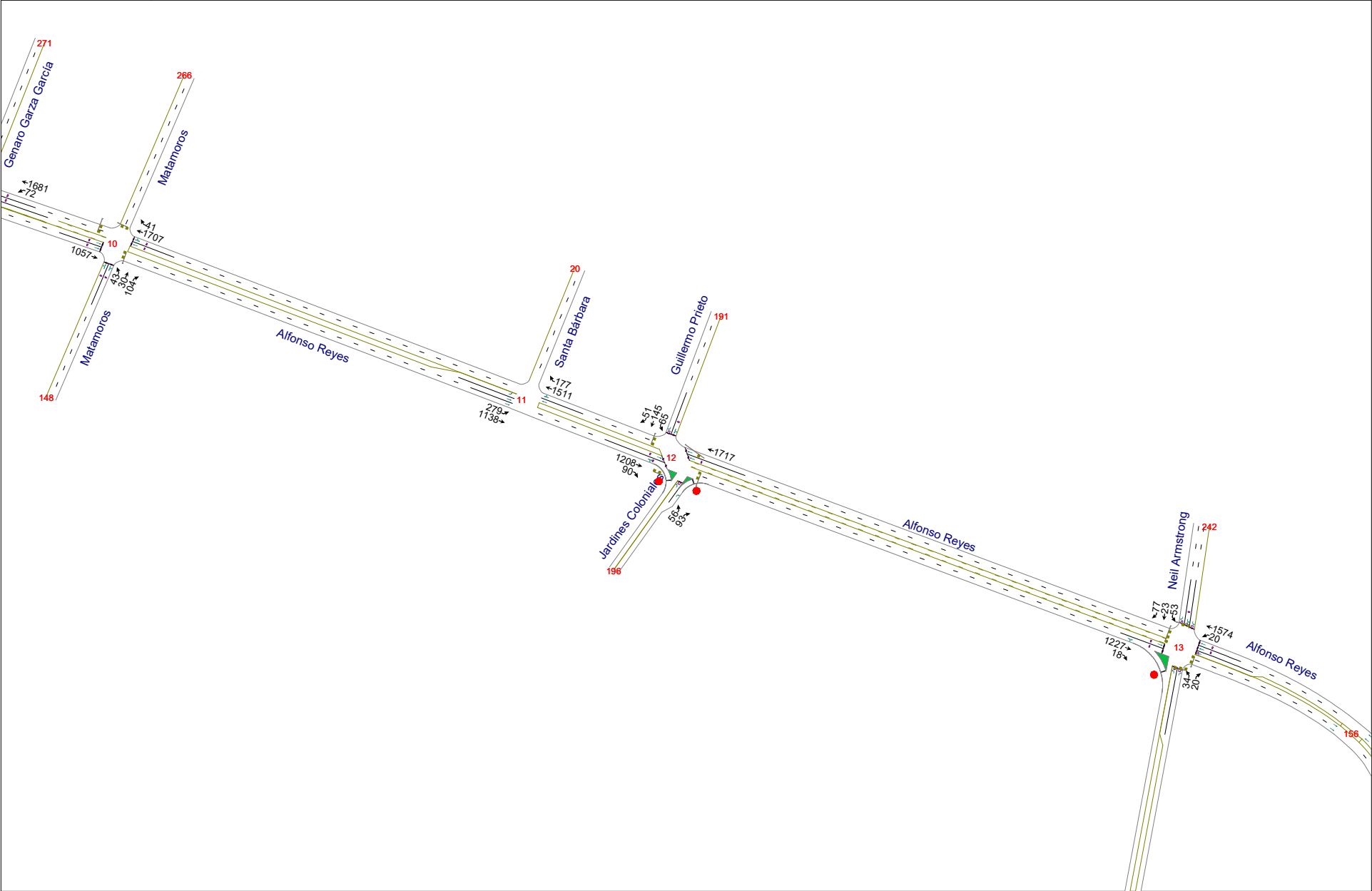
ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 9: Genaro Garza García & Alfonso Reyes

 ø1 (R)	 ø2	 ø3
62 s	12 s	21 s

Map - Ciclovía Alfonso Reyes
Análisis de la operación actual - PM



Ciclovía Alfonso Reyes
Vargas Torres y Asociados, S.A. de C.V.

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↑				
Volume (vph)	0	1057	0	0	1707	41	43	30	104	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor					1.00			0.99				
Frt					0.995			0.915				
Flt Protected								0.987				
Satd. Flow (prot)	0	3570	0	0	3548	0	0	3149	0	0	0	0
Flt Permitted								0.987				
Satd. Flow (perm)	0	3570	0	0	3548	0	0	3144	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					11			79				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		91.9			294.9			112.5			123.1	
Travel Time (s)		6.6			21.2			8.1			8.9	
Confl. Peds. (#/hr)						3	5		10			
Confl. Bikes (#/hr)			46			52						
Peak Hour Factor	0.92	0.83	0.92	0.92	0.92	0.64	0.77	0.75	0.84	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	3%	0%	0%	0%	0%
Adj. Flow (vph)	0	1273	0	0	1855	64	56	40	124	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1273	0	0	1919	0	0	220	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			4.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2		1	2				
Detector Template		Thru			Thru		Left	Thru				
Leading Detector (m)		10.0			10.0		2.0	10.0				
Trailing Detector (m)		0.0			0.0		0.0	0.0				
Detector 1 Position(m)		0.0			0.0		0.0	0.0				
Detector 1 Size(m)		0.6			0.6		2.0	0.6				
Detector 1 Type		Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex				
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0		0.0	0.0				
Detector 1 Queue (s)		0.0			0.0		0.0	0.0				
Detector 1 Delay (s)		0.0			0.0		0.0	0.0				
Detector 2 Position(m)		9.4			9.4			9.4				
Detector 2 Size(m)		0.6			0.6			0.6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type		NA			NA		custom	NA				
Protected Phases		1			1		2	2				
Permitted Phases		1			1		2	2				

10: Matamoros & Alfonso Reyes
Análisis de la operación actual - PM

31/08/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1			1			2		2			
Switch Phase												
Minimum Initial (s)	4.0			4.0			4.0		4.0			
Minimum Split (s)	20.0			20.0			20.0		20.0			
Total Split (s)	45.0			45.0			20.0		20.0			
Total Split (%)	69.2%			69.2%			30.8%		30.8%			
Maximum Green (s)	42.0			42.0			17.0		17.0			
Yellow Time (s)	3.0			3.0			3.0		3.0			
All-Red Time (s)	0.0			0.0			0.0		0.0			
Lost Time Adjust (s)	0.0			0.0					0.0			
Total Lost Time (s)	3.0			3.0					3.0			
Lead/Lag	Lead			Lead			Lag		Lag			
Lead-Lag Optimize?	Yes			Yes			Yes		Yes			
Vehicle Extension (s)	3.0			3.0			3.0		3.0			
Recall Mode	C-Min			C-Min			None		None			
Act Effct Green (s)	50.7			50.7					8.3			
Actuated g/C Ratio	0.78			0.78					0.13			
v/c Ratio	0.46			0.69					0.47			
Control Delay	3.3			5.5					19.5			
Queue Delay	0.9			0.0					0.0			
Total Delay	4.2			5.5					19.5			
LOS	A			A					B			
Approach Delay	4.2			5.5					19.5			
Approach LOS	A			A					B			

Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

Offset: 20 (31%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 5.9

Intersection LOS: A

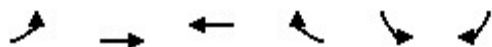
Intersection Capacity Utilization 61.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 10: Matamoros & Alfonso Reyes

					
ø1 (R)			ø2		
45 s			20 s		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	279	1138	1511	177	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.98	0.97	0.96	0.82	0.92	0.92
Hourly flow rate (vph)	285	1173	1574	216	0	0
Pedestrians					1	
Lane Width (m)					0.0	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)		295	108			
pX, platoon unblocked	0.64				0.66	0.64
vC, conflicting volume	1791				2839	896
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1124				2604	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	30				100	100
cM capacity (veh/h)	405				4	703
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	
Volume Total	285	587	587	1049	741	
Volume Left	285	0	0	0	0	
Volume Right	0	0	0	0	216	
cSH	405	1700	1700	1700	1700	
Volume to Capacity	0.70	0.35	0.35	0.62	0.44	
Queue Length 95th (m)	42.0	0.0	0.0	0.0	0.0	
Control Delay (s)	32.3	0.0	0.0	0.0	0.0	
Lane LOS	D					
Approach Delay (s)	6.3			0.0		
Approach LOS						
Intersection Summary						
Average Delay			2.8			
Intersection Capacity Utilization			69.5%		ICU Level of Service	C
Analysis Period (min)			15			

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑		↑		↑		↑↑	↑↑
Volume (vph)	0	1208	90	0	1717	0	56	0	93	65	145	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		15.0	0.0		0.0
Storage Lanes	0		0	0		0	1		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00										
Frt		0.988							0.850			0.850
Flt Protected							0.950				0.984	
Satd. Flow (prot)	0	3553	0	0	3574	0	1805	0	1615	0	1870	1615
Flt Permitted							0.950				0.984	
Satd. Flow (perm)	0	3553	0	0	3574	0	1805	0	1615	0	1870	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20										
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		107.8			364.5			85.4			100.9	
Travel Time (s)		7.8			26.2			6.1			7.3	
Confl. Peds. (#/hr)			1			56						
Confl. Bikes (#/hr)			46									
Peak Hour Factor	0.92	0.98	0.83	0.92	0.96	0.92	0.54	0.92	0.86	0.90	0.93	0.80
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1233	108	0	1789	0	104	0	108	72	156	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1341	0	0	1789	0	104	0	108	0	228	64
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.6			3.6	
Link Offset(m)		0.0			0.0			15.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2		1		1	1	2	1
Detector Template		Thru			Thru		Left		Right	Left	Thru	Right
Leading Detector (m)		10.0			10.0		2.0		2.0	2.0	10.0	2.0
Trailing Detector (m)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)		0.6			0.6		2.0		2.0	2.0	0.6	2.0
Detector 1 Type		Cl+Ex			Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4						9.4	
Detector 2 Size(m)		0.6			0.6						0.6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA			NA		Prot		custom	custom	NA	custom
Protected Phases		1			1		3		3	2	2	2
Permitted Phases		1			1		3		1 2 3	2	2	1 2 3
Detector Phase		1			1		3		3	2	2	2
Switch Phase												
Minimum Initial (s)		4.0			4.0		4.0		4.0	4.0	4.0	4.0
Minimum Split (s)		10.0			10.0		10.0		10.0	10.0	10.0	10.0
Total Split (s)		65.0			65.0		15.0		15.0	15.0	15.0	15.0
Total Split (%)		68.4%			68.4%		15.8%		15.8%	15.8%	15.8%	15.8%
Maximum Green (s)		62.0			62.0		12.0		12.0	12.0	12.0	12.0
Yellow Time (s)		3.0			3.0		3.0		3.0	3.0	3.0	3.0
All-Red Time (s)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Lost Time Adjust (s)		0.0			0.0		0.0		0.0		0.0	0.0
Total Lost Time (s)		3.0			3.0		3.0		3.0		3.0	3.0
Lead/Lag		Lead			Lead					Lag	Lag	Lag
Lead-Lag Optimize?		Yes			Yes					Yes	Yes	Yes
Vehicle Extension (s)		3.0			3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode		C-Min			C-Min		Min		Min	Min	Min	Min
Act Effct Green (s)		62.7			62.7		10.1		95.0		13.2	95.0
Actuated g/C Ratio		0.66			0.66		0.11		1.00		0.14	1.00
v/c Ratio		0.57			0.76		0.54		0.07		0.88	0.04
Control Delay		9.9			13.8		50.5		0.1		74.9	0.0
Queue Delay		0.0			0.0		0.0		0.0		0.0	0.0
Total Delay		9.9			13.8		50.5		0.1		74.9	0.0
LOS		A			B		D		A		E	A
Approach Delay		9.9			13.8						58.5	
Approach LOS		A			B						E	

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 30 (32%), Referenced to phase 1:WBEB, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 16.6

Intersection LOS: B

Intersection Capacity Utilization 72.0%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 12: Jardines Coloniales/Guillermo Prieto & Alfonso Reyes

														
ø1 (R)			ø2			ø3								
65 s			15 s			15 s								

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1227	18	20	1574	0	34	0	20	53	23	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.0	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	0.0		0.0	40.0		0.0	45.0		0.0	0.0		0.0
Storage Lanes	0		0	1		0	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor		1.00		1.00			0.99					0.99
Frt		0.997							0.850			0.850
Flt Protected				0.950			0.950			0.950	0.980	
Satd. Flow (prot)	0	3595	0	1685	3610	0	1805	0	1615	1715	1769	1583
Flt Permitted				0.127			0.950			0.950	0.980	
Satd. Flow (perm)	0	3595	0	225	3610	0	1794	0	1615	1715	1769	1563
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3										
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		364.5			130.4			170.2			83.6	
Travel Time (s)		26.2			9.4			12.3			6.0	
Confl. Peds. (#/hr)			1	1			2					2
Confl. Bikes (#/hr)			44			53						
Peak Hour Factor	0.92	0.97	0.64	0.63	0.96	0.92	0.50	0.92	0.83	0.70	0.72	0.77
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%
Adj. Flow (vph)	0	1265	28	32	1640	0	68	0	24	76	32	100
Shared Lane Traffic (%)										30%		
Lane Group Flow (vph)	0	1293	0	32	1640	0	68	0	24	53	55	100
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			-7.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.00	1.00	1.00	1.09	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2		1	2		1		1	1	2	1
Detector Template		Thru		Left	Thru		Left		Right	Left	Thru	Right
Leading Detector (m)		10.0		2.0	10.0		2.0		2.0	2.0	10.0	2.0
Trailing Detector (m)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)		0.6		2.0	0.6		2.0		2.0	2.0	0.6	2.0
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4						9.4	
Detector 2 Size(m)		0.6			0.6						0.6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA		pm+pt	NA		Prot		custom	custom	NA	custom
Protected Phases		2		1	1 2		4		4	3	3	3
Permitted Phases		2		1 2	1 2		4		1 2 3 4	3	3 1 2 3 4	4
Detector Phase		2		1	1 2		4		4	3	3	3
Switch Phase												
Minimum Initial (s)		4.0		4.0			4.0		4.0	4.0	4.0	4.0
Minimum Split (s)		10.0		10.0			10.0		10.0	10.0	10.0	10.0
Total Split (s)		57.0		13.0			13.0		13.0	17.0	17.0	17.0
Total Split (%)		57.0%		13.0%			13.0%		13.0%	17.0%	17.0%	17.0%
Maximum Green (s)		53.0		9.0			9.0		9.0	13.0	13.0	13.0
Yellow Time (s)		3.0		3.0			3.0		3.0	3.0	3.0	3.0
All-Red Time (s)		1.0		1.0			1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0			0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		4.0		4.0			4.0		4.0	4.0	4.0	4.0
Lead/Lag		Lag		Lead			Lag		Lag	Lead	Lead	Lead
Lead-Lag Optimize?		Yes		Yes			Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)		3.0		3.0			3.0		3.0	3.0	3.0	3.0
Recall Mode		C-Min		None			None		None	None	None	None
Act Effct Green (s)		57.7		70.6	75.4		8.7		100.0	8.5	8.5	92.8
Actuated g/C Ratio		0.58		0.71	0.75		0.09		1.00	0.08	0.08	0.93
v/c Ratio		0.62		0.09	0.60		0.44		0.01	0.36	0.37	0.07
Control Delay		17.2		6.0	8.9		51.6		0.0	49.4	49.2	0.3
Queue Delay		0.0		0.0	0.0		0.0		0.0	0.0	0.0	0.0
Total Delay		17.2		6.0	8.9		51.6		0.0	49.4	49.2	0.3
LOS		B		A	A		D		A	D	D	A
Approach Delay		17.2			8.9						25.7	
Approach LOS		B			A						C	

Intersection Summary

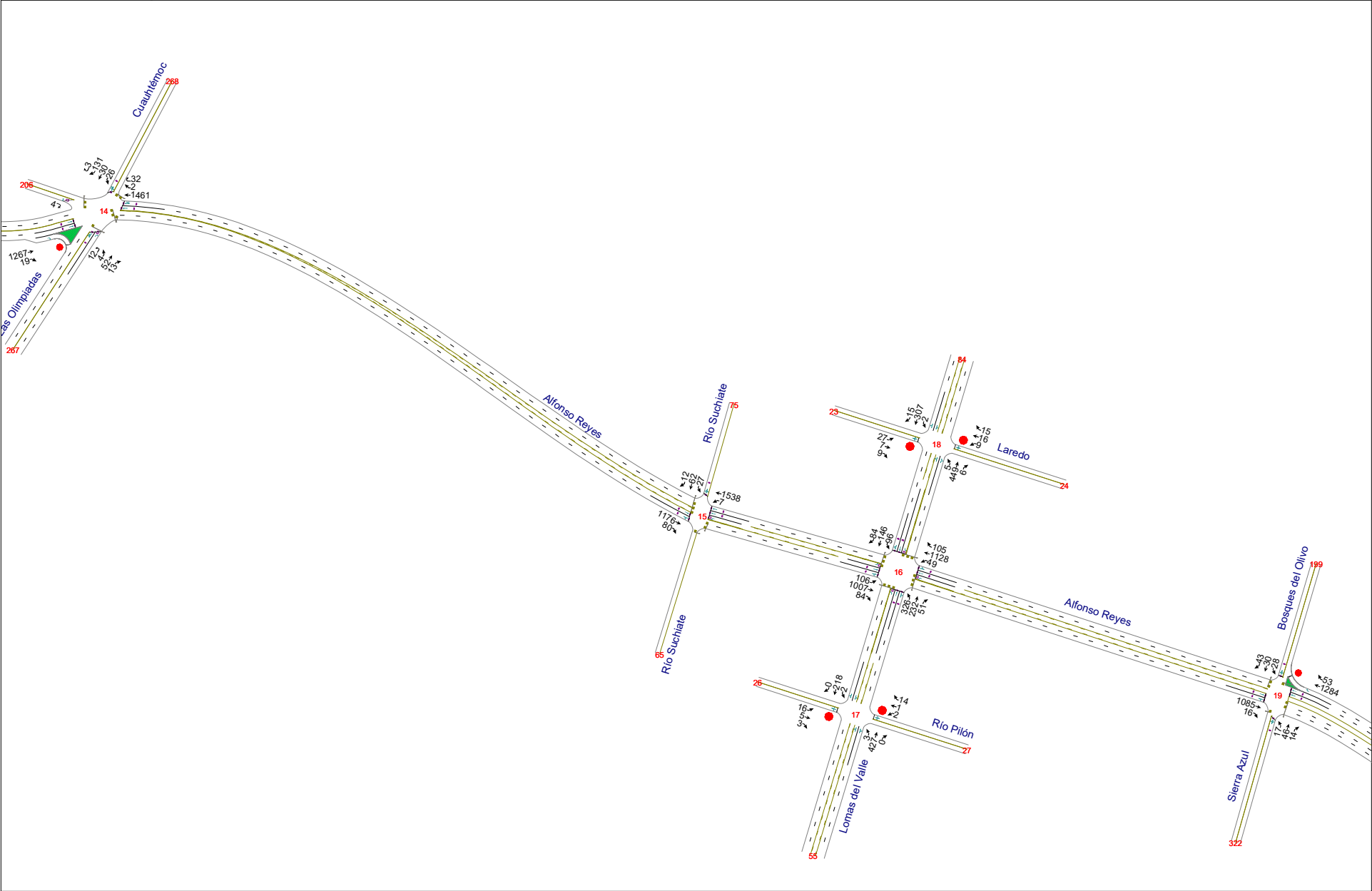
Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:WBEB, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 14.1
 Intersection Capacity Utilization 61.8%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 13: Neil Armstrong & Alfonso Reyes

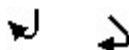


Map - Ciclovía Alfonso Reyes
Análisis de la operación actual - PM



Ciclovía Alfonso Reyes
Vargas Torres y Asociados, S.A. de C.V.

	→	↘	←	↖	↗	↙	↘	↑	↗	↘	↓	↙
Lane Group	EBT	EBR	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑	↑↑					↑	↑		↑	
Volume (vph)	1267	19	1461	2	32	12	4	52	13	26	30	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Storage Length (m)		30.0		0.0			0.0		0.0	0.0		0.0
Storage Lanes		1		0			0		1	0		0
Taper Length (m)							7.5			7.5		
Lane Util. Factor	0.95	1.00	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98	1.00									
Frt		0.850	0.995						0.850		0.899	
Flt Protected								0.985			0.993	
Satd. Flow (prot)	3574	1615	3553	0	0	0	0	1750	1615	0	1672	0
Flt Permitted								0.985			0.993	
Satd. Flow (perm)	3574	1584	3553	0	0	0	0	1750	1615	0	1672	0
Right Turn on Red		Yes			Yes				Yes			
Satd. Flow (RTOR)		36	7						36		1	
Link Speed (k/h)	50		50					50			50	
Link Distance (m)	282.0		508.5					124.3			109.6	
Travel Time (s)	20.3		36.6					8.9			7.9	
Confl. Peds. (#/hr)		3				3						
Confl. Bikes (#/hr)		17				22						
Peak Hour Factor	0.95	0.79	0.89	0.50	0.62	0.50	0.50	0.72	0.75	0.70	0.94	0.68
Heavy Vehicles (%)	1%	0%	1%	0%	0%	0%	0%	10%	0%	0%	0%	2%
Adj. Flow (vph)	1334	24	1642	4	52	24	8	72	17	37	32	193
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1334	24	1698	0	0	0	0	104	17	0	270	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Right	Left	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0		0.0					0.0			0.0	
Link Offset(m)	0.0		0.0					0.0			0.0	
Crosswalk Width(m)	4.8		4.8					4.8			4.8	
Two way Left Turn Lane			Yes									
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15		15	15	25	25		15	25		15
Number of Detectors	2	1	2			1	1	2	1	1	2	
Detector Template	Thru	Right	Thru			Left	Left	Thru	Right	Left	Thru	
Leading Detector (m)	10.0	2.0	10.0			2.0	2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	0.6	2.0	0.6			2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex			CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)	9.4		9.4					9.4			9.4	
Detector 2 Size(m)	0.6		0.6					0.6			0.6	
Detector 2 Type	CI+Ex		CI+Ex					CI+Ex			CI+Ex	
Detector 2 Channel												



Lane Group	SBR2	SER2
Lane Configurations		↑
Volume (vph)	3	4
Ideal Flow (vphpl)	1900	1900
Lane Width (m)	3.6	3.6
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor		
Frt		0.865
Flt Protected		
Satd. Flow (prot)	0	1644
Flt Permitted		
Satd. Flow (perm)	0	1644
Right Turn on Red	Yes	Yes
Satd. Flow (RTOR)		176
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor	0.38	0.50
Heavy Vehicles (%)	0%	0%
Adj. Flow (vph)	8	8
Shared Lane Traffic (%)		
Lane Group Flow (vph)	0	8
Enter Blocked Intersection	No	No
Lane Alignment	Right	Right
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor	1.00	1.00
Turning Speed (k/h)	15	15
Number of Detectors		1
Detector Template		Right
Leading Detector (m)		2.0
Trailing Detector (m)		0.0
Detector 1 Position(m)		0.0
Detector 1 Size(m)		2.0
Detector 1 Type		CI+Ex
Detector 1 Channel		
Detector 1 Extend (s)		0.0
Detector 1 Queue (s)		0.0
Detector 1 Delay (s)		0.0
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		

	→	↘	←	↖	↗	↙	↘	↑	↗	↘	↓	↙
Lane Group	EBT	EBR	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)	0.0		0.0					0.0			0.0	
Turn Type	NA	Perm	NA			custom	custom	NA	custom	custom	NA	
Protected Phases	1		1			2	2	2	2	3	3	
Permitted Phases	1	1	1			2	2	2	2	3	3	
Detector Phase	1	1	1			2	2	2	2	3	3	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0			4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	10.0	10.0	10.0			10.0	10.0	10.0	10.0	10.0	10.0	
Total Split (s)	60.0	60.0	60.0			15.0	15.0	15.0	15.0	15.0	15.0	
Total Split (%)	66.7%	66.7%	66.7%			16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	
Maximum Green (s)	57.0	57.0	57.0			12.0	12.0	12.0	12.0	12.0	12.0	
Yellow Time (s)	3.0	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0	
Lost Time Adjust (s)	0.0	0.0	0.0					0.0	0.0		0.0	
Total Lost Time (s)	3.0	3.0	3.0					3.0	3.0		3.0	
Lead/Lag	Lead	Lead	Lead			Lag	Lag	Lag	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max			None	None	None	None	None	None	
Act Effct Green (s)	57.0	57.0	57.0					10.0	10.0		15.9	
Actuated g/C Ratio	0.63	0.63	0.63					0.11	0.11		0.18	
v/c Ratio	0.59	0.02	0.75					0.54	0.08		0.91	
Control Delay	11.0	1.5	14.3					47.7	5.5		75.6	
Queue Delay	0.0	0.0	0.0					0.0	0.0		0.0	
Total Delay	11.0	1.5	14.3					47.7	5.5		75.6	
LOS	B	A	B					D	A		E	
Approach Delay	10.8		14.3					41.7			75.6	
Approach LOS	B		B					D			E	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 30 (33%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 18.6

Intersection LOS: B

Intersection Capacity Utilization 66.1%

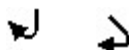
ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 14: Las Olimpiadas/Cuauhtémoc & Alfonso Reyes/Av. Alfonso Reyes

 01 (R)	 02	 03
60 s	15 s	15 s

Análisis de la operación actual - PM



Lane Group	SBR2	SER2
Detector 2 Extend (s)		
Turn Type	Free	
Protected Phases		
Permitted Phases	Free	
Detector Phase		
Switch Phase		
Minimum Initial (s)		
Minimum Split (s)		
Total Split (s)		
Total Split (%)		
Maximum Green (s)		
Yellow Time (s)		
All-Red Time (s)		
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)		
Recall Mode		
Act Effct Green (s)	90.0	
Actuated g/C Ratio	1.00	
v/c Ratio	0.00	
Control Delay	0.0	
Queue Delay	0.0	
Total Delay	0.0	
LOS	A	
Approach Delay		
Approach LOS		
Intersection Summary		

15: Río Suchiate & Alfonso Reyes
Análisis de la operación actual - PM

31/08/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1176	80	7	1538	0	0	0	0	27	62	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	25.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00								
Frt		0.988									0.980	
Flt Protected				0.950							0.987	
Satd. Flow (prot)	0	3518	0	1785	3535	0	0	0	0	0	1817	0
Flt Permitted				0.950							0.987	
Satd. Flow (perm)	0	3518	0	1784	3535	0	0	0	0	0	1817	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16									9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		508.5			152.4			108.3			86.7	
Travel Time (s)		36.6			11.0			7.8			6.2	
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)			17			20						
Peak Hour Factor	0.92	0.93	0.74	0.88	0.97	0.92	0.92	0.92	0.92	0.75	0.77	0.60
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1265	108	8	1586	0	0	0	0	36	81	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1373	0	8	1586	0	0	0	0	0	137	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2		1	2					1	2	
Detector Template		Thru		Left	Thru					Left	Thru	
Leading Detector (m)		10.0		2.0	10.0					2.0	10.0	
Trailing Detector (m)		0.0		0.0	0.0					0.0	0.0	
Detector 1 Position(m)		0.0		0.0	0.0					0.0	0.0	
Detector 1 Size(m)		0.6		2.0	0.6					2.0	0.6	
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	
Detector 2 Position(m)		9.4			9.4						9.4	
Detector 2 Size(m)		0.6			0.6						0.6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	

15: Río Suchiate & Alfonso Reyes
Análisis de la operación actual - PM

31/08/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type		NA		custom		NA				custom		NA
Protected Phases		2		1		1 2				3		3
Permitted Phases		2		1		1 2				3		3
Detector Phase		2		1		1 2				3		3
Switch Phase												
Minimum Initial (s)		4.0		4.0						4.0		4.0
Minimum Split (s)		20.0		10.0						10.0		10.0
Total Split (s)		44.0		22.0						14.0		14.0
Total Split (%)		55.0%		27.5%						17.5%		17.5%
Maximum Green (s)		41.0		19.0						11.0		11.0
Yellow Time (s)		3.0		3.0						3.0		3.0
All-Red Time (s)		0.0		0.0						0.0		0.0
Lost Time Adjust (s)		0.0		0.0								0.0
Total Lost Time (s)		3.0		3.0								3.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?		Yes		Yes								
Vehicle Extension (s)		3.0		3.0						3.0		3.0
Recall Mode		C-Min		None						None		None
Act Effct Green (s)		42.8		18.5		64.3						9.7
Actuated g/C Ratio		0.54		0.23		0.80						0.12
v/c Ratio		0.73		0.02		0.56						0.60
Control Delay		17.4		23.7		3.9						42.1
Queue Delay		0.0		0.0		0.5						0.0
Total Delay		17.4		23.7		4.3						42.1
LOS		B		C		A						D
Approach Delay		17.4				4.4						42.1
Approach LOS		B				A						D

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 8 (10%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 11.8 Intersection LOS: B
Intersection Capacity Utilization 54.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 15: Río Suchiate & Alfonso Reyes



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	106	1007	84	49	1128	105	326	232	51	96	146	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	30.0		0.0	50.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	1.00			1.00							
Frt		0.989			0.986			0.971			0.949	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1733	3525	0	1785	3470	0	1785	3466	0	1785	3366	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1732	3525	0	1785	3470	0	1785	3466	0	1785	3366	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			11			24			68	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		152.4			298.2			111.2			99.7	
Travel Time (s)		11.0			21.5			8.0			7.2	
Confl. Peds. (#/hr)	2					2						
Confl. Bikes (#/hr)			17			19						
Peak Hour Factor	0.86	0.87	0.91	0.77	0.93	0.82	0.87	0.87	0.80	0.83	0.78	0.88
Heavy Vehicles (%)	3%	0%	0%	0%	1%	3%	0%	0%	0%	0%	1%	0%
Adj. Flow (vph)	123	1157	92	64	1213	128	375	267	64	116	187	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	123	1249	0	64	1341	0	375	331	0	116	282	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes			Yes			Yes			Yes	
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	custom	NA		custom	NA		custom	NA		custom	NA	
Protected Phases	1	2		1	2		3	3		4	4	
Permitted Phases	1	2		1	2		3	3		4	4	
Detector Phase	1	2		1	2		3	3		4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	21.0	42.0		21.0	42.0		29.0	29.0		20.0	20.0	
Total Split (%)	18.8%	37.5%		18.8%	37.5%		25.9%	25.9%		17.9%	17.9%	
Maximum Green (s)	18.0	39.0		18.0	39.0		26.0	26.0		17.0	17.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Min	Min		C-Min	Min		Min	Min		Min	Min	
Act Effct Green (s)	17.9	44.1		17.9	44.1		25.3	25.3		12.7	12.7	
Actuated g/C Ratio	0.16	0.39		0.16	0.39		0.23	0.23		0.11	0.11	
v/c Ratio	0.44	0.90		0.22	0.98		0.93	0.41		0.57	0.64	
Control Delay	48.5	42.2		43.7	53.6		73.7	35.8		57.9	42.2	
Queue Delay	0.0	23.2		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	48.5	65.4		43.7	53.6		73.7	35.8		57.9	42.2	
LOS	D	E		D	D		E	D		E	D	
Approach Delay		63.9			53.1			55.9			46.7	
Approach LOS		E			D			E			D	

Intersection Summary

Area Type: Other

Cycle Length: 112

Actuated Cycle Length: 112

Offset: 60 (54%), Referenced to phase 1:EBWBL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 56.8

Intersection LOS: E

Intersection Capacity Utilization 78.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 16: Lomas del Valle & Alfonso Reyes

 ø1 (R)	 ø2	 ø3	 ø4
21 s	42 s	29 s	20 s

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	16	5	3	2	1	14	3	427	0	2	218	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			5%	
Peak Hour Factor	0.57	0.42	0.75	0.50	0.25	0.44	0.75	0.93	0.92	0.50	0.79	0.92
Hourly flow rate (vph)	28	12	4	4	4	32	4	459	0	4	276	0
Pedestrians		20			2			4				
Lane Width (m)		3.5			3.5			3.5				
Walking Speed (m/s)		1.2			1.2			1.2				
Percent Blockage		2			0			0				
Right turn flare (veh)												
Median type								TWLT			TWLT	
Median storage (veh)								2			2	
Upstream signal (m)											111	
pX, platoon unblocked												
vC, conflicting volume	575	773	162	629	773	232	296			461		
vC1, stage 1 conf vol	304	304		469	469							
vC2, stage 2 conf vol	271	469		160	304							
vCu, unblocked vol	575	773	162	629	773	232	296			461		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	98	100	99	99	96	100			100		
cM capacity (veh/h)	560	492	844	512	493	776	1256			1109		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	44	40	234	230	142	138						
Volume Left	28	4	4	0	4	0						
Volume Right	4	32	0	0	0	0						
cSH	557	699	1256	1700	1109	1700						
Volume to Capacity	0.08	0.06	0.00	0.14	0.00	0.08						
Queue Length 95th (m)	2.1	1.4	0.1	0.0	0.1	0.0						
Control Delay (s)	12.0	10.5	0.2	0.0	0.3	0.0						
Lane LOS	B	B	A		A							
Approach Delay (s)	12.0	10.5	0.1		0.1							
Approach LOS	B	B										
Intersection Summary												
Average Delay			1.2									
Intersection Capacity Utilization			26.7%		ICU Level of Service				A			
Analysis Period (min)			15									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	27	7	9	9	16	15	5	449	6	2	307	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.68	0.44	0.75	0.75	0.67	0.54	0.42	0.93	0.50	0.50	0.94	0.63
Hourly flow rate (vph)	40	16	12	12	24	28	12	483	12	4	327	24
Pedestrians		31			6			9			3	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		3			0			1			0	
Right turn flare (veh)												
Median type								TW	LT		TW	LT
Median storage (veh)								2			2	
Upstream signal (m)								100				
pX, platoon unblocked	0.94	0.94		0.94	0.94	0.94				0.94		
vC, conflicting volume	685	902	215	719	908	256	381			501		
vC1, stage 1 conf vol	378	378		519	519							
vC2, stage 2 conf vol	308	525		200	389							
vCu, unblocked vol	534	765	215	570	771	77	381			338		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	93	97	98	98	95	97	99			100		
cM capacity (veh/h)	541	481	770	532	477	908	1158			1152		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	68	64	253	253	167	187						
Volume Left	40	12	12	0	4	0						
Volume Right	12	28	0	12	0	24						
cSH	554	617	1158	1700	1152	1700						
Volume to Capacity	0.12	0.10	0.01	0.15	0.00	0.11						
Queue Length 95th (m)	3.3	2.7	0.2	0.0	0.1	0.0						
Control Delay (s)	12.4	11.5	0.5	0.0	0.2	0.0						
Lane LOS	B	B	A		A							
Approach Delay (s)	12.4	11.5	0.2		0.1							
Approach LOS	B	B										
Intersection Summary												
Average Delay			1.7									
Intersection Capacity Utilization			30.6%		ICU Level of Service					A		
Analysis Period (min)			15									

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1085	16	0	1284	53	17	46	14	28	30	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00				0.97		1.00			0.99	
Frt		0.997				0.850		0.968			0.958	
Flt Protected								0.988			0.985	
Satd. Flow (prot)	0	3557	0	0	3535	1597	0	1797	0	0	1752	0
Flt Permitted								0.988			0.985	
Satd. Flow (perm)	0	3557	0	0	3535	1551	0	1794	0	0	1752	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4						14			21	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		298.2			545.9			114.8			102.4	
Travel Time (s)		21.5			39.3			8.3			7.4	
Confl. Peds. (#/hr)			1				3					3
Confl. Bikes (#/hr)			14			22						
Peak Hour Factor	0.92	0.87	0.67	0.92	0.92	0.78	0.61	0.72	0.50	0.54	0.47	0.83
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	2%
Adj. Flow (vph)	0	1247	24	0	1396	68	28	64	28	52	64	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1271	0	0	1396	68	0	120	0	0	168	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2	1	1	2		1	2	
Detector Template		Thru			Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)		10.0			10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)		0.6			0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type		Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type		NA			NA	custom	custom	NA		custom	NA	
Protected Phases		1			1	1	2	2		3	3	
Permitted Phases		1			1	1 2 3	2	2		3	3	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1			1			2	2		3	3	
Switch Phase												
Minimum Initial (s)	4.0			4.0			4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0			20.0			10.0	10.0		10.0	10.0	
Total Split (s)	59.0			59.0			14.0	14.0		17.0	17.0	
Total Split (%)	65.6%			65.6%			15.6%	15.6%		18.9%	18.9%	
Maximum Green (s)	56.0			56.0			11.0	11.0		14.0	14.0	
Yellow Time (s)	3.0			3.0			3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0			0.0			0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	0.0			0.0				0.0			0.0	
Total Lost Time (s)	3.0			3.0				3.0			3.0	
Lead/Lag	Lead			Lead			Lag	Lag				
Lead-Lag Optimize?	Yes			Yes			Yes	Yes				
Vehicle Extension (s)	3.0			3.0			3.0	3.0		3.0	3.0	
Recall Mode	C-Max			C-Max			Min	Min		Min	Min	
Act Effct Green (s)	59.6			59.6				9.6			11.8	
Actuated g/C Ratio	0.66			0.66				0.11			0.13	
v/c Ratio	0.54			0.60				0.59			0.68	
Control Delay	9.6			5.7			0.1	45.8			46.1	
Queue Delay	0.0			0.0			0.0	0.0			0.0	
Total Delay	9.6			5.7			0.1	45.8			46.1	
LOS	A			A			A	D			D	
Approach Delay	9.6			5.4				45.8			46.1	
Approach LOS	A			A				D			D	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 45 (50%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 11.1

Intersection LOS: B

Intersection Capacity Utilization 50.7%

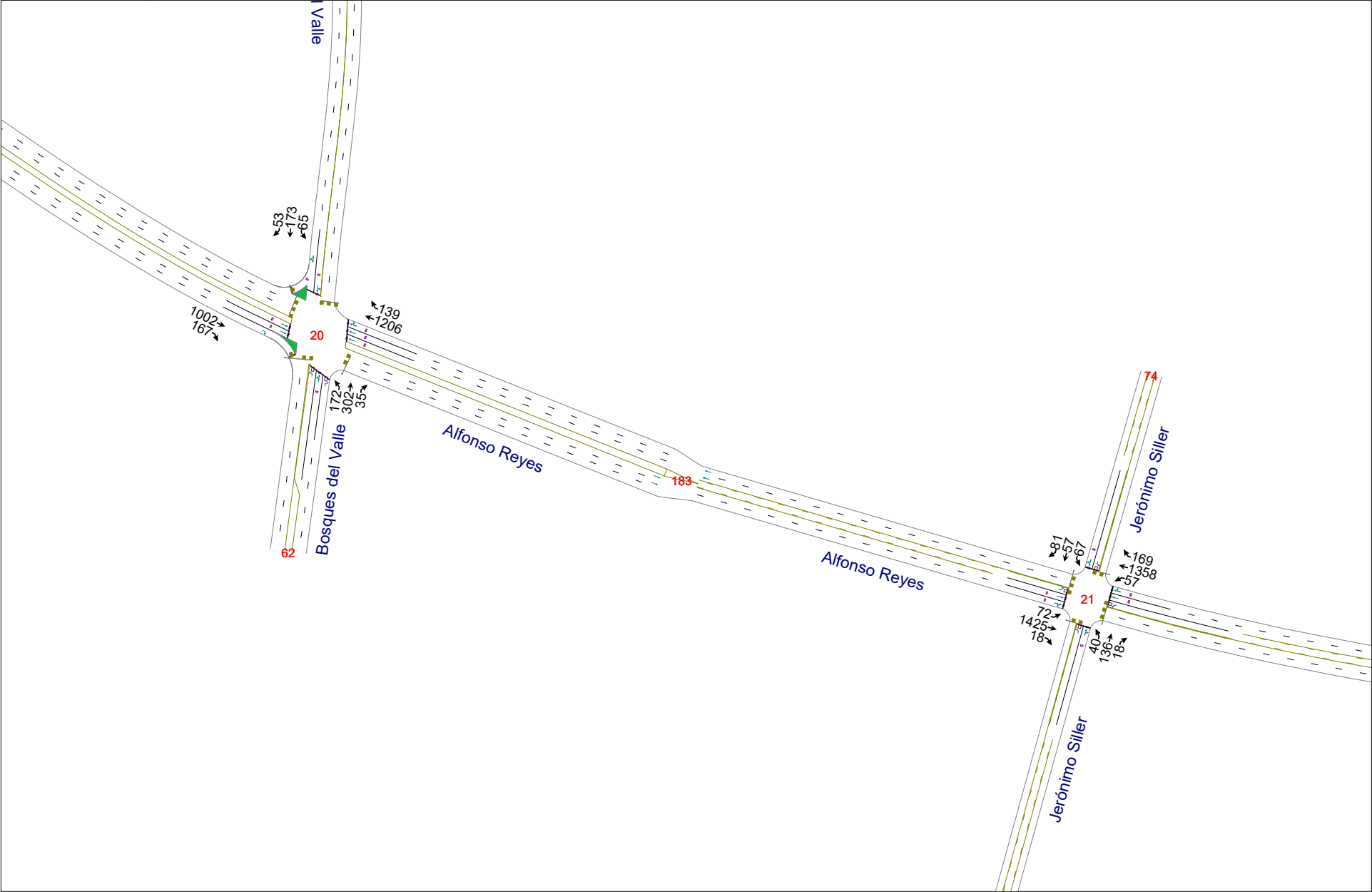
ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 19: Sierra Azul/Bosques del Olivo & Alfonso Reyes

											
ø1 (R)			ø2			ø3					
59 s			14 s			17 s					

Map - Ciclovía Alfonso Reyes
Análisis de la operación actual - PM



Ciclovía Alfonso Reyes
Vargas Torres y Asociados, S.A. de C.V.

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑↑		↑	↑	↑		↑↑	
Volume (vph)	0	1002	167	0	1206	139	172	302	35	65	173	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-5%			5%	
Storage Length (m)	0.0		0.0	60.0		0.0	50.0		0.0	0.0		0.0
Storage Lanes	0		1	0		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	0.91	0.95	0.95	1.00	0.95	0.95	0.95
Ped Bike Factor			0.98		1.00				0.99		1.00	
Frt			0.850		0.983				0.850		0.975	
Flt Protected							0.950	0.997			0.988	
Satd. Flow (prot)	0	3570	1581	0	5029	0	1721	1823	1637	0	3353	0
Flt Permitted							0.950	0.997			0.988	
Satd. Flow (perm)	0	3570	1551	0	5029	0	1721	1823	1616	0	3352	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			196		33				76		22	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		545.9			190.7			106.6			290.7	
Travel Time (s)		39.3			13.7			7.7			20.9	
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			14			22						
Peak Hour Factor	0.92	0.90	0.85	0.92	0.92	0.81	0.83	0.80	0.46	0.77	0.82	0.88
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	1%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1113	196	0	1311	172	207	378	76	84	211	60
Shared Lane Traffic (%)							10%					
Lane Group Flow (vph)	0	1113	196	0	1483	0	186	399	76	0	355	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.0			3.0			4.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	0.98	0.98	0.98	1.05	1.05	1.05
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2	1		2		1	2	1	1	2	
Detector Template		Thru	Right		Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)		10.0	2.0		10.0		2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)		0.6	2.0		0.6		2.0	0.6	2.0	2.0	0.6	
Detector 1 Type		CI+Ex	CI+Ex		CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type		NA custom			NA		custom	NA custom	custom		NA	
Protected Phases		1	1		1		2	2	2	3	3	
Permitted Phases		1	1		1		2	2	2	3	3	
Detector Phase		1	1		1		2	2	2	3	3	
Switch Phase												
Minimum Initial (s)		4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)		20.0	20.0		20.0		10.0	10.0	10.0	10.0	10.0	
Total Split (s)		43.0	43.0		43.0		31.0	31.0	31.0	16.0	16.0	
Total Split (%)		47.8%	47.8%		47.8%		34.4%	34.4%	34.4%	17.8%	17.8%	
Maximum Green (s)		40.0	40.0		40.0		28.0	28.0	28.0	13.0	13.0	
Yellow Time (s)		3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0	0.0		0.0	
Total Lost Time (s)		3.0	3.0		3.0		3.0	3.0	3.0		3.0	
Lead/Lag		Lead	Lead		Lead		Lag	Lag	Lag			
Lead-Lag Optimize?		Yes	Yes		Yes		Yes	Yes	Yes			
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode		C-Min	C-Min		C-Min		Min	Min	Min	Min	Min	
Act Effct Green (s)		44.5	44.5		44.5		23.9	23.9	23.9		12.6	
Actuated g/C Ratio		0.49	0.49		0.49		0.27	0.27	0.27		0.14	
v/c Ratio		0.63	0.22		0.59		0.41	0.82	0.16		0.73	
Control Delay		25.0	9.3		17.9		29.1	45.5	6.5		44.1	
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0		0.0	
Total Delay		25.0	9.3		17.9		29.1	45.5	6.5		44.1	
LOS		C	A		B		C	D	A		D	
Approach Delay		22.6			17.9			36.4			44.1	
Approach LOS		C			B			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 28 (31%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 25.2

Intersection LOS: C

Intersection Capacity Utilization 62.0%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 20: Bosques del Valle & Alfonso Reyes

   $\phi 1 (R)$	 $\phi 2$	 $\phi 3$
43 s	31 s	16 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	72	1425	18	57	1358	169	40	136	18	67	57	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	60.0		0.0	50.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00			1.00		0.99		
Frt		0.998			0.985			0.971			0.904	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1785	3492	0	1785	3473	0	1750	1816	0	1785	1676	0
Flt Permitted	0.069			0.090			0.571			0.630		
Satd. Flow (perm)	130	3492	0	169	3473	0	1052	1816	0	1171	1676	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			25			9			62	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		205.5			589.5			152.6			112.8	
Travel Time (s)		14.8			42.4			11.0			8.1	
Confl. Peds. (#/hr)	3		2	2		3			3	3		
Confl. Bikes (#/hr)			14			23						
Peak Hour Factor	0.75	0.96	0.75	0.57	0.85	0.92	0.91	0.83	0.45	0.80	0.75	0.60
Heavy Vehicles (%)	0%	2%	0%	0%	1%	0%	2%	0%	0%	0%	2%	1%
Adj. Flow (vph)	96	1484	24	100	1598	184	44	164	40	84	76	135
Shared Lane Traffic (%)												
Lane Group Flow (vph)	96	1508	0	100	1782	0	44	204	0	84	211	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes			Yes			Yes			Yes	
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	*0.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lane Group	ø2
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (m)	
Storage Lanes	
Taper Length (m)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (k/h)	
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	custom	NA		custom	NA		custom	NA		Perm	NA	
Protected Phases	3	2 3		1	1 2		4	4			5	
Permitted Phases	1 2 3	2 3		1 2 3	1 2		4 5	4		5	5	
Detector Phase	3	2 3		1	1 2		4	4		5	5	
Switch Phase												
Minimum Initial (s)	4.0			1.0			4.0	4.0		4.0	4.0	
Minimum Split (s)	10.0			10.0			10.0	10.0		10.0	10.0	
Total Split (s)	10.0			41.0			12.0	12.0		10.0	10.0	
Total Split (%)	9.1%			37.3%			10.9%	10.9%		9.1%	9.1%	
Maximum Green (s)	7.0			38.0			9.0	9.0		7.0	7.0	
Yellow Time (s)	3.0			3.0			3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0			0.0			0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	0.0			0.0			0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0			3.0			3.0	3.0		3.0	3.0	
Lead/Lag	Lead			Lead			Lag	Lag				
Lead-Lag Optimize?	Yes			Yes			Yes	Yes				
Vehicle Extension (s)	3.0			3.0			3.0	3.0		3.0	3.0	
Recall Mode	None			None			None	None		None	None	
Act Effct Green (s)	82.0	44.4		82.0	75.0		16.0	9.0		7.0	7.0	
Actuated g/C Ratio	0.75	0.40		0.75	0.68		0.15	0.08		0.06	0.06	
v/c Ratio	0.48	1.07		0.15	0.75		0.21	1.31		1.14	1.29	
Control Delay	25.8	77.0		4.4	13.8		41.5	215.7		193.3	197.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	25.8	77.0		4.4	13.8		41.5	215.7		193.3	197.1	
LOS	C	E		A	B		D	F		F	F	
Approach Delay		74.0			13.3			184.8			196.0	
Approach LOS		E			B			F			F	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.31

Intersection Signal Delay: 61.4

Intersection LOS: E

Intersection Capacity Utilization 72.3%

ICU Level of Service C

Analysis Period (min) 15

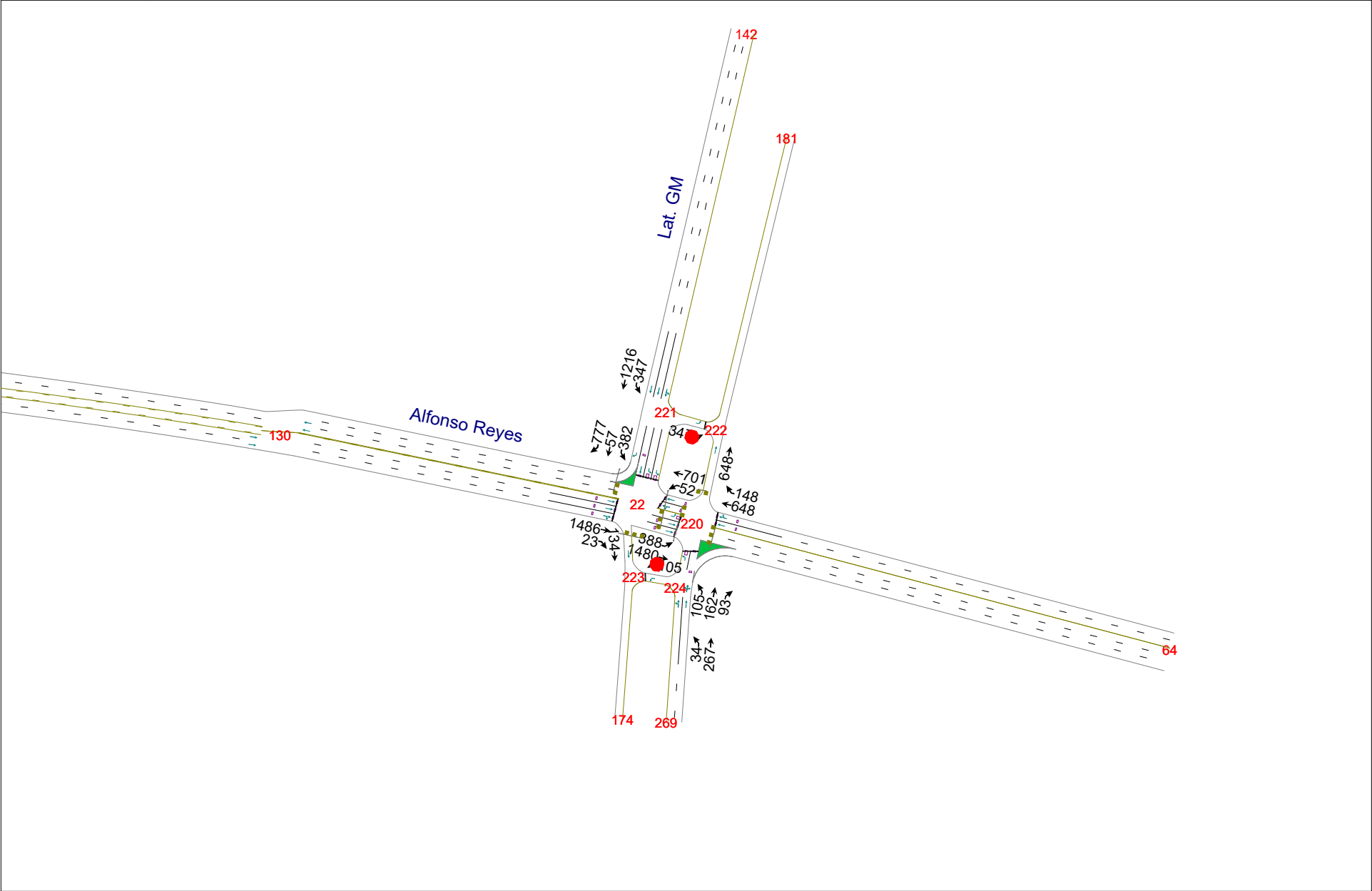
* User Entered Value

Splits and Phases: 21: Jerónimo Siller & Alfonso Reyes

 ø1	 ø2 (R)	 ø3	 ø4	 ø5
41 s	37 s	10 s	12 s	10 s

Lane Group	ø2
Turn Type	
Protected Phases	2
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	37.0
Total Split (%)	34%
Maximum Green (s)	34.0
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	C-Min
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Map - Ciclovía Alfonso Reyes
Análisis de la operación actual - PM



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑					↑↑	↑	↑
Volume (vph)	0	1486	23	52	701	0	0	0	0	382	57	777
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Ped Bike Factor		1.00			1.00							0.98
Frt		0.997										0.850
Flt Protected					0.997					0.950		
Satd. Flow (prot)	0	5057	0	0	3551	0	0	0	0	3463	1620	1566
Flt Permitted					0.997					0.950		
Satd. Flow (perm)	0	5057	0	0	3550	0	0	0	0	3463	1620	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3										583
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		163.4			26.0			32.5			43.2	
Travel Time (s)		11.8			1.9			2.3			3.1	
Confl. Peds. (#/hr)			15	15								36
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.92	0.95	0.72	0.93	0.81	0.92	0.92	0.92	0.92	0.83	0.68	0.92
Heavy Vehicles (%)	0%	1%	2%	4%	0%	0%	0%	0%	0%	0%	16%	2%
Adj. Flow (vph)	0	1564	32	56	865	0	0	0	0	460	84	845
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1596	0	0	921	0	0	0	0	460	84	845
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			-3.5	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2		1	2					1	2	1
Detector Template		Thru		Left	Thru					Left	Thru	Right
Leading Detector (m)		10.0		2.0	10.0					2.0	10.0	2.0
Trailing Detector (m)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Position(m)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Size(m)		0.6		2.0	0.6					2.0	0.6	2.0
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4						9.4	
Detector 2 Size(m)		0.6			0.6						0.6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA		custom	NA					custom	NA	Free
Protected Phases		3		1 4	1 4					2	2	
Permitted Phases		3		1 4	1 4					2	2	Free

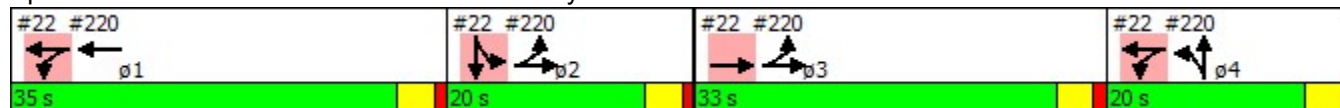
Lane Group	ø1	ø4
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	1	4
Permitted Phases		

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase		3		1 4	1 4					2	2	
Switch Phase												
Minimum Initial (s)		4.0								4.0	4.0	
Minimum Split (s)		10.0								10.0	10.0	
Total Split (s)		33.0								20.0	20.0	
Total Split (%)		30.6%								18.5%	18.5%	
Maximum Green (s)		29.0								16.0	16.0	
Yellow Time (s)		3.0								3.0	3.0	
All-Red Time (s)		1.0								1.0	1.0	
Lost Time Adjust (s)		0.0								0.0	0.0	
Total Lost Time (s)		4.0								4.0	4.0	
Lead/Lag		Lead								Lag	Lag	
Lead-Lag Optimize?		Yes								Yes	Yes	
Vehicle Extension (s)		3.0								3.0	3.0	
Recall Mode		Min								Min	Min	
Act Effct Green (s)		29.0			50.7					16.0	16.0	107.7
Actuated g/C Ratio		0.27			0.47					0.15	0.15	1.00
v/c Ratio		1.17			0.55					0.89	0.35	0.55
Control Delay		121.0			4.5					66.3	46.0	1.4
Queue Delay		0.5			0.0					0.5	0.0	0.0
Total Delay		121.5			4.5					66.9	46.0	1.4
LOS		F			A					E	D	A
Approach Delay		121.5			4.5						25.8	
Approach LOS		F			A						C	

Intersection Summary

Area Type: Other
 Cycle Length: 108
 Actuated Cycle Length: 107.7
 Natural Cycle: 120
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.22
 Intersection Signal Delay: 59.9
 Intersection LOS: E
 Intersection Capacity Utilization 71.0%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 22: Lat. GM & Alfonso Reyes



Lane Group	ø1	ø4
Detector Phase		
Switch Phase		
Minimum Initial (s)	4.0	4.0
Minimum Split (s)	10.0	10.0
Total Split (s)	35.0	20.0
Total Split (%)	32%	19%
Maximum Green (s)	31.0	16.0
Yellow Time (s)	3.0	3.0
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	388	1480	0	0	648	148	105	162	93	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99				0.98			0.98				
Frt					0.971			0.948				
Flt Protected	0.950						0.950	0.998				
Satd. Flow (prot)	1750	3500	0	0	3324	0	1696	1613	0	0	0	0
Flt Permitted	0.950						0.950	0.998				
Satd. Flow (perm)	1734	3500	0	0	3324	0	1696	1613	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					27			21				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		26.0			221.6			29.9			43.1	
Travel Time (s)		1.9			16.0			2.2			3.1	
Confl. Peds. (#/hr)	27					27			25			
Confl. Bikes (#/hr)						47						
Peak Hour Factor	0.94	0.96	0.92	0.92	0.92	0.88	0.82	0.84	0.86	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	0%	0%	2%	1%	0%	4%	0%	0%	0%	0%
Adj. Flow (vph)	413	1542	0	0	704	168	128	193	108	0	0	0
Shared Lane Traffic (%)							10%					
Lane Group Flow (vph)	413	1542	0	0	872	0	115	314	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2			2		1	2				
Detector Template	Left	Thru			Thru		Left	Thru				
Leading Detector (m)	2.0	10.0			10.0		2.0	10.0				
Trailing Detector (m)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Position(m)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Size(m)	2.0	0.6			0.6		2.0	0.6				
Detector 1 Type	CI+Ex	CI+Ex			CI+Ex		CI+Ex	CI+Ex				
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				
Detector 2 Position(m)		9.4			9.4			9.4				
Detector 2 Size(m)		0.6			0.6			0.6				
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	custom	NA			NA		custom	NA				
Protected Phases	2 3	2 3			1		4	4				
Permitted Phases	2 3	2 3			1		4	4				

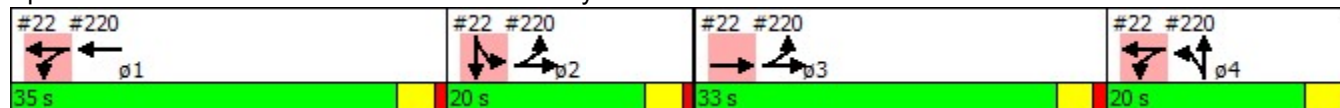
Lane Group	ø2	ø3
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	2	3
Permitted Phases		

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2 3	2 3			1		4	4				
Switch Phase												
Minimum Initial (s)					4.0		4.0	4.0				
Minimum Split (s)					10.0		10.0	10.0				
Total Split (s)					35.0		20.0	20.0				
Total Split (%)					32.4%		18.5%	18.5%				
Maximum Green (s)					31.0		16.0	16.0				
Yellow Time (s)					3.0		3.0	3.0				
All-Red Time (s)					1.0		1.0	1.0				
Lost Time Adjust (s)					0.0		0.0	0.0				
Total Lost Time (s)					4.0		4.0	4.0				
Lead/Lag					Lead		Lag	Lag				
Lead-Lag Optimize?					Yes		Yes	Yes				
Vehicle Extension (s)					3.0		3.0	3.0				
Recall Mode					None		None	None				
Act Effct Green (s)	49.0	49.0			30.7		16.0	16.0				
Actuated g/C Ratio	0.45	0.45			0.29		0.15	0.15				
v/c Ratio	0.52	0.97			0.90		0.46	1.22				
Control Delay	7.0	14.4			49.6		48.6	167.4				
Queue Delay	0.0	0.0			0.1		0.0	0.2				
Total Delay	7.0	14.4			49.8		48.6	167.6				
LOS	A	B			D		D	F				
Approach Delay		12.8			49.8			135.7				
Approach LOS		B			D			F				

Intersection Summary

Area Type: Other
Cycle Length: 108
Actuated Cycle Length: 107.7
Natural Cycle: 120
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.22
Intersection Signal Delay: 38.9
Intersection LOS: D
Intersection Capacity Utilization 65.2%
ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 220: Lat. GM & Alfonso Reyes



Lane Group	ø2	ø3
Detector Phase		
Switch Phase		
Minimum Initial (s)	4.0	4.0
Minimum Split (s)	10.0	10.0
Total Split (s)	20.0	33.0
Total Split (%)	19%	31%
Maximum Green (s)	16.0	29.0
Yellow Time (s)	3.0	3.0
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

Zone 22 Totals

Number of Intersections	2
Control Delay / Veh (s/v)	50
Queue Delay / Veh (s/v)	0
Total Delay / Veh (s/v)	51
Total Delay (hr)	91
Stops / Veh	0.49
Stops (#)	3199
Average Speed (km/hr)	12
Total Travel Time (hr)	120
Distance Traveled (km)	1444
Fuel Consumed (l)	462
Fuel Economy (km/l)	3.1
CO Emissions (kg)	8.59
NOx Emissions (kg)	1.66
VOC Emissions (kg)	1.98
Unserved Vehicles (#)	267
Vehicles in dilemma zone (#)	0
Performance Index	100.2

Arterial Level of Service: EB Alfonso Reyes

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (km)	Arterial Speed	Arterial LOS
Acceso	III	50	15.9	22.9	38.8	0.18	16.9	E
Las Sendas	III	50	14.1	17.5	31.6	0.16	18.3	E
	III	50	19.5	31.5	51.0	0.23	16.5	E
B. Juárez	III	50	14.3	6.9	21.2	0.16	27.8	D
Ticomán	III	50	23.4	10.4	33.8	0.30	31.6	C
Montefalco	III	50	17.2	14.4	31.6	0.21	23.6	D
Genaro Garza García	III	50	16.7	13.2	29.9	0.19	22.9	D
Matamoros	III	50	8.9	4.5	13.4	0.09	24.7	D
Jardines Coloniales	III	50	31.8	10.1	41.9	0.40	34.6	C
Neil Armstrong	III	50	28.8	20.4	49.2	0.36	26.7	D
Las Olimpiadas	III	50	59.6	11.0	70.6	0.75	38.5	B
Río Suchiate	III	50	40.1	16.1	56.2	0.51	32.6	C
Lomas del Valle	III	50	13.4	75.4	88.8	0.15	6.2	F
Sierra Azul	III	50	23.5	9.4	32.9	0.30	32.6	C
Bosques del Valle	III	50	43.1	11.8	54.9	0.55	35.8	C
Jerónimo Siller	III	50	31.3	24.7	56.0	0.40	25.5	D
Lat. GM	III	50	59.4	150.2	209.6	0.75	12.9	F
Lat. GM	III	50	2.5	5.7	8.2	0.03	11.4	F
Total	III		463.5	456.1	919.6	5.73	22.4	D

Arterial Level of Service: WB Alfonso Reyes

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (km)	Arterial Speed	Arterial LOS
Lat. GM	III	50	18.5	58.6	77.1	0.22	10.3	F
Lat. GM	III	50	2.5	3.1	5.6	0.03	16.7	E
Jerónimo Siller	III	50	59.4	8.7	68.1	0.75	39.8	B
Bosques del Valle	III	50	31.3	9.3	40.6	0.40	35.1	C
Bosques del Olivo	III	50	43.1	4.5	47.6	0.55	41.3	B
Lomas del Valle	III	50	23.5	32.9	56.4	0.30	19.0	E
Río Suchiate	III	50	13.4	2.9	16.3	0.15	33.7	C
Cauhtémoc	III	50	40.1	8.8	48.9	0.51	37.4	C
Neil Armstrong	III	50	59.6	5.9	65.5	0.75	41.5	B
Guillermo Prieto	III	50	28.8	9.3	38.1	0.36	34.4	C
Matamoros	III	50	31.8	3.7	35.5	0.40	40.8	B
Genaro Garza García	III	50	8.9	6.4	15.3	0.09	21.6	E
Gerónimo Treviño	III	50	16.7	15.6	32.3	0.19	21.2	E
Manuel González	III	50	17.2	9.2	26.4	0.21	28.2	D
B. Juárez	III	50	23.4	5.9	29.3	0.30	36.5	C
Corregidora	III	50	14.3	14.6	28.9	0.16	20.4	E
Las Sendas	III	50	19.5	13.8	33.3	0.23	25.3	D
Jiménez	III	50	14.1	19.6	33.7	0.16	17.1	E
Total	III		466.1	232.8	698.9	5.77	29.7	C

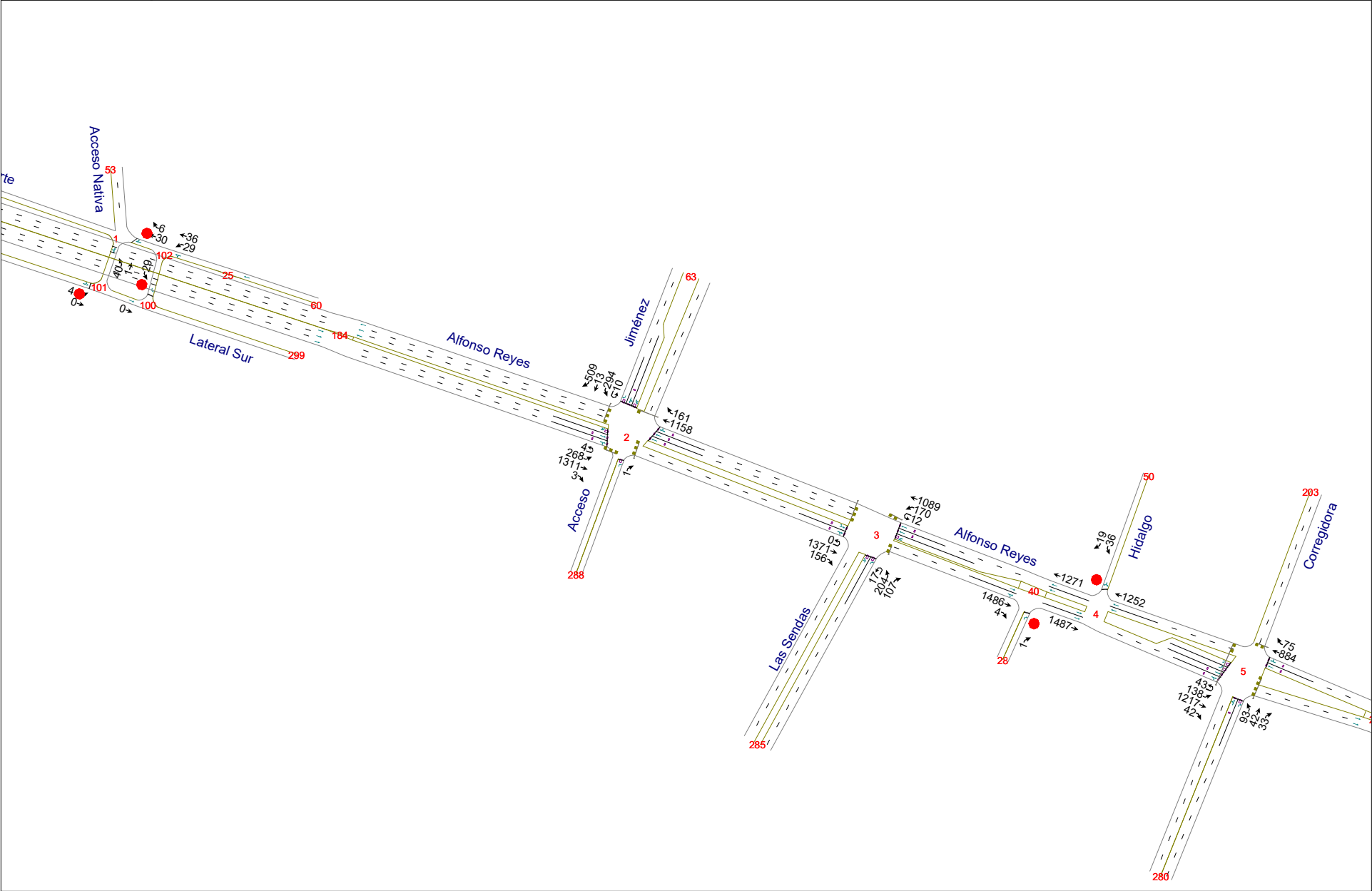
Arterial Level of Service: EB Alfonso Reyes

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (km)	Arterial Speed	Arterial LOS
Acceso	III	50	15.9	18.0	33.9	0.18	19.3	E
Las Sendas	III	50	14.1	11.4	25.5	0.16	22.6	D
	III	50	19.5	16.8	36.3	0.23	23.2	D
B. Juárez	III	50	14.3	4.4	18.7	0.16	31.5	C
Ticomán	III	50	23.4	9.0	32.4	0.30	33.0	C
Montefalco	III	50	17.2	10.4	27.6	0.21	27.0	D
Genaro Garza García	III	50	16.7	13.7	30.4	0.19	22.5	D
Matamoros	III	50	8.9	3.3	12.2	0.09	27.1	D
Jardines Coloniales	III	50	31.8	9.9	41.7	0.40	34.8	C
Neil Armstrong	III	50	28.8	17.2	46.0	0.36	28.5	D
Las Olimpiadas	III	50	59.6	11.0	70.6	0.75	38.5	B
Río Suchiate	III	50	40.1	17.4	57.5	0.51	31.8	C
Lomas del Valle	III	50	13.4	42.2	55.6	0.15	9.9	F
Sierra Azul	III	50	23.5	9.6	33.1	0.30	32.4	C
Bosques del Valle	III	50	43.1	25.0	68.1	0.55	28.9	C
Jerónimo Siller	III	50	31.3	77.0	108.3	0.40	13.2	F
Lat. GM	III	50	59.4	121.0	180.4	0.75	15.0	F
Lat. GM	III	50	2.5	14.4	16.9	0.03	5.5	F
Total	III		463.5	431.7	895.2	5.73	23.0	D

Arterial Level of Service: WB Alfonso Reyes

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (km)	Arterial Speed	Arterial LOS
Lat. GM	III	50	18.5	49.6	68.1	0.22	11.7	F
Lat. GM	III	50	2.5	4.5	7.0	0.03	13.4	F
Jerónimo Siller	III	50	59.4	13.8	73.2	0.75	37.0	C
Bosques del Valle	III	50	31.3	17.9	49.2	0.40	29.0	C
Bosques del Olivo	III	50	43.1	5.7	48.8	0.55	40.3	B
Lomas del Valle	III	50	23.5	53.6	77.1	0.30	13.9	F
Río Suchiate	III	50	13.4	3.9	17.3	0.15	31.7	C
Cauhtémoc	III	50	40.1	14.3	54.4	0.51	33.7	C
Neil Armstrong	III	50	59.6	8.9	68.5	0.75	39.7	B
Guillermo Prieto	III	50	28.8	13.8	42.6	0.36	30.8	C
Matamoros	III	50	31.8	5.5	37.3	0.40	38.9	B
Genaro Garza García	III	50	8.9	9.9	18.8	0.09	17.6	E
Gerónimo Treviño	III	50	16.7	21.4	38.1	0.19	18.0	E
Manuel González	III	50	17.2	12.9	30.1	0.21	24.8	D
B. Juárez	III	50	23.4	6.6	30.0	0.30	35.6	C
Corregidora	III	50	14.3	14.2	28.5	0.16	20.7	E
Las Sendas	III	50	19.5	17.9	37.4	0.23	22.5	D
Jiménez	III	50	14.1	23.0	37.1	0.16	15.6	F
Total	III		466.1	297.4	763.5	5.77	27.2	D

Map - Ciclovía Alfonso Reyes
Análisis de la operación actual - AM - PROYECTO

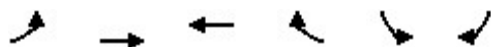


Ciclovía Alfonso Reyes
Vargas Torres y Asociados, S.A. de C.V.

1: Retorno Pte/Acceso Nativa & Lateral Norte
Análisis de la operación actual - AM - PROYECTO

05/09/2021

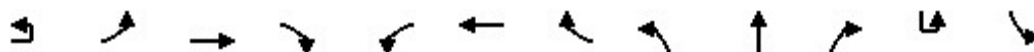
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	30	6	40	1	0	0	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.85	0.45	0.59	0.25	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	35	13	68	4	0	0	0	0
Pedestrians												21
Lane Width (m)												0.0
Walking Speed (m/s)												1.2
Percent Blockage												0
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	192	140	0	140	140	25	0			4		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	192	140	0	140	140	25	0			4		
tC, single (s)	7.1	6.5	6.2	7.1	7.0	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.5	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	95	99	96			100		
cM capacity (veh/h)	708	724	1091	809	644	1057	1636			1631		
Direction, Lane #	WB 1	NB 1										
Volume Total	49	72										
Volume Left	0	68										
Volume Right	13	0										
cSH	721	1636										
Volume to Capacity	0.07	0.04										
Queue Length 95th (m)	1.7	1.0										
Control Delay (s)	10.4	6.9										
Lane LOS	B	A										
Approach Delay (s)	10.4	6.9										
Approach LOS	B											
Intersection Summary												
Average Delay		8.3										
Intersection Capacity Utilization		18.4%			ICU Level of Service				A			
Analysis Period (min)		15										



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑			↘	
Volume (veh/h)	0	0	0	0	29	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.60	0.92	0.92	0.52	0.92
Hourly flow rate (vph)	0	0	0	0	56	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	0				0	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				0	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				95	100
cM capacity (veh/h)	1636				1021	1091
Direction, Lane #	EB 1	SB 1				
Volume Total	0	56				
Volume Left	0	56				
Volume Right	0	0				
cSH	1700	1021				
Volume to Capacity	0.00	0.05				
Queue Length 95th (m)	0.0	1.4				
Control Delay (s)	0.0	8.7				
Lane LOS		A				
Approach Delay (s)	0.0	8.7				
Approach LOS		A				
Intersection Summary						
Average Delay		8.7				
Intersection Capacity Utilization		13.5%		ICU Level of Service		A
Analysis Period (min)		15				

2: Acceso/Jiménez & Alfonso Reyes
Análisis de la operación actual - AM - PROYECTO

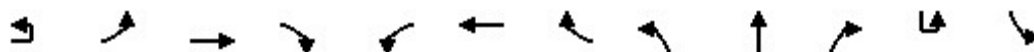
29/09/2021



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	4	268	1311	3	0	1158	161	0	0	1	10	294
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0		0.0	0.0		0.0	0.0		0.0		45.0
Storage Lanes		1		0	0		0	0		1		1
Taper Length (m)		7.5			7.5			7.5				7.5
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00	0.91	0.91	1.00	1.00	1.00	1.00	0.95
Ped Bike Factor		0.99	1.00			0.99				0.97		0.88
Frt			0.999			0.980				0.865		
Flt Protected		0.950										0.950
Satd. Flow (prot)	0	1785	3495	0	0	4995	0	0	0	1625	0	1583
Flt Permitted		0.950										0.950
Satd. Flow (perm)	0	1771	3495	0	0	4995	0	0	0	1583	0	1396
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)			1			38				359		
Link Speed (k/h)			50			50			50			
Link Distance (m)			182.0			160.4			87.6			
Travel Time (s)			13.1			11.5			6.3			
Confl. Peds. (#/hr)	14	16		11			16			47	16	47
Confl. Bikes (#/hr)				16			17					
Peak Hour Factor	0.50	0.72	0.94	0.37	0.92	0.95	0.88	0.92	0.92	0.25	0.50	0.93
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	8%
Adj. Flow (vph)	8	372	1395	8	0	1219	183	0	0	4	20	316
Shared Lane Traffic (%)												50%
Lane Group Flow (vph)	0	380	1403	0	0	1402	0	0	0	4	0	178
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	R NA	Left
Median Width(m)			6.0			4.0			0.0			
Link Offset(m)			0.0			0.0			0.0			
Crosswalk Width(m)			4.8			4.8			4.8			
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	15	25		15	25		15	25		15	15	25
Turn Type	custom	custom	NA			NA						
Protected Phases	1	1	2			2					3	3
Permitted Phases	1	1	2			2				Free	3	3
Minimum Split (s)	15.0	15.0	20.0			20.0					15.0	15.0
Total Split (s)	31.0	31.0	50.0			50.0					19.0	19.0
Total Split (%)	31.0%	31.0%	50.0%			50.0%					19.0%	19.0%
Maximum Green (s)	28.0	28.0	47.0			47.0					16.0	16.0
Yellow Time (s)	3.0	3.0	3.0			3.0					3.0	3.0
All-Red Time (s)	0.0	0.0	0.0			0.0					0.0	0.0
Lost Time Adjust (s)		0.0	0.0			0.0						0.0
Total Lost Time (s)		3.0	3.0			3.0						3.0
Lead/Lag	Lead	Lead	Lag			Lag						
Lead-Lag Optimize?	Yes	Yes	Yes			Yes						
Walk Time (s)			5.0			5.0						
Flash Dont Walk (s)			11.0			11.0						
Pedestrian Calls (#/hr)			0			0						



Lane Group	SBT	SBR
Lane Configurations	↑	↑
Volume (vph)	13	509
Ideal Flow (vphpl)	1900	1900
Storage Length (m)		0.0
Storage Lanes		1
Taper Length (m)		
Lane Util. Factor	0.95	1.00
Ped Bike Factor	0.92	0.98
Frt		0.850
Flt Protected	0.958	
Satd. Flow (prot)	1599	1521
Flt Permitted	0.958	
Satd. Flow (perm)	1477	1496
Right Turn on Red		Yes
Satd. Flow (RTOR)		
Link Speed (k/h)	50	
Link Distance (m)	103.5	
Travel Time (s)	7.5	
Confl. Peds. (#/hr)		14
Confl. Bikes (#/hr)		
Peak Hour Factor	0.54	0.88
Heavy Vehicles (%)	0%	5%
Adj. Flow (vph)	24	578
Shared Lane Traffic (%)		
Lane Group Flow (vph)	182	578
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(m)	8.0	
Link Offset(m)	0.0	
Crosswalk Width(m)	4.8	
Two way Left Turn Lane		
Headway Factor	1.01	1.01
Turning Speed (k/h)		15
Turn Type	NA	custom
Protected Phases	3	3
Permitted Phases	3	1 2 3
Minimum Split (s)	15.0	15.0
Total Split (s)	19.0	19.0
Total Split (%)	19.0%	19.0%
Maximum Green (s)	16.0	16.0
Yellow Time (s)	3.0	3.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	3.0	3.0
Lead/Lag		
Lead-Lag Optimize?		
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Act Effct Green (s)		28.0	47.0			47.0				100.0		16.0
Actuated g/C Ratio		0.28	0.47			0.47				1.00		0.16
v/c Ratio		0.76	0.85			0.59				0.00		0.70
Control Delay		44.4	29.9			20.1				0.0		56.1
Queue Delay		0.0	0.0			0.0				0.0		0.0
Total Delay		44.4	29.9			20.1				0.0		56.1
LOS		D	C			C				A		E
Approach Delay			33.0			20.1						
Approach LOS			C			C						

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 65

Control Type: Pretimed

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 26.2

Intersection LOS: C

Intersection Capacity Utilization 84.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 2: Acceso/Jiménez & Alfonso Reyes

 Ø1	 Ø2 (R)	 Ø3
31 s	50 s	19 s

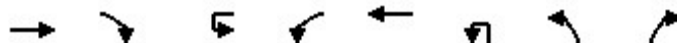


Lane Group	SBT	SBR
Act Effct Green (s)	16.0	94.0
Actuated g/C Ratio	0.16	0.94
v/c Ratio	0.71	0.41
Control Delay	56.7	1.0
Queue Delay	0.0	0.0
Total Delay	56.7	1.0
LOS	E	A
Approach Delay	22.3	
Approach LOS	C	
Intersection Summary		

								
Lane Group	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Lane Configurations								
Volume (vph)	1371	156	12	170	1089	17	204	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0		55.0			0.0	0.0
Storage Lanes		0		1			1	1
Taper Length (m)				30.0			7.5	
Lane Util. Factor	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00
Ped Bike Factor	1.00			1.00			0.99	0.98
Frt	0.982							0.850
Flt Protected				0.950			0.950	
Satd. Flow (prot)	3356	0	0	1723	3570	0	1708	1521
Flt Permitted				0.950			0.950	
Satd. Flow (perm)	3356	0	0	1722	3570	0	1695	1498
Right Turn on Red		Yes						Yes
Satd. Flow (RTOR)	24							132
Link Speed (k/h)	50				50		50	
Link Distance (m)	160.4				100.0		144.1	
Travel Time (s)	11.5				7.2		10.4	
Confl. Peds. (#/hr)		5		5		5		2
Confl. Bikes (#/hr)		19						
Peak Hour Factor	0.94	0.81	0.50	0.85	0.93	0.61	0.82	0.81
Heavy Vehicles (%)	4%	5%	0%	4%	0%	0%	5%	5%
Adj. Flow (vph)	1459	193	24	200	1171	28	249	132
Shared Lane Traffic (%)								
Lane Group Flow (vph)	1652	0	0	224	1171	0	277	132
Enter Blocked Intersection	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	R NA	Left	Left	R NA	Left	Right
Median Width(m)	4.0				4.5		7.5	
Link Offset(m)	0.0				2.0		0.0	
Crosswalk Width(m)	4.8				4.8		4.8	
Two way Left Turn Lane								
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	15	25		15	25	15
Number of Detectors	2		1	1	2	1	1	1
Detector Template	Thru		Left	Left	Thru	Left	Left	Right
Leading Detector (m)	10.0		2.0	2.0	10.0	2.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	2.0	0.6	2.0	2.0	2.0
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel								
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4				9.4			
Detector 2 Size(m)	0.6				0.6			
Detector 2 Type	CI+Ex				CI+Ex			
Detector 2 Channel								
Detector 2 Extend (s)	0.0				0.0			

3: Las Sendas & Alfonso Reyes
Análisis de la operación actual - AM - PROYECTO

05/09/2021



Lane Group	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Turn Type	NA		custom	custom	NA	Prot	Prot	Prot
Protected Phases	1		2	2	1	3	3	3
Permitted Phases	1		2	2	1	3	3	3
Detector Phase	1		2	2	1	3	3	3
Switch Phase								
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0		20.0	20.0	20.0	10.0	10.0	10.0
Total Split (s)	46.0		20.0	20.0	46.0	19.0	19.0	19.0
Total Split (%)	54.1%		23.5%	23.5%	54.1%	22.4%	22.4%	22.4%
Maximum Green (s)	43.0		17.0	17.0	43.0	16.0	16.0	16.0
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	3.0			3.0	3.0		3.0	3.0
Lead/Lag	Lead		Lag	Lag	Lead			
Lead-Lag Optimize?	Yes		Yes	Yes	Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min		None	None	C-Min	None	None	None
Walk Time (s)	5.0		5.0	5.0	5.0			
Flash Dont Walk (s)	11.0		11.0	11.0	11.0			
Pedestrian Calls (#/hr)	0		0	0	0			
Act Effct Green (s)	45.0			14.9	45.0		16.1	16.1
Actuated g/C Ratio	0.53			0.18	0.53		0.19	0.19
v/c Ratio	0.92			0.74	0.62		0.86	0.33
Control Delay	29.5			54.8	13.7		59.6	8.3
Queue Delay	6.7			0.0	0.0		0.0	0.0
Total Delay	36.2			54.8	13.7		59.6	8.3
LOS	D			D	B		E	A
Approach Delay	36.2				20.3		43.0	
Approach LOS	D				C		D	

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 35 (41%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 30.6

Intersection LOS: C

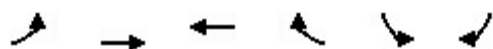
Intersection Capacity Utilization 95.3%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 3: Las Sendas & Alfonso Reyes

 ø1 (R)	 ø2	 ø3
46 s	20 s	19 s



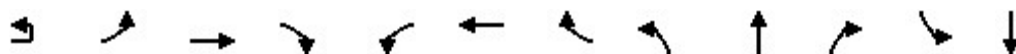
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Volume (veh/h)	0	1487	1252	0	36	19
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.97	0.94	0.92	0.57	0.70
Hourly flow rate (vph)	0	1533	1332	0	63	27
Pedestrians		14				
Lane Width (m)		3.5				
Walking Speed (m/s)		1.2				
Percent Blockage		1				
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)		140	94			
pX, platoon unblocked	0.78				0.67	0.78
vC, conflicting volume	1332				2098	680
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	864				176	30
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				88	97
cM capacity (veh/h)	615				536	807
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	766	766	666	666	90	
Volume Left	0	0	0	0	63	
Volume Right	0	0	0	0	27	
cSH	1700	1700	1700	1700	596	
Volume to Capacity	0.45	0.45	0.39	0.39	0.15	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	4.2	
Control Delay (s)	0.0	0.0	0.0	0.0	12.1	
Lane LOS					B	
Approach Delay (s)	0.0		0.0		12.1	
Approach LOS					B	
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			55.0%		ICU Level of Service	B
Analysis Period (min)			15			

5: Alfonso Reyes & Corregidora
Análisis de la operación actual - AM - PROYECTO

05/09/2021

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	43	138	1217	42	0	884	75	93	42	33	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		35.0		0.0	0.0		0.0	0.0		0.0	0.0	
Storage Lanes		2		0	0		0	0		1	0	
Taper Length (m)		7.5			7.5			7.5			7.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00	1.00			1.00			1.00	0.98		
Frt			0.994			0.988				0.850		
Flt Protected	0.950	0.950							0.967			
Satd. Flow (prot)	1785	1293	3505	0	0	3517	0	0	1817	1597	0	0
Flt Permitted	0.950	0.950							0.967			
Satd. Flow (perm)	1784	1293	3505	0	0	3517	0	0	1815	1572	0	0
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)			7			15				40		
Link Speed (k/h)			50			50			50			50
Link Distance (m)			94.4			85.3			132.7			114.2
Travel Time (s)			6.8			6.1			9.6			8.2
Confl. Peds. (#/hr)	1	2		1			2	1		2		
Confl. Bikes (#/hr)				12			24					
Peak Hour Factor	0.83	0.86	0.90	0.75	0.92	0.80	0.78	0.80	0.75	0.83	0.92	0.92
Heavy Vehicles (%)	0%	38%	1%	5%	0%	0%	1%	0%	0%	0%	0%	0%
Adj. Flow (vph)	52	160	1352	56	0	1105	96	116	56	40	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	160	1408	0	0	1201	0	0	172	40	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(m)			12.0			12.0			0.0			0.0
Link Offset(m)			0.0			0.0			0.0			0.0
Crosswalk Width(m)			4.8			4.8			4.8			4.8
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	15	25		15	25		15	25		15	25	
Number of Detectors	1	1	2			2		1	2	1		
Detector Template	Left	Left	Thru			Thru		Left	Thru	Right		
Leading Detector (m)	2.0	2.0	10.0			10.0		2.0	10.0	2.0		
Trailing Detector (m)	0.0	0.0	0.0			0.0		0.0	0.0	0.0		
Detector 1 Position(m)	0.0	0.0	0.0			0.0		0.0	0.0	0.0		
Detector 1 Size(m)	2.0	2.0	0.6			0.6		2.0	0.6	2.0		
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex			CI+Ex		CI+Ex	CI+Ex	CI+Ex		
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0			0.0		0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0			0.0		0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0			0.0		0.0	0.0	0.0		
Detector 2 Position(m)			9.4			9.4			9.4			
Detector 2 Size(m)			0.6			0.6			0.6			
Detector 2 Type			CI+Ex			CI+Ex			CI+Ex			
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			

Lane Group	SBR
Lane Configurations	
Volume (vph)	0
Ideal Flow (vphpl)	1900
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	0.92
Heavy Vehicles (%)	0%
Adj. Flow (vph)	0
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	1.01
Turning Speed (k/h)	15
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Turn Type	custom	custom	NA			NA		custom	NA	custom		
Protected Phases	2	2	1			1		3	3	3		
Permitted Phases	2	2	1			1		3	3	3		
Detector Phase	2	2	1			1		3	3	3		
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0			4.0		4.0	4.0	4.0		
Minimum Split (s)	20.0	20.0	20.0			20.0		10.0	10.0	10.0		
Total Split (s)	22.0	22.0	46.0			46.0		17.0	17.0	17.0		
Total Split (%)	25.9%	25.9%	54.1%			54.1%		20.0%	20.0%	20.0%		
Maximum Green (s)	19.0	19.0	43.0			43.0		14.0	14.0	14.0		
Yellow Time (s)	3.0	3.0	3.0			3.0		3.0	3.0	3.0		
All-Red Time (s)	0.0	0.0	0.0			0.0		0.0	0.0	0.0		
Lost Time Adjust (s)	0.0	0.0	0.0			0.0			0.0	0.0		
Total Lost Time (s)	3.0	3.0	3.0			3.0			3.0	3.0		
Lead/Lag	Lag	Lag	Lead			Lead						
Lead-Lag Optimize?	Yes	Yes	Yes			Yes						
Vehicle Extension (s)	3.0	3.0	3.0			3.0		3.0	3.0	3.0		
Recall Mode	None	None	C-Min			C-Min		None	None	None		
Walk Time (s)	5.0	5.0	5.0			5.0						
Flash Dont Walk (s)	11.0	11.0	11.0			11.0						
Pedestrian Calls (#/hr)	0	0	0			0						
Act Effct Green (s)	15.0	15.0	48.8			48.8			12.3	12.3		
Actuated g/C Ratio	0.18	0.18	0.57			0.57			0.14	0.14		
v/c Ratio	0.17	0.70	0.70			0.59			0.66	0.15		
Control Delay	29.7	43.0	29.8			14.3			46.4	11.9		
Queue Delay	0.0	0.0	0.0			0.3			0.0	0.0		
Total Delay	29.7	43.0	29.8			14.6			46.4	11.9		
LOS	C	D	C			B			D	B		
Approach Delay			31.1			14.6			39.9			
Approach LOS			C			B			D			

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 10 (12%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 25.2

Intersection LOS: C

Intersection Capacity Utilization 51.8%

ICU Level of Service A

Analysis Period (min) 15

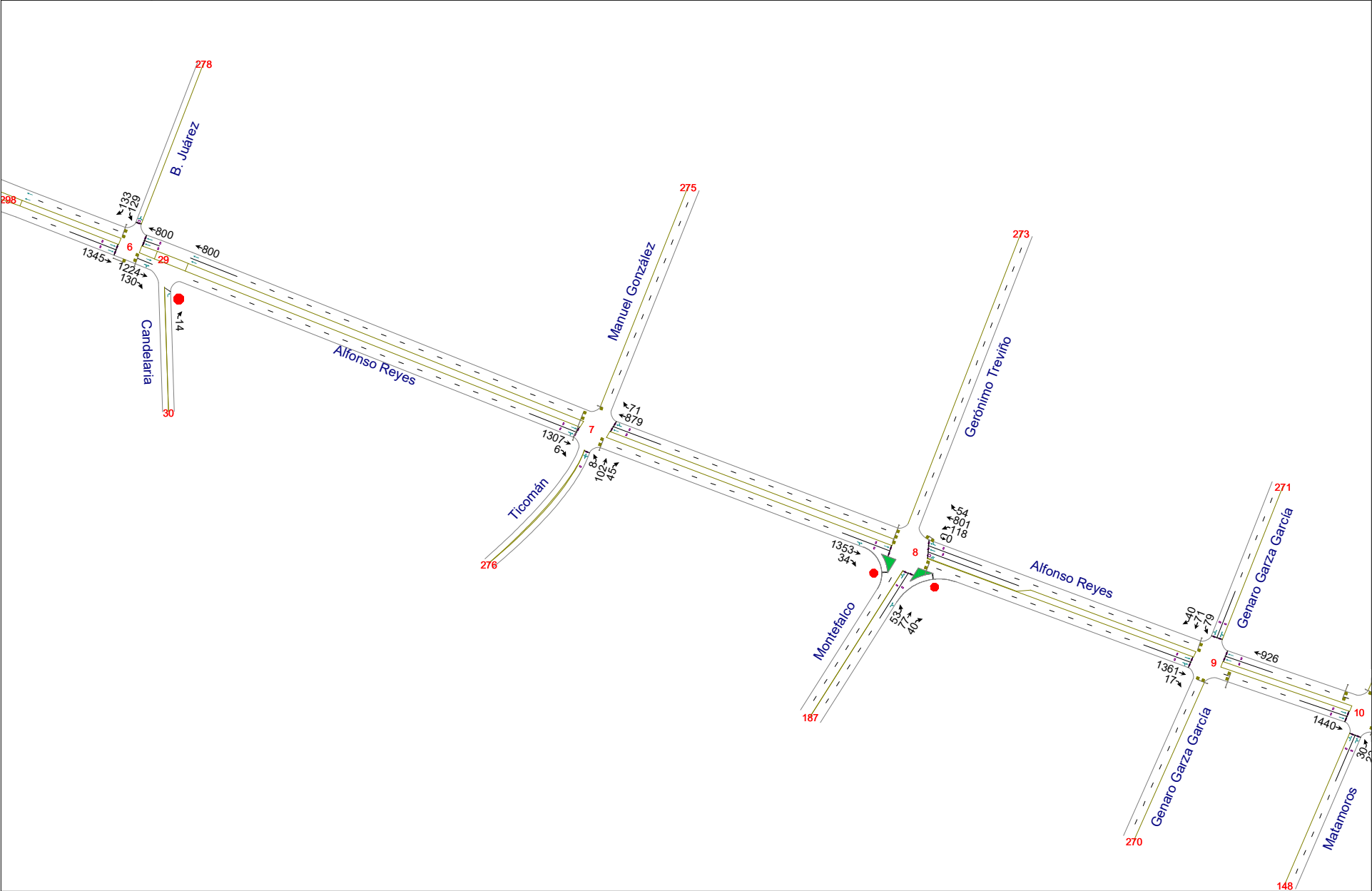
Splits and Phases: 5: Alfonso Reyes & Corregidora

ø1 (R)	ø2	ø3	
46 s	22 s	17 s	

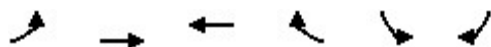


Lane Group	SBR
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

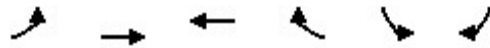
Map - Ciclovía Alfonso Reyes
Análisis de la operación actual - AM - PROYECTO



Ciclovía Alfonso Reyes
Vargas Torres y Asociados, S.A. de C.V.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Volume (vph)	0	1345	800	0	129	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor					0.99	
Frt					0.920	
Flt Protected					0.980	
Satd. Flow (prot)	0	3535	3535	0	1667	0
Flt Permitted					0.980	
Satd. Flow (perm)	0	3535	3535	0	1666	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					67	
Link Speed (k/h)		50	50		50	
Link Distance (m)		78.3	21.5		117.7	
Travel Time (s)		5.6	1.5		8.5	
Confl. Peds. (#/hr)					1	2
Peak Hour Factor	0.92	0.93	0.67	0.92	0.81	0.57
Heavy Vehicles (%)	0%	1%	1%	0%	2%	0%
Adj. Flow (vph)	0	1446	1194	0	159	233
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1446	1194	0	392	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		4.0	4.0		3.5	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Number of Detectors		2	2		1	
Detector Template		Thru	Thru		Left	
Leading Detector (m)		10.0	10.0		2.0	
Trailing Detector (m)		0.0	0.0		0.0	
Detector 1 Position(m)		0.0	0.0		0.0	
Detector 1 Size(m)		0.6	0.6		2.0	
Detector 1 Type		CI+Ex	CI+Ex		CI+Ex	
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	
Detector 1 Queue (s)		0.0	0.0		0.0	
Detector 1 Delay (s)		0.0	0.0		0.0	
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Prot	
Protected Phases		1	1		2	
Permitted Phases		1	1		2	
Detector Phase		1	1		2	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Switch Phase						
Minimum Initial (s)		4.0	4.0		4.0	
Minimum Split (s)		20.0	20.0		20.0	
Total Split (s)		43.0	43.0		27.0	
Total Split (%)		61.4%	61.4%		38.6%	
Maximum Green (s)		40.0	40.0		24.0	
Yellow Time (s)		3.0	3.0		3.0	
All-Red Time (s)		0.0	0.0		0.0	
Lost Time Adjust (s)		0.0	0.0		0.0	
Total Lost Time (s)		3.0	3.0		3.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)		3.0	3.0		3.0	
Recall Mode		C-Min	C-Min		None	
Act Effct Green (s)		45.3	45.3		18.7	
Actuated g/C Ratio		0.65	0.65		0.27	
v/c Ratio		0.63	0.52		0.79	
Control Delay		9.9	14.7		31.3	
Queue Delay		0.2	0.0		0.0	
Total Delay		10.2	14.7		31.3	
LOS		B	B		C	
Approach Delay		10.2	14.7		31.3	
Approach LOS		B	B		C	

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 20 (29%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 14.7
Intersection LOS: B
Intersection Capacity Utilization 59.3%
ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 6: Alfonso Reyes & B. Juárez



7: Ticomán/Manuel González & Alfonso Reyes
Análisis de la operación actual - AM - PROYECTO

05/09/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1307	6	0	879	71	8	102	45	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	25.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			1.00				
Frt		0.999			0.988			0.963				
Flt Protected								0.997				
Satd. Flow (prot)	0	3531	0	0	3491	0	0	1797	0	0	0	0
Flt Permitted								0.997				
Satd. Flow (perm)	0	3531	0	0	3491	0	0	1796	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			28			26				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		275.5			207.0			102.9			155.8	
Travel Time (s)		19.8			14.9			7.4			11.2	
Confl. Peds. (#/hr)	1		2	2		1	3		2			
Confl. Bikes (#/hr)			6			10						
Peak Hour Factor	0.85	0.89	0.50	0.66	0.75	0.70	0.67	0.70	0.75	0.92	0.92	0.92
Heavy Vehicles (%)	2%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1469	12	0	1172	101	12	146	60	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1481	0	0	1273	0	0	218	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		4.0			4.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2		1	2				
Detector Template		Thru			Thru		Left	Thru				
Leading Detector (m)		10.0			10.0		2.0	10.0				
Trailing Detector (m)		0.0			0.0		0.0	0.0				
Detector 1 Position(m)		0.0			0.0		0.0	0.0				
Detector 1 Size(m)		0.6			0.6		2.0	0.6				
Detector 1 Type		Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex				
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0		0.0	0.0				
Detector 1 Queue (s)		0.0			0.0		0.0	0.0				
Detector 1 Delay (s)		0.0			0.0		0.0	0.0				
Detector 2 Position(m)		9.4			9.4			9.4				
Detector 2 Size(m)		0.6			0.6			0.6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				

7: Ticomán/Manuel González & Alfonso Reyes
Análisis de la operación actual - AM - PROYECTO

05/09/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	NA			NA			custom	NA				
Protected Phases	1			1			3	3				
Permitted Phases	1			1			3	3				
Detector Phase	1			1			3	3				
Switch Phase												
Minimum Initial (s)	4.0			4.0			4.0	4.0				
Minimum Split (s)	20.0			20.0			10.0	10.0				
Total Split (s)	50.0			50.0			20.0	20.0				
Total Split (%)	71.4%			71.4%			28.6%	28.6%				
Maximum Green (s)	47.0			47.0			17.0	17.0				
Yellow Time (s)	3.0			3.0			3.0	3.0				
All-Red Time (s)	0.0			0.0			0.0	0.0				
Lost Time Adjust (s)	0.0			0.0			0.0					
Total Lost Time (s)	3.0			3.0			3.0					
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0			3.0			3.0	3.0				
Recall Mode	C-Min			C-Min			None	None				
Walk Time (s)							5.0	5.0				
Flash Dont Walk (s)							11.0	11.0				
Pedestrian Calls (#/hr)							0	0				
Act Effct Green (s)	51.4			51.4			12.6					
Actuated g/C Ratio	0.73			0.73			0.18					
v/c Ratio	0.57			0.50			0.63					
Control Delay	2.3			5.0			31.2					
Queue Delay	0.0			0.0			0.0					
Total Delay	2.3			5.0			31.2					
LOS	A			A			C					
Approach Delay	2.3			5.0			31.2					
Approach LOS	A			A			C					

Intersection Summary

Area Type: Other
 Cycle Length: 70
 Actuated Cycle Length: 70
 Offset: 40 (57%), Referenced to phase 1:EBWB, Start of Green
 Natural Cycle: 40
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 5.6
 Intersection Capacity Utilization 51.9%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 7: Ticomán/Manuel González & Alfonso Reyes

 $\phi 1 (R)$	 $\phi 3$
50 s	20 s

8: Montefalco/Gerónimo Treviño & Alfonso Reyes
Análisis de la operación actual - AM - PROYECTO

05/09/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1353	34	118	801	54	53	77	40	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	55.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	1		0	0		0	0		0
Taper Length (m)	20.0			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			0.98				
Frt		0.995			0.993			0.960				
Flt Protected				0.950				0.988				
Satd. Flow (prot)	0	3543	0	1785	3501	0	0	3355	0	0	0	0
Flt Permitted				0.950				0.988				
Satd. Flow (perm)	0	3543	0	1785	3501	0	0	3302	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			10			45				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		207.0			190.3			117.2			200.7	
Travel Time (s)		14.9			13.7			8.4			14.5	
Confl. Peds. (#/hr)	22					22	28		2			
Confl. Bikes (#/hr)			19			22						
Peak Hour Factor	0.75	0.92	0.71	0.92	0.70	0.90	0.88	0.62	0.59	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	6%	0%	1%	0%	2%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1471	48	128	1144	60	60	124	68	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1519	0	128	1204	0	0	252	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		4.0			4.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			10.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2		1	2		1	2				
Detector Template		Thru		Left	Thru		Left	Thru				
Leading Detector (m)		10.0		2.0	10.0		2.0	10.0				
Trailing Detector (m)		0.0		0.0	0.0		0.0	0.0				
Detector 1 Position(m)		0.0		0.0	0.0		0.0	0.0				
Detector 1 Size(m)		0.6		2.0	0.6		2.0	0.6				
Detector 1 Type		CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex				
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0		0.0	0.0				
Detector 1 Queue (s)		0.0		0.0	0.0		0.0	0.0				
Detector 1 Delay (s)		0.0		0.0	0.0		0.0	0.0				
Detector 2 Position(m)		9.4			9.4			9.4				
Detector 2 Size(m)		0.6			0.6			0.6				
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				

8: Montefalco/Gerónimo Treviño & Alfonso Reyes
Análisis de la operación actual - AM - PROYECTO

05/09/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	NA		custom		NA		custom		NA			
Protected Phases	2		1		2		3		3			
Permitted Phases	2		1		2		3		3			
Detector Phase	2		1		2		3		3			
Switch Phase												
Minimum Initial (s)	4.0		4.0		4.0		4.0		4.0			
Minimum Split (s)	20.0		15.0		20.0		15.0		15.0			
Total Split (s)	60.0		20.0		60.0		15.0		15.0			
Total Split (%)	63.2%		21.1%		63.2%		15.8%		15.8%			
Maximum Green (s)	57.0		17.0		57.0		12.0		12.0			
Yellow Time (s)	3.0		3.0		3.0		3.0		3.0			
All-Red Time (s)	0.0		0.0		0.0		0.0		0.0			
Lost Time Adjust (s)	0.0		0.0		0.0				0.0			
Total Lost Time (s)	3.0		3.0		3.0				3.0			
Lead/Lag	Lag		Lead		Lag							
Lead-Lag Optimize?	Yes		Yes		Yes							
Vehicle Extension (s)	3.0		3.0		3.0		3.0		3.0			
Recall Mode	None		C-Min		None		None		None			
Walk Time (s)	5.0				5.0							
Flash Dont Walk (s)	11.0				11.0							
Pedestrian Calls (#/hr)	0				0							
Act Effct Green (s)	55.2		20.2		55.2				10.5			
Actuated g/C Ratio	0.58		0.21		0.58				0.11			
v/c Ratio	0.74		0.34		0.59				0.61			
Control Delay	16.8		37.0		13.7				39.4			
Queue Delay	0.5		0.0		0.3				0.0			
Total Delay	17.3		37.0		14.0				39.4			
LOS	B		D		B				D			
Approach Delay	17.3				16.2				39.4			
Approach LOS	B				B				D			

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 80 (84%), Referenced to phase 1:WBL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 18.6

Intersection LOS: B

Intersection Capacity Utilization 60.0%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 8: Montefalco/Gerónimo Treviño & Alfonso Reyes

20 s	50 s	15 s

9: Genaro Garza García & Alfonso Reyes
Análisis de la operación actual - AM - PROYECTO

05/09/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑						↑↑	
Volume (vph)	0	1361	17	0	926	0	0	0	0	79	71	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor		1.00									0.99	
Frt		0.998									0.965	
Flt Protected											0.977	
Satd. Flow (prot)	0	3562	0	0	3570	0	0	0	0	0	3347	0
Flt Permitted											0.977	
Satd. Flow (perm)	0	3562	0	0	3570	0	0	0	0	0	3345	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4									44	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		190.3			91.9			117.0			112.9	
Travel Time (s)		13.7			6.6			8.4			8.1	
Confl. Peds. (#/hr)			2	2						1		9
Confl. Bikes (#/hr)			16									
Peak Hour Factor	0.92	0.90	0.85	0.61	0.74	0.92	0.92	0.92	0.92	0.62	0.88	0.63
Adj. Flow (vph)	0	1512	20	0	1251	0	0	0	0	127	81	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1532	0	0	1251	0	0	0	0	0	271	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2					1	2	
Detector Template		Thru			Thru					Left	Thru	
Leading Detector (m)		10.0			10.0					2.0	10.0	
Trailing Detector (m)		0.0			0.0					0.0	0.0	
Detector 1 Position(m)		0.0			0.0					0.0	0.0	
Detector 1 Size(m)		0.6			0.6					2.0	0.6	
Detector 1 Type		Cl+Ex			Cl+Ex					Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0					0.0	0.0	
Detector 1 Queue (s)		0.0			0.0					0.0	0.0	
Detector 1 Delay (s)		0.0			0.0					0.0	0.0	
Detector 2 Position(m)		9.4			9.4						9.4	
Detector 2 Size(m)		0.6			0.6						0.6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA			NA					custom	NA	

9: Genaro Garza García & Alfonso Reyes
Análisis de la operación actual - AM - PROYECTO

05/09/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		1			1					3	3	
Permitted Phases		1			1					3	3	
Detector Phase		1			1					3	3	
Switch Phase												
Minimum Initial (s)		4.0			4.0					4.0	4.0	
Minimum Split (s)		20.0			20.0					20.0	20.0	
Total Split (s)		62.0			62.0					21.0	21.0	
Total Split (%)		74.7%			74.7%					25.3%	25.3%	
Maximum Green (s)		59.0			59.0					18.0	18.0	
Yellow Time (s)		3.0			3.0					3.0	3.0	
All-Red Time (s)		0.0			0.0					0.0	0.0	
Lost Time Adjust (s)		0.0			0.0						0.0	
Total Lost Time (s)		3.0			3.0						3.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)		3.0			3.0					3.0	3.0	
Recall Mode		C-Min			C-Min					None	None	
Walk Time (s)		5.0			5.0							
Flash Dont Walk (s)		11.0			11.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		66.0			66.0						11.0	
Actuated g/C Ratio		0.80			0.80						0.13	
v/c Ratio		0.54			0.44						0.56	
Control Delay		4.2			3.5						32.4	
Queue Delay		0.3			1.4						0.0	
Total Delay		4.4			4.9						32.4	
LOS		A			A						C	
Approach Delay		4.4			4.9						32.4	
Approach LOS		A			A						C	

Intersection Summary

Area Type: Other

Cycle Length: 83

Actuated Cycle Length: 83

Offset: 45 (54%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 7.1

Intersection LOS: A

Intersection Capacity Utilization 53.0%

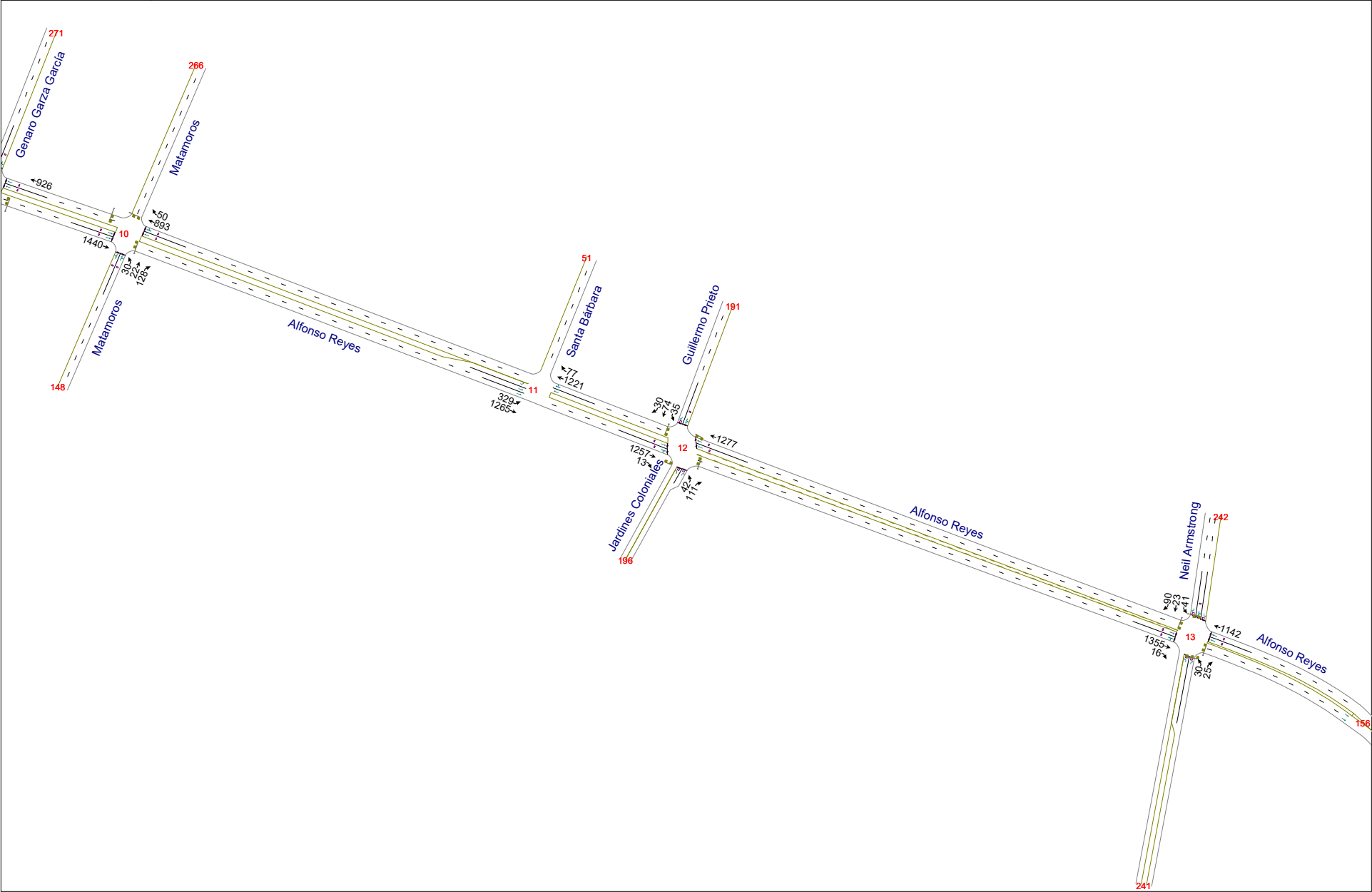
ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 9: Genaro Garza García & Alfonso Reyes



Map - Ciclovía Alfonso Reyes
Análisis de la operación actual - AM - PROYECTO



Ciclovía Alfonso Reyes
Vargas Torres y Asociados, S.A. de C.V.

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↑				
Volume (vph)	0	1440	0	0	893	50	30	22	128	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor					1.00			0.98				
Frt					0.992			0.900				
Flt Protected								0.991				
Satd. Flow (prot)	0	3570	0	0	3538	0	0	3091	0	0	0	0
Flt Permitted								0.991				
Satd. Flow (perm)	0	3570	0	0	3538	0	0	3088	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					17			42				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		91.9			294.9			112.5			123.1	
Travel Time (s)		6.6			21.2			8.1			8.9	
Confl. Peds. (#/hr)						1	4		13			
Confl. Bikes (#/hr)						10						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.75	0.78	0.75	0.61	0.84	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	3%	0%	1%	0%	0%	0%
Adj. Flow (vph)	0	1565	0	0	1191	64	40	36	152	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1565	0	0	1255	0	0	228	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			4.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2		1	2				
Detector Template		Thru			Thru		Left	Thru				
Leading Detector (m)		10.0			10.0		2.0	10.0				
Trailing Detector (m)		0.0			0.0		0.0	0.0				
Detector 1 Position(m)		0.0			0.0		0.0	0.0				
Detector 1 Size(m)		0.6			0.6		2.0	0.6				
Detector 1 Type		Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex				
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0		0.0	0.0				
Detector 1 Queue (s)		0.0			0.0		0.0	0.0				
Detector 1 Delay (s)		0.0			0.0		0.0	0.0				
Detector 2 Position(m)		9.4			9.4			9.4				
Detector 2 Size(m)		0.6			0.6			0.6				
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type		NA			NA		custom	NA				
Protected Phases		1			1		2	2				
Permitted Phases		1			1		2	2				

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1			1			2		2			
Switch Phase												
Minimum Initial (s)	4.0			4.0			4.0		4.0			
Minimum Split (s)	20.0			20.0			20.0		20.0			
Total Split (s)	45.0			45.0			20.0		20.0			
Total Split (%)	69.2%			69.2%			30.8%		30.8%			
Maximum Green (s)	42.0			42.0			17.0		17.0			
Yellow Time (s)	3.0			3.0			3.0		3.0			
All-Red Time (s)	0.0			0.0			0.0		0.0			
Lost Time Adjust (s)	0.0			0.0					0.0			
Total Lost Time (s)	3.0			3.0					3.0			
Lead/Lag	Lead			Lead			Lag		Lag			
Lead-Lag Optimize?	Yes			Yes			Yes		Yes			
Vehicle Extension (s)	3.0			3.0			3.0		3.0			
Recall Mode	C-Min			C-Min			None		None			
Act Effct Green (s)	49.7			49.7					9.3			
Actuated g/C Ratio	0.76			0.76					0.14			
v/c Ratio	0.57			0.46					0.48			
Control Delay	4.5			3.6					23.7			
Queue Delay	1.8			0.0					0.0			
Total Delay	6.3			3.6					23.7			
LOS	A			A					C			
Approach Delay	6.3			3.6					23.7			
Approach LOS	A			A					C			

Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

Offset: 20 (31%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 6.5

Intersection LOS: A

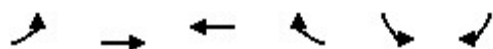
Intersection Capacity Utilization 53.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 10: Matamoros & Alfonso Reyes

					
ø1 (R)			ø2		
45 s			20 s		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	329	1265	1221	77	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.83	0.91	0.94	0.88	0.92	0.92
Hourly flow rate (vph)	396	1390	1299	88	0	0
Pedestrians					3	
Lane Width (m)					0.0	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)		295	108			
pX, platoon unblocked	0.79				0.84	0.79
vC, conflicting volume	1389				2834	696
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	955				2241	75
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	31				100	100
cM capacity (veh/h)	573				10	770
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	
Volume Total	396	695	695	866	520	
Volume Left	396	0	0	0	0	
Volume Right	0	0	0	0	88	
cSH	573	1700	1700	1700	1700	
Volume to Capacity	0.69	0.41	0.41	0.51	0.31	
Queue Length 95th (m)	43.2	0.0	0.0	0.0	0.0	
Control Delay (s)	24.2	0.0	0.0	0.0	0.0	
Lane LOS	C					
Approach Delay (s)	5.4			0.0		
Approach LOS						
Intersection Summary						
Average Delay			3.0			
Intersection Capacity Utilization			61.1%		ICU Level of Service	B
Analysis Period (min)			15			

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1257	13	0	1277	0	42	0	111	35	74	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		10.0	0.0		0.0
Storage Lanes	0		0	0		0	1		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00							0.99		1.00	
Frt		0.998							0.850			0.850
Flt Protected							0.950				0.983	
Satd. Flow (prot)	0	3564	0	0	3610	0	1770	0	1615	0	1855	1509
Flt Permitted							0.950				0.983	
Satd. Flow (perm)	0	3564	0	0	3610	0	1770	0	1594	0	1851	1509
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2										
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		107.8			364.5			85.4			100.9	
Travel Time (s)		7.8			26.2			6.1			7.3	
Confl. Peds. (#/hr)			2						3	3		
Confl. Bikes (#/hr)			8									
Peak Hour Factor	0.92	0.83	0.81	0.92	0.88	0.92	0.70	0.92	0.77	0.58	0.64	0.83
Heavy Vehicles (%)	0%	1%	7%	0%	0%	0%	2%	0%	0%	0%	1%	7%
Adj. Flow (vph)	0	1514	16	0	1451	0	60	0	144	60	116	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1530	0	0	1451	0	60	0	144	0	176	36
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.6			3.6	
Link Offset(m)		0.0			0.0			5.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2		1		1	1	2	1
Detector Template		Thru			Thru		Left		Right	Left	Thru	Right
Leading Detector (m)		10.0			10.0		2.0		2.0	2.0	10.0	2.0
Trailing Detector (m)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)		0.6			0.6		2.0		2.0	2.0	0.6	2.0
Detector 1 Type		Cl+Ex			Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4						9.4	
Detector 2 Size(m)		0.6			0.6						0.6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA			NA		Prot		custom	custom	NA	custom
Protected Phases		1			1		3		3	2	2	2
Permitted Phases		1			1		3		1 2 3	2	2	1 2 3
Detector Phase		1			1		3		3	2	2	2
Switch Phase												
Minimum Initial (s)		4.0			4.0		4.0		4.0	4.0	4.0	4.0
Minimum Split (s)		10.0			10.0		10.0		10.0	10.0	10.0	10.0
Total Split (s)		65.0			65.0		15.0		15.0	15.0	15.0	15.0
Total Split (%)		68.4%			68.4%		15.8%		15.8%	15.8%	15.8%	15.8%
Maximum Green (s)		62.0			62.0		12.0		12.0	12.0	12.0	12.0
Yellow Time (s)		3.0			3.0		3.0		3.0	3.0	3.0	3.0
All-Red Time (s)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Lost Time Adjust (s)		0.0			0.0		0.0		0.0		0.0	0.0
Total Lost Time (s)		3.0			3.0		3.0		3.0		3.0	3.0
Lead/Lag		Lead			Lead					Lag	Lag	Lag
Lead-Lag Optimize?		Yes			Yes					Yes	Yes	Yes
Vehicle Extension (s)		3.0			3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode		C-Min			C-Min		Min		Min	Min	Min	Min
Act Effct Green (s)		65.2			65.2		8.6		89.0		12.2	95.0
Actuated g/C Ratio		0.69			0.69		0.09		0.94		0.13	1.00
v/c Ratio		0.63			0.59		0.38		0.10		0.74	0.02
Control Delay		10.0			9.4		46.6		0.2		59.6	0.0
Queue Delay		0.0			0.0		0.0		0.0		0.0	0.0
Total Delay		10.0			9.4		46.6		0.2		59.6	0.0
LOS		B			A		D		A		E	A
Approach Delay		10.0			9.4						49.5	
Approach LOS		B			A						D	

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 30 (32%), Referenced to phase 1:WBEB, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 12.5

Intersection LOS: B

Intersection Capacity Utilization 58.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 12: Jardines Coloniales/Guillermo Prieto & Alfonso Reyes

																				
ø1 (R)												ø2				ø3				
65 s												15 s				15 s				

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑		↑		↑	↑	↑	↑
Volume (vph)	0	1355	16	0	1142	0	30	0	25	41	23	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.0	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	0.0		0.0	40.0		0.0	45.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor		1.00					0.99					0.99
Frt		0.998							0.850			0.850
Flt Protected							0.950			0.950	0.989	
Satd. Flow (prot)	0	3566	0	0	3610	0	1805	0	1615	1715	1785	1599
Flt Permitted							0.950			0.950	0.989	
Satd. Flow (perm)	0	3566	0	0	3610	0	1794	0	1615	1715	1785	1579
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2										
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		364.5			130.4			170.2			83.6	
Travel Time (s)		26.2			9.4			12.3			6.0	
Confl. Peds. (#/hr)			1	1			2					2
Confl. Bikes (#/hr)			5									
Peak Hour Factor	0.92	0.87	0.67	0.30	0.95	0.92	0.83	0.92	0.69	0.85	0.71	0.90
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Adj. Flow (vph)	0	1557	24	0	1202	0	36	0	36	48	32	100
Shared Lane Traffic (%)										18%		
Lane Group Flow (vph)	0	1581	0	0	1202	0	36	0	36	39	41	100
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		1.0			1.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			-7.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.00	1.00	1.00	1.09	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2		1		1	1	2	1
Detector Template		Thru			Thru		Left		Right	Left	Thru	Right
Leading Detector (m)		10.0			10.0		2.0		2.0	2.0	10.0	2.0
Trailing Detector (m)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)		0.6			0.6		2.0		2.0	2.0	0.6	2.0
Detector 1 Type		Cl+Ex			Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4						9.4	
Detector 2 Size(m)		0.6			0.6						0.6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												

Lane Group	ø1
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (m)	
Storage Length (m)	
Storage Lanes	
Taper Length (m)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (k/h)	
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	

13: Neil Armstrong & Alfonso Reyes
Análisis de la operación actual - AM - PROYECTO

05/09/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA			NA		Prot		custom	custom	NA	custom
Protected Phases		2			1 2		4		4	3	3	3
Permitted Phases		2			1 2		4		1 2 3 4	3	3	1 2 3 4
Detector Phase		2			1 2		4		4	3	3	3
Switch Phase												
Minimum Initial (s)		4.0					4.0		4.0	4.0	4.0	4.0
Minimum Split (s)		10.0					10.0		10.0	10.0	10.0	10.0
Total Split (s)		57.0					13.0		13.0	17.0	17.0	17.0
Total Split (%)		57.0%					13.0%		13.0%	17.0%	17.0%	17.0%
Maximum Green (s)		53.0					9.0		9.0	13.0	13.0	13.0
Yellow Time (s)		3.0					3.0		3.0	3.0	3.0	3.0
All-Red Time (s)		1.0					1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0					0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		4.0					4.0		4.0	4.0	4.0	4.0
Lead/Lag		Lag					Lag		Lag	Lead	Lead	Lead
Lead-Lag Optimize?		Yes					Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)		3.0					3.0		3.0	3.0	3.0	3.0
Recall Mode		C-Min					None		None	None	None	None
Act Effct Green (s)		59.0			77.3		7.5		100.0	7.8	7.8	92.8
Actuated g/C Ratio		0.59			0.77		0.08		1.00	0.08	0.08	0.93
v/c Ratio		0.75			0.43		0.27		0.02	0.29	0.29	0.07
Control Delay		20.4			6.0		47.8		0.0	48.4	48.3	0.3
Queue Delay		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Total Delay		20.4			6.0		47.8		0.0	48.4	48.3	0.3
LOS		C			A		D		A	D	D	A
Approach Delay		20.4			6.0						21.6	
Approach LOS		C			A						C	

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:WBEB, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 14.9
 Intersection Capacity Utilization 54.6%
 Analysis Period (min) 15

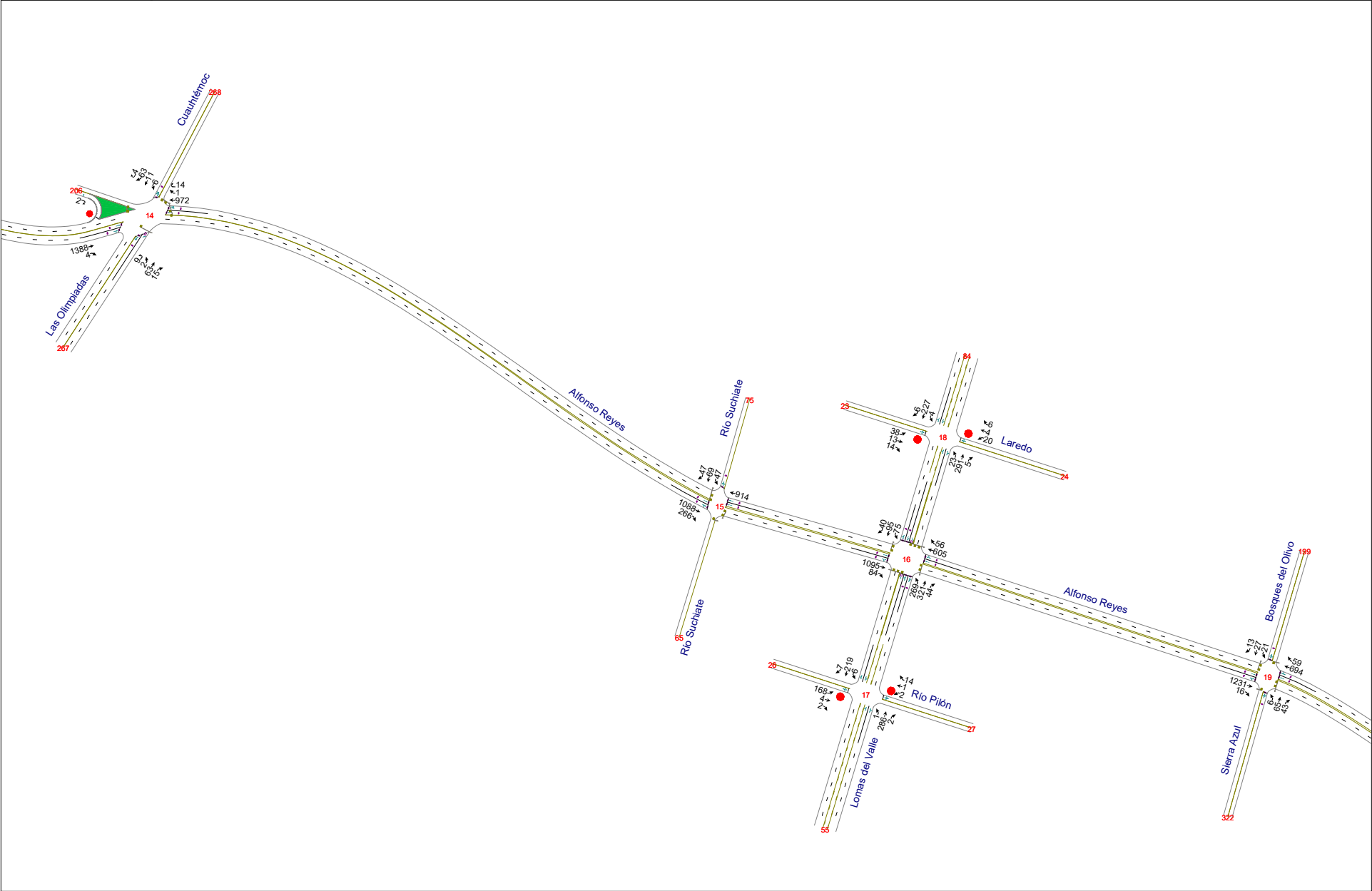
Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 13: Neil Armstrong & Alfonso Reyes



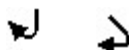
Lane Group	ø1
Detector 2 Extend (s)	
Turn Type	
Protected Phases	1
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	10.0
Total Split (s)	13.0
Total Split (%)	13%
Maximum Green (s)	9.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Map - Ciclovía Alfonso Reyes
Análisis de la operación actual - AM - PROYECTO



Ciclovía Alfonso Reyes
Vargas Torres y Asociados, S.A. de C.V.

												
Lane Group	EBT	EBR	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1388	4	972	1	14	9	2	63	15	6	11	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Storage Length (m)		30.0		0.0			0.0		0.0	0.0		0.0
Storage Lanes		0		0			0		1	0		0
Taper Length (m)							7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		1.00									
Frt	0.999		0.997						0.850		0.886	
Flt Protected								0.994			0.997	
Satd. Flow (prot)	3571	0	3562	0	0	0	0	1809	1615	0	1678	0
Flt Permitted								0.994			0.997	
Satd. Flow (perm)	3571	0	3562	0	0	0	0	1809	1615	0	1678	0
Right Turn on Red		Yes			Yes				Yes			
Satd. Flow (RTOR)	1		4						36		3	
Link Speed (k/h)	50		50					50			50	
Link Distance (m)	282.0		508.5					124.3			109.6	
Travel Time (s)	20.3		36.6					8.9			7.9	
Confl. Peds. (#/hr)						1						
Confl. Bikes (#/hr)		5			6							
Peak Hour Factor	0.92	0.50	0.87	0.25	0.70	0.75	0.50	0.54	0.63	0.75	0.94	0.61
Heavy Vehicles (%)	1%	0%	1%	0%	0%	0%	0%	5%	0%	0%	0%	0%
Adj. Flow (vph)	1509	8	1117	4	20	12	4	117	24	8	12	103
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1517	0	1141	0	0	0	0	133	24	0	131	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Right	Left	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0		0.0					0.0			0.0	
Link Offset(m)	0.0		0.0					0.0			0.0	
Crosswalk Width(m)	4.8		4.8					4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15		15	15	25	25		15	25		15
Number of Detectors	2		2			1	1	2	1	1	2	
Detector Template	Thru		Thru			Left	Left	Thru	Right	Left	Thru	
Leading Detector (m)	10.0		10.0			2.0	2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0		0.0			0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0		0.0			0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	0.6		0.6			2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	CI+Ex		CI+Ex			CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0			0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0			0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0			0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)	9.4		9.4					9.4			9.4	
Detector 2 Size(m)	0.6		0.6					0.6			0.6	
Detector 2 Type	CI+Ex		CI+Ex					CI+Ex			CI+Ex	
Detector 2 Channel												



Lane Group	SBR2	SER2
Lane Configurations		
Volume (vph)	4	2
Ideal Flow (vphpl)	1900	1900
Lane Width (m)	3.6	3.6
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor		
Frt		0.865
Flt Protected		
Satd. Flow (prot)	0	1644
Flt Permitted		
Satd. Flow (perm)	0	1644
Right Turn on Red	Yes	Yes
Satd. Flow (RTOR)		278
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor	0.50	0.50
Heavy Vehicles (%)	0%	0%
Adj. Flow (vph)	8	4
Shared Lane Traffic (%)		
Lane Group Flow (vph)	0	4
Enter Blocked Intersection	No	No
Lane Alignment	Right	Right
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor	1.00	1.00
Turning Speed (k/h)	15	15
Number of Detectors		1
Detector Template		Right
Leading Detector (m)		2.0
Trailing Detector (m)		0.0
Detector 1 Position(m)		0.0
Detector 1 Size(m)		2.0
Detector 1 Type		CI+Ex
Detector 1 Channel		
Detector 1 Extend (s)		0.0
Detector 1 Queue (s)		0.0
Detector 1 Delay (s)		0.0
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		



Lane Group	EBT	EBR	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)	0.0		0.0					0.0			0.0	
Turn Type	NA		NA			custom	custom	NA	custom	custom	NA	
Protected Phases	1		1			2	2	2	2	3	3	
Permitted Phases	1		1			2	2	2	2	3	3	
Detector Phase	1		1			2	2	2	2	3	3	
Switch Phase												
Minimum Initial (s)	4.0		4.0			4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	10.0		10.0			10.0	10.0	10.0	10.0	10.0	10.0	
Total Split (s)	60.0		60.0			15.0	15.0	15.0	15.0	15.0	15.0	
Total Split (%)	66.7%		66.7%			16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	
Maximum Green (s)	57.0		57.0			12.0	12.0	12.0	12.0	12.0	12.0	
Yellow Time (s)	3.0		3.0			3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	0.0		0.0			0.0	0.0	0.0	0.0	0.0	0.0	
Lost Time Adjust (s)	0.0		0.0					0.0	0.0		0.0	
Total Lost Time (s)	3.0		3.0					3.0	3.0		3.0	
Lead/Lag	Lead		Lead			Lag	Lag	Lag	Lag			
Lead-Lag Optimize?	Yes		Yes			Yes	Yes	Yes	Yes			
Vehicle Extension (s)	3.0		3.0			3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max		C-Max			None	None	None	None	None	None	
Act Effct Green (s)	59.7		59.7					10.6	10.6		10.7	
Actuated g/C Ratio	0.66		0.66					0.12	0.12		0.12	
v/c Ratio	0.64		0.48					0.62	0.11		0.65	
Control Delay	11.0		8.8					50.6	9.1		52.1	
Queue Delay	0.0		0.0					0.0	0.0		0.0	
Total Delay	11.0		8.8					50.6	9.1		52.1	
LOS	B		A					D	A		D	
Approach Delay	11.0		8.8					44.3			52.1	
Approach LOS	B		A					D			D	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 30 (33%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 13.7

Intersection LOS: B

Intersection Capacity Utilization 56.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 14: Las Olimpiadas/Cuauhtémoc & Alfonso Reyes





Lane Group	SBR2	SER2
Detector 2 Extend (s)		
Turn Type	Free	
Protected Phases		
Permitted Phases	Free	
Detector Phase		
Switch Phase		
Minimum Initial (s)		
Minimum Split (s)		
Total Split (s)		
Total Split (%)		
Maximum Green (s)		
Yellow Time (s)		
All-Red Time (s)		
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)		
Recall Mode		
Act Effct Green (s)	90.0	
Actuated g/C Ratio	1.00	
v/c Ratio	0.00	
Control Delay	0.0	
Queue Delay	0.0	
Total Delay	0.0	
LOS	A	
Approach Delay		
Approach LOS		
Intersection Summary		

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑						↑↓	
Volume (vph)	0	1088	266	0	914	0	0	0	0	47	69	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	25.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00										
Frt		0.970									0.958	
Flt Protected											0.984	
Satd. Flow (prot)	0	3401	0	0	3535	0	0	0	0	0	1747	0
Flt Permitted											0.984	
Satd. Flow (perm)	0	3401	0	0	3535	0	0	0	0	0	1747	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		91									31	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		508.5			152.4			108.3			86.7	
Travel Time (s)		36.6			11.0			7.8			6.2	
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.92	0.89	0.88	0.38	0.94	0.92	0.92	0.92	0.92	0.62	0.83	0.65
Heavy Vehicles (%)	0%	1%	3%	0%	1%	0%	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	0	1222	302	0	972	0	0	0	0	76	83	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1524	0	0	972	0	0	0	0	0	231	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		1.0			1.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2					1	2	
Detector Template		Thru			Thru					Left	Thru	
Leading Detector (m)		10.0			10.0					2.0	10.0	
Trailing Detector (m)		0.0			0.0					0.0	0.0	
Detector 1 Position(m)		0.0			0.0					0.0	0.0	
Detector 1 Size(m)		0.6			0.6					2.0	0.6	
Detector 1 Type		Cl+Ex			Cl+Ex					Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0					0.0	0.0	
Detector 1 Queue (s)		0.0			0.0					0.0	0.0	
Detector 1 Delay (s)		0.0			0.0					0.0	0.0	
Detector 2 Position(m)		9.4			9.4						9.4	
Detector 2 Size(m)		0.6			0.6						0.6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA			NA					custom	NA	

15: Río Suchiate & Alfonso Reyes
Análisis de la operación actual - AM - PROYECTO

28/09/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		1			1					2	2	
Permitted Phases		1			1					2	2	
Detector Phase		1			1					2	2	
Switch Phase												
Minimum Initial (s)		4.0			4.0					4.0	4.0	
Minimum Split (s)		10.0			10.0					10.0	10.0	
Total Split (s)		49.0			49.0					21.0	21.0	
Total Split (%)		70.0%			70.0%					30.0%	30.0%	
Maximum Green (s)		46.0			46.0					18.0	18.0	
Yellow Time (s)		3.0			3.0					3.0	3.0	
All-Red Time (s)		0.0			0.0					0.0	0.0	
Lost Time Adjust (s)		0.0			0.0						0.0	
Total Lost Time (s)		3.0			3.0						3.0	
Lead/Lag		Lead			Lead					Lag	Lag	
Lead-Lag Optimize?		Yes			Yes					Yes	Yes	
Vehicle Extension (s)		3.0			3.0					3.0	3.0	
Recall Mode		C-Max			C-Max					None	None	
Act Effct Green (s)		50.8			50.8						13.2	
Actuated g/C Ratio		0.73			0.73						0.19	
v/c Ratio		0.61			0.38						0.65	
Control Delay		6.3			4.6						31.0	
Queue Delay		0.0			0.0						0.0	
Total Delay		6.3			4.6						31.0	
LOS		A			A						C	
Approach Delay		6.3			4.6						31.0	
Approach LOS		A			A						C	

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 30 (43%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 40

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 7.8

Intersection LOS: A

Intersection Capacity Utilization 54.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 15: Río Suchiate & Alfonso Reyes

					
ø1 (R)			ø2		
49 s			21 s		

16: Lomas del Valle & Alfonso Reyes
Análisis de la operación actual - AM - PROYECTO

28/09/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1095	84	0	605	56	269	321	44	75	95	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	30.0		0.0	50.0		0.0	50.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.91	0.91	0.95	0.91	0.91	0.95
Ped Bike Factor		1.00			1.00							
Frt		0.988			0.986			0.984			0.958	
Flt Protected							0.950	0.989		0.950	0.995	
Satd. Flow (prot)	0	3480	0	0	3477	0	1624	3328	0	1624	3260	0
Flt Permitted							0.950	0.989		0.950	0.995	
Satd. Flow (perm)	0	3480	0	0	3477	0	1624	3328	0	1624	3260	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			16			12			41	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		152.4			298.2			111.2			99.7	
Travel Time (s)		11.0			21.5			8.0			7.2	
Confl. Peds. (#/hr)			1			3						
Confl. Bikes (#/hr)			5			4						
Peak Hour Factor	0.75	0.89	0.81	0.92	0.80	0.73	0.67	0.85	0.73	0.72	0.88	0.83
Heavy Vehicles (%)	0%	1%	4%	0%	1%	2%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1230	104	0	756	77	401	378	60	104	108	48
Shared Lane Traffic (%)							31%			16%		
Lane Group Flow (vph)	0	1334	0	0	833	0	277	562	0	87	173	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		1.0			1.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2		1	2		1	2	
Detector Template		Thru			Thru		Left	Thru		Left	Thru	
Leading Detector (m)		10.0			10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)		0.6			0.6		2.0	0.6		2.0	0.6	
Detector 1 Type		Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

16: Lomas del Valle & Alfonso Reyes
Análisis de la operación actual - AM - PROYECTO

28/09/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	NA			NA			custom		NA	custom		NA
Protected Phases	1			1			2		2	3		3
Permitted Phases	1			1			2		2	3		3
Detector Phase	1			1			2		2	3		3
Switch Phase												
Minimum Initial (s)	4.0			4.0			4.0		4.0	4.0		4.0
Minimum Split (s)	20.0			20.0			20.0		20.0	8.0		8.0
Total Split (s)	54.0			54.0			32.0		32.0	14.0		14.0
Total Split (%)	54.0%			54.0%			32.0%		32.0%	14.0%		14.0%
Maximum Green (s)	51.0			51.0			29.0		29.0	11.0		11.0
Yellow Time (s)	3.0			3.0			3.0		3.0	3.0		3.0
All-Red Time (s)	0.0			0.0			0.0		0.0	0.0		0.0
Lost Time Adjust (s)	0.0			0.0			0.0		0.0	0.0		0.0
Total Lost Time (s)	3.0			3.0			3.0		3.0	3.0		3.0
Lead/Lag	Lead			Lead			Lag		Lag			
Lead-Lag Optimize?	Yes			Yes			Yes		Yes			
Vehicle Extension (s)	3.0			3.0			3.0		3.0	3.0		3.0
Recall Mode	Min			Min			Min		Min	None		None
Act Effct Green (s)	48.1			48.1			33.0		33.0	9.9		9.9
Actuated g/C Ratio	0.48			0.48			0.33		0.33	0.10		0.10
v/c Ratio	0.79			0.50			0.52		0.51	0.54		0.48
Control Delay	25.4			18.1			33.0		29.6	55.4		36.6
Queue Delay	3.5			0.0			0.0		0.0	0.0		0.0
Total Delay	28.9			18.1			33.0		29.6	55.4		36.6
LOS	C			B			C		C	E		D
Approach Delay	28.9			18.1					30.7			42.9
Approach LOS	C			B					C			D

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 2 (2%), Referenced to phase 6:, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 27.7
Intersection LOS: C
Intersection Capacity Utilization 59.1%
ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 16: Lomas del Valle & Alfonso Reyes

 ø1	 ø2	 ø3
54 s	32 s	14 s

17: Lomas del Valle & Río Pílon
Análisis de la operación actual - AM - PROYECTO

28/09/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	168	4	2	2	1	14	1	286	2	6	219	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			5%	
Peak Hour Factor	0.85	0.50	0.50	0.50	0.25	0.58	0.25	0.92	0.50	0.50	0.81	0.58
Hourly flow rate (vph)	198	8	4	4	4	24	4	311	4	12	270	12
Pedestrians		5			21			4				
Lane Width (m)		3.5			3.5			3.5				
Walking Speed (m/s)		1.2			1.2			1.2				
Percent Blockage		0			2			0				
Right turn flare (veh)												
Median type								TWLT			TWLT	
Median storage veh								2			2	
Upstream signal (m)											111	
pX, platoon unblocked												
vC, conflicting volume	495	649	150	513	653	178	287			336		
vC1, stage 1 conf vol	305	305		342	342							
vC2, stage 2 conf vol	190	344		171	311							
vCu, unblocked vol	495	649	150	513	653	178	287			336		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	67	99	100	99	99	97	100			99		
cM capacity (veh/h)	602	535	869	586	538	826	1281			1214		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	210	32	159	159	147	147						
Volume Left	198	4	4	0	12	0						
Volume Right	4	24	0	4	0	12						
cSH	603	739	1281	1700	1214	1700						
Volume to Capacity	0.35	0.04	0.00	0.09	0.01	0.09						
Queue Length 95th (m)	12.4	1.1	0.1	0.0	0.2	0.0						
Control Delay (s)	14.1	10.1	0.2	0.0	0.7	0.0						
Lane LOS	B	B	A		A							
Approach Delay (s)	14.1	10.1	0.1		0.4							
Approach LOS	B	B										
Intersection Summary												
Average Delay			4.0									
Intersection Capacity Utilization			34.0%		ICU Level of Service					A		
Analysis Period (min)			15									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	38	13	14	20	4	6	23	291	5	4	227	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.65	0.58	0.80	0.50	0.50	0.70	0.86	0.42	0.50	0.85	0.50
Hourly flow rate (vph)	48	20	24	25	8	12	33	338	12	8	267	12
Pedestrians		1			7			3			4	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			1			0			0	
Right turn flare (veh)												
Median type								TWLT			TWLT	
Median storage veh								2			2	
Upstream signal (m)								100				
pX, platoon unblocked												
vC, conflicting volume	545	713	144	604	713	186	280			357		
vC1, stage 1 conf vol	290	290		417	417							
vC2, stage 2 conf vol	255	423		187	296							
vCu, unblocked vol	545	713	144	604	713	186	280			357		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	92	96	97	95	98	99	97			99		
cM capacity (veh/h)	579	506	881	518	504	823	1293			1206		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	92	45	202	181	142	146						
Volume Left	48	25	33	0	8	0						
Volume Right	24	12	0	12	0	12						
cSH	615	572	1293	1700	1206	1700						
Volume to Capacity	0.15	0.08	0.03	0.11	0.01	0.09						
Queue Length 95th (m)	4.2	2.0	0.6	0.0	0.2	0.0						
Control Delay (s)	11.9	11.8	1.5	0.0	0.5	0.0						
Lane LOS	B	B	A		A							
Approach Delay (s)	11.9	11.8	0.8		0.2							
Approach LOS	B	B										
Intersection Summary												
Average Delay			2.5									
Intersection Capacity Utilization			31.6%		ICU Level of Service		A					
Analysis Period (min)			15									

19: Sierra Azul/Bosques del Olivo & Alfonso Reyes
Análisis de la operación actual - AM - PROYECTO

05/09/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1231	16	0	694	59	6	65	43	21	27	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			1.00			1.00	
Frt		0.997			0.986			0.951			0.974	
Flt Protected								0.997			0.981	
Satd. Flow (prot)	0	3523	0	0	3443	0	0	1761	0	0	1790	0
Flt Permitted								0.997			0.981	
Satd. Flow (perm)	0	3523	0	0	3443	0	0	1761	0	0	1790	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			21			29			10	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		298.2			545.9			114.8			102.4	
Travel Time (s)		21.5			39.3			8.3			7.4	
Confl. Peds. (#/hr)			2			1	1					1
Confl. Bikes (#/hr)			5			5						
Peak Hour Factor	0.92	0.88	0.50	0.92	0.94	0.80	0.50	0.65	0.67	0.66	0.75	0.81
Heavy Vehicles (%)	0%	1%	0%	0%	2%	2%	0%	2%	0%	0%	0%	0%
Adj. Flow (vph)	0	1399	32	0	738	74	12	100	64	32	36	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1431	0	0	812	0	0	176	0	0	84	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		1.0			1.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2		1	2		1	2	
Detector Template		Thru			Thru		Left	Thru		Left	Thru	
Leading Detector (m)		10.0			10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)		0.6			0.6		2.0	0.6		2.0	0.6	
Detector 1 Type		Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type		NA			NA		custom	NA		custom	NA	
Protected Phases		1			1		2	2		3	3	
Permitted Phases		1			1		2	2		3	3	

19: Sierra Azul/Bosques del Olivo & Alfonso Reyes
Análisis de la operación actual - AM - PROYECTO

05/09/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase		1			1		2	2		3	3	
Switch Phase												
Minimum Initial (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)		20.0			20.0		10.0	10.0		10.0	10.0	
Total Split (s)		57.0			57.0		21.0	21.0		12.0	12.0	
Total Split (%)		63.3%			63.3%		23.3%	23.3%		13.3%	13.3%	
Maximum Green (s)		54.0			54.0		18.0	18.0		9.0	9.0	
Yellow Time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		3.0			3.0			3.0			3.0	
Lead/Lag		Lead			Lead		Lag	Lag				
Lead-Lag Optimize?		Yes			Yes		Yes	Yes				
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Recall Mode		C-Max			C-Max		Min	Min		Min	Min	
Act Effct Green (s)		59.8			59.8			12.8			8.3	
Actuated g/C Ratio		0.66			0.66			0.14			0.09	
v/c Ratio		0.61			0.35			0.64			0.48	
Control Delay		10.8			4.8			40.3			43.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		10.8			4.8			40.3			43.2	
LOS		B			A			D			D	
Approach Delay		10.8			4.8			40.3			43.2	
Approach LOS		B			A			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 45 (50%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 50

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 12.0

Intersection LOS: B

Intersection Capacity Utilization 51.3%

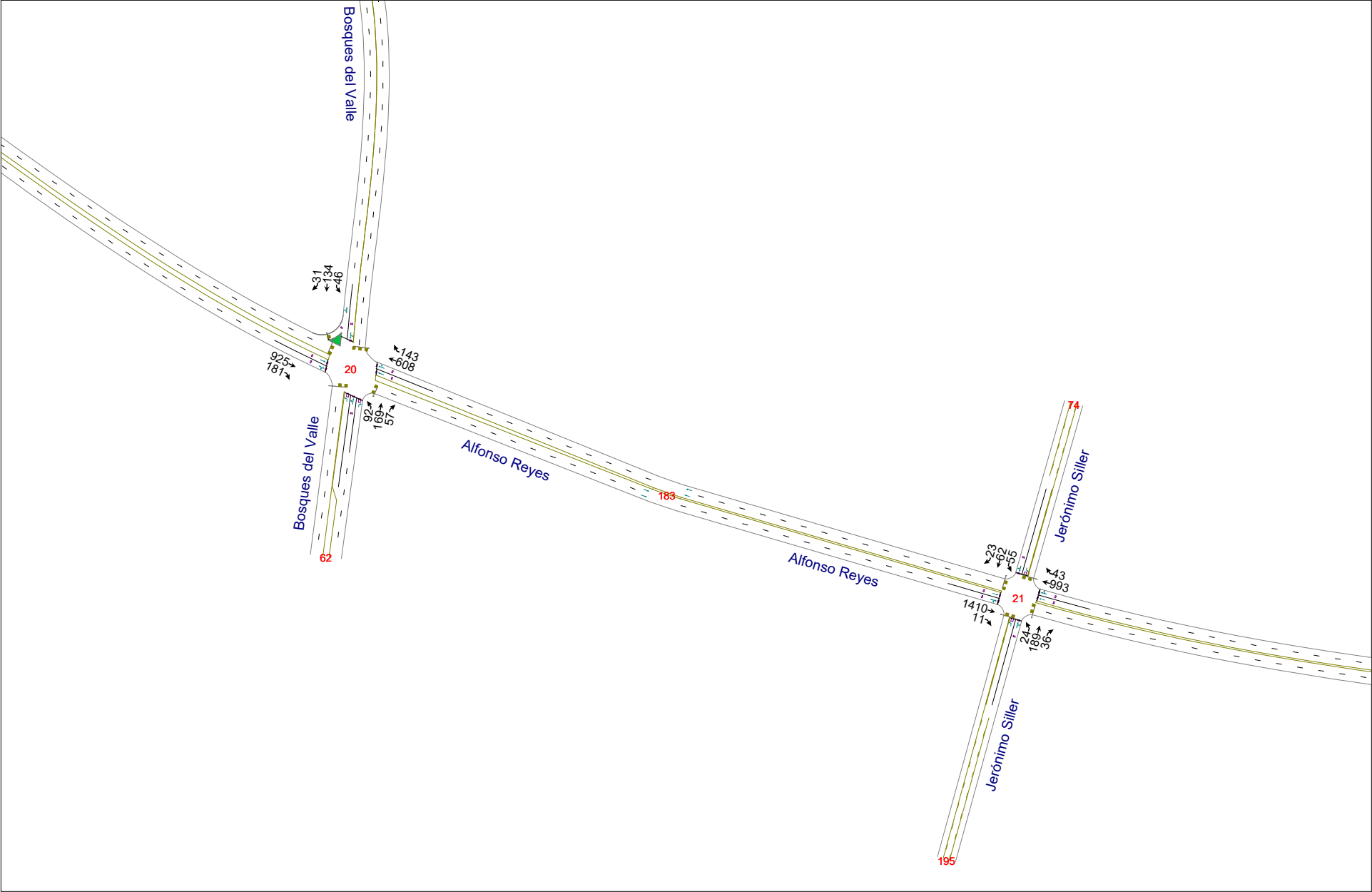
ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 19: Sierra Azul/Bosques del Olivo & Alfonso Reyes

			
ø1 (R)		ø2	ø3
57 s		21 s	12 s

Map - Ciclovía Alfonso Reyes
Análisis de la operación actual - AM - PROYECTO



20: Bosques del Valle & Alfonso Reyes
Análisis de la operación actual - AM - PROYECTO

28/09/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑		↑	↑	↑		↑↑	
Volume (vph)	0	925	181	0	608	143	92	169	57	46	134	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-5%			5%	
Storage Length (m)	0.0		0.0	60.0		0.0	50.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	0.95	0.95	0.95
Ped Bike Factor		1.00			1.00				0.99			
Frt		0.974			0.970				0.850		0.975	
Flt Protected							0.950	0.997			0.989	
Satd. Flow (prot)	0	3461	0	0	3425	0	1704	1805	1637	0	3336	0
Flt Permitted							0.950	0.997			0.989	
Satd. Flow (perm)	0	3461	0	0	3425	0	1704	1805	1614	0	3336	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		35			44				72		22	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		545.9			190.7			106.6			313.3	
Travel Time (s)		39.3			13.7			7.7			22.6	
Confl. Peds. (#/hr)			3						2			
Confl. Bikes (#/hr)			7			7						
Peak Hour Factor	0.92	0.94	0.89	0.92	0.84	0.79	0.82	0.86	0.79	0.77	0.84	0.71
Heavy Vehicles (%)	0%	0%	1%	0%	1%	0%	2%	1%	0%	0%	1%	0%
Adj. Flow (vph)	0	984	203	0	724	181	112	197	72	60	160	44
Shared Lane Traffic (%)							10%					
Lane Group Flow (vph)	0	1187	0	0	905	0	101	208	72	0	264	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.0			3.0			4.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	0.98	0.98	0.98	1.05	1.05	1.05
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2		1	2	1	1	2	
Detector Template		Thru			Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)		10.0			10.0		2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)		0.6			0.6		2.0	0.6	2.0	2.0	0.6	
Detector 1 Type		Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

20: Bosques del Valle & Alfonso Reyes
Análisis de la operación actual - AM - PROYECTO

28/09/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type		NA			NA		custom	NA	custom	custom	NA	
Protected Phases		1			1		2	2	2	3	3	
Permitted Phases		1			1		2	2	2	3	3	
Detector Phase		1			1		2	2	2	3	3	
Switch Phase												
Minimum Initial (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)		20.0			20.0		10.0	10.0	10.0	10.0	10.0	
Total Split (s)		43.0			43.0		31.0	31.0	31.0	16.0	16.0	
Total Split (%)		47.8%			47.8%		34.4%	34.4%	34.4%	17.8%	17.8%	
Maximum Green (s)		40.0			40.0		28.0	28.0	28.0	13.0	13.0	
Yellow Time (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0		0.0	
Total Lost Time (s)		3.0			3.0		3.0	3.0	3.0		3.0	
Lead/Lag		Lead			Lead		Lag	Lag	Lag			
Lead-Lag Optimize?		Yes			Yes		Yes	Yes	Yes			
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode		C-Min			C-Min		Min	Min	Min	Min	Min	
Act Effct Green (s)		53.5			53.5		15.7	15.7	15.7		11.8	
Actuated g/C Ratio		0.59			0.59		0.17	0.17	0.17		0.13	
v/c Ratio		0.57			0.44		0.34	0.66	0.21		0.58	
Control Delay		14.7			11.4		34.4	44.4	8.9		38.5	
Queue Delay		0.0			0.0		0.0	0.0	0.0		0.0	
Total Delay		14.7			11.4		34.4	44.4	8.9		38.5	
LOS		B			B		C	D	A		D	
Approach Delay		14.7			11.4			35.0			38.5	
Approach LOS		B			B			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 28 (31%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 45

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 18.8

Intersection LOS: B

Intersection Capacity Utilization 56.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 20: Bosques del Valle & Alfonso Reyes

   $\phi 1 (R)$	   $\phi 2$	   $\phi 3$
43 s	31 s	16 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑		↑	↑		↑	↑	
Volume (vph)	0	1410	11	0	993	43	24	189	36	55	62	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	60.0		0.0	50.0		0.0	50.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			1.00		1.00		
Frt		0.998			0.994			0.965			0.950	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	3493	0	0	3502	0	1653	1767	0	1785	1785	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	3493	0	0	3502	0	1653	1767	0	1778	1785	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			7			13			22	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		205.5			589.5			152.6			112.8	
Travel Time (s)		14.8			42.4			11.0			8.1	
Confl. Peds. (#/hr)	2		2	2		2			3	3		
Confl. Bikes (#/hr)			4			5						
Peak Hour Factor	0.80	0.95	0.55	0.65	0.95	1.00	0.86	0.91	0.56	0.86	0.87	0.64
Heavy Vehicles (%)	0%	2%	0%	15%	1%	7%	8%	1%	6%	0%	0%	0%
Adj. Flow (vph)	0	1484	20	0	1045	43	28	208	64	64	71	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1504	0	0	1088	0	28	272	0	64	107	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		1.0			1.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	*0.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2		1	2		1	2	
Detector Template		Thru			Thru		Left	Thru		Left	Thru	
Leading Detector (m)		10.0			10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)		0.6			0.6		2.0	0.6		2.0	0.6	
Detector 1 Type		Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Turn Type	NA			NA			custom		NA		custom		NA
Protected Phases	1			1			2		2		3		3
Permitted Phases	1			1			2		2		3		3
Detector Phase	1			1			2		2		3		3
Switch Phase													
Minimum Initial (s)	1.0			1.0			4.0		4.0		4.0		4.0
Minimum Split (s)	10.0			10.0			10.0		10.0		10.0		10.0
Total Split (s)	60.0			60.0			20.0		20.0		20.0		20.0
Total Split (%)	60.0%			60.0%			20.0%		20.0%		20.0%		20.0%
Maximum Green (s)	57.0			57.0			17.0		17.0		17.0		17.0
Yellow Time (s)	3.0			3.0			3.0		3.0		3.0		3.0
All-Red Time (s)	0.0			0.0			0.0		0.0		0.0		0.0
Lost Time Adjust (s)	0.0			0.0			0.0		0.0		0.0		0.0
Total Lost Time (s)	3.0			3.0			3.0		3.0		3.0		3.0
Lead/Lag	Lead			Lead			Lag		Lag				
Lead-Lag Optimize?	Yes			Yes			Yes		Yes				
Vehicle Extension (s)	3.0			3.0			3.0		3.0		3.0		3.0
Recall Mode	None			None			C-Max		C-Max		None		None
Act Effct Green (s)	56.4			56.4			24.5		24.5		10.1		10.1
Actuated g/C Ratio	0.56			0.56			0.24		0.24		0.10		0.10
v/c Ratio	0.76			0.55			0.07		0.62		0.35		0.54
Control Delay	19.4			14.6			34.2		42.0		46.0		42.8
Queue Delay	0.0			0.0			0.0		0.0		0.0		0.0
Total Delay	19.4			14.6			34.2		42.0		46.0		42.8
LOS	B			B			C		D		D		D
Approach Delay	19.4			14.6					41.3				44.0
Approach LOS	B			B					D				D

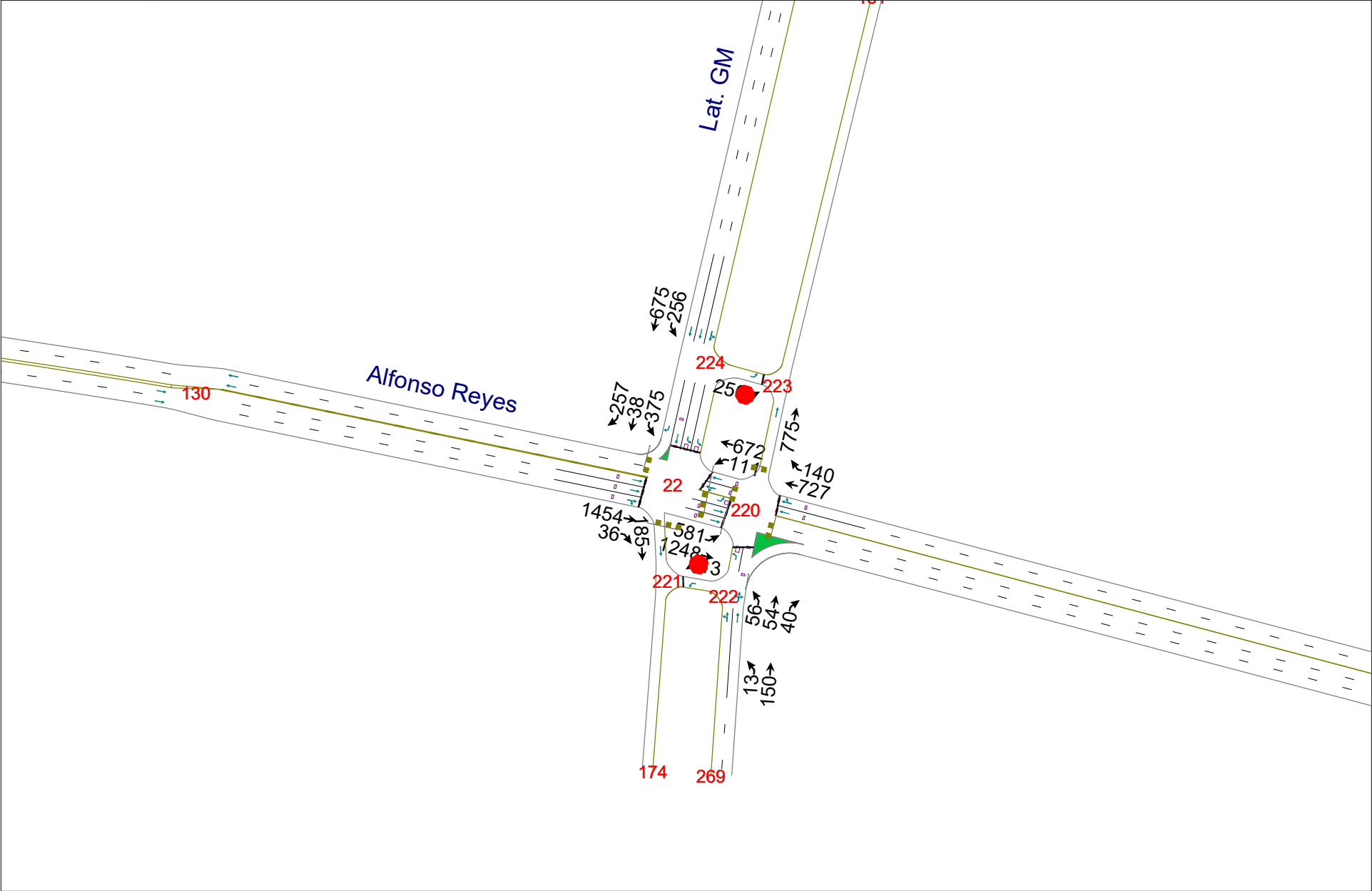
Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 25 (25%), Referenced to phase 2:NBTL and 6:, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 21.2
 Intersection LOS: C
 Intersection Capacity Utilization 64.8%
 ICU Level of Service C
 Analysis Period (min) 15
 * User Entered Value

Splits and Phases: 21: Jerónimo Siller & Alfonso Reyes



Map - Ciclovía Alfonso Reyes
Análisis de la operación actual - AM - PROYECTO



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑					↑↑	↑	↑
Volume (vph)	0	1454	36	111	672	0	0	0	0	375	38	257
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Ped Bike Factor		1.00			1.00					0.95		0.98
Frt		0.996										0.850
Flt Protected					0.993					0.950		
Satd. Flow (prot)	0	4981	0	0	3500	0	0	0	0	3395	1457	1536
Flt Permitted					0.993					0.950		
Satd. Flow (perm)	0	4981	0	0	3500	0	0	0	0	3233	1457	1507
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4										
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		163.4			26.0			32.5			43.2	
Travel Time (s)		11.8			1.9			2.3			3.1	
Confl. Peds. (#/hr)			9	9						28		21
Confl. Bikes (#/hr)			8									
Peak Hour Factor	0.92	0.90	0.75	0.93	0.90	0.92	0.92	0.92	0.92	0.89	0.79	0.79
Heavy Vehicles (%)	0%	2%	17%	3%	1%	0%	0%	0%	0%	2%	29%	4%
Adj. Flow (vph)	0	1616	48	119	747	0	0	0	0	421	48	325
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1664	0	0	866	0	0	0	0	421	48	325
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			-3.5	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2		1	2					1	2	1
Detector Template		Thru		Left	Thru					Left	Thru	Right
Leading Detector (m)		10.0		2.0	10.0					2.0	10.0	2.0
Trailing Detector (m)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Position(m)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Size(m)		0.6		2.0	0.6					2.0	0.6	2.0
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4						9.4	
Detector 2 Size(m)		0.6			0.6						0.6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA		custom	NA					custom	NA	custom
Protected Phases		3		1 4	1 4					2	2	2
Permitted Phases		3		1 4	1 4					2	2 1 2 3 4	

Lane Group	ø1	ø4
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	1	4
Permitted Phases		

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase		3		1 4	1 4					2	2	2
Switch Phase												
Minimum Initial (s)		4.0								4.0	4.0	4.0
Minimum Split (s)		10.0								10.0	10.0	10.0
Total Split (s)		40.0								23.0	23.0	23.0
Total Split (%)		37.0%								21.3%	21.3%	21.3%
Maximum Green (s)		36.0								19.0	19.0	19.0
Yellow Time (s)		3.0								3.0	3.0	3.0
All-Red Time (s)		1.0								1.0	1.0	1.0
Lost Time Adjust (s)		0.0								0.0	0.0	0.0
Total Lost Time (s)		4.0								4.0	4.0	4.0
Lead/Lag		Lead								Lag	Lag	Lag
Lead-Lag Optimize?		Yes								Yes	Yes	Yes
Vehicle Extension (s)		3.0								3.0	3.0	3.0
Recall Mode		Min								Min	Min	Min
Act Effct Green (s)		36.0			41.0					19.0	19.0	100.0
Actuated g/C Ratio		0.33			0.38					0.18	0.18	0.93
v/c Ratio		1.00			0.65					0.71	0.19	0.23
Control Delay		58.6			5.4					49.1	40.2	0.6
Queue Delay		22.5			0.0					0.0	0.0	0.0
Total Delay		81.2			5.4					49.1	40.2	0.6
LOS		F			A					D	D	A
Approach Delay		81.2			5.4						28.7	
Approach LOS		F			A						C	

Intersection Summary

Area Type: Other

Cycle Length: 108

Actuated Cycle Length: 108

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 48.9

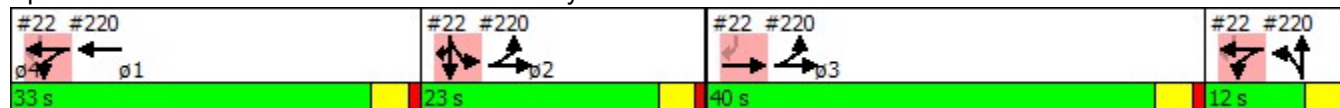
Intersection LOS: D

Intersection Capacity Utilization 71.4%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 22: Lat. GM & Alfonso Reyes



Lane Group	ø1	ø4
Detector Phase		
Switch Phase		
Minimum Initial (s)	4.0	4.0
Minimum Split (s)	10.0	10.0
Total Split (s)	33.0	12.0
Total Split (%)	31%	11%
Maximum Green (s)	29.0	8.0
Yellow Time (s)	3.0	3.0
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	581	1248	0	0	727	140	56	54	40	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				0.99		0.91	0.95				
Frt					0.976			0.941				
Flt Protected	0.950						0.950	0.998				
Satd. Flow (prot)	1750	3500	0	0	3427	0	1696	1595	0	0	0	0
Flt Permitted	0.950						0.950	0.998				
Satd. Flow (perm)	1747	3500	0	0	3427	0	1551	1588	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					20			23				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		26.0			221.6			29.9			43.1	
Travel Time (s)		1.9			16.0			2.2			3.1	
Confl. Peds. (#/hr)	7					7	21		28			
Confl. Bikes (#/hr)						7						
Peak Hour Factor	0.87	0.95	0.92	0.92	0.90	0.92	0.93	0.79	0.83	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	668	1314	0	0	808	152	60	68	48	0	0	0
Shared Lane Traffic (%)							10%					
Lane Group Flow (vph)	668	1314	0	0	960	0	54	122	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2			2		1	2				
Detector Template	Left	Thru			Thru		Left	Thru				
Leading Detector (m)	2.0	10.0			10.0		2.0	10.0				
Trailing Detector (m)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Position(m)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Size(m)	2.0	0.6			0.6		2.0	0.6				
Detector 1 Type	CI+Ex	CI+Ex			CI+Ex		CI+Ex	CI+Ex				
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				
Detector 2 Position(m)		9.4			9.4			9.4				
Detector 2 Size(m)		0.6			0.6			0.6				
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	custom	NA			NA		custom	NA				
Protected Phases	2 3	2 3			1		4	4				
Permitted Phases	2 3	2 3			1		4	4				

Lane Group	ø2	ø3
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	2	3
Permitted Phases		

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2 3	2 3			1		4	4				
Switch Phase												
Minimum Initial (s)					4.0		4.0	4.0				
Minimum Split (s)					10.0		10.0	10.0				
Total Split (s)					33.0		12.0	12.0				
Total Split (%)					30.6%		11.1%	11.1%				
Maximum Green (s)					29.0		8.0	8.0				
Yellow Time (s)					3.0		3.0	3.0				
All-Red Time (s)					1.0		1.0	1.0				
Lost Time Adjust (s)					0.0		0.0	0.0				
Total Lost Time (s)					4.0		4.0	4.0				
Lead/Lag					Lead		Lag	Lag				
Lead-Lag Optimize?					Yes		Yes	Yes				
Vehicle Extension (s)					3.0		3.0	3.0				
Recall Mode					None		None	None				
Act Effct Green (s)	59.0	59.0			29.0		8.0	8.0				
Actuated g/C Ratio	0.55	0.55			0.27		0.07	0.07				
v/c Ratio	0.70	0.69			1.03		0.43	0.88				
Control Delay	14.1	2.2			75.4		59.1	90.6				
Queue Delay	0.0	0.0			6.1		0.1	0.0				
Total Delay	14.1	2.2			81.5		59.2	90.6				
LOS	B	A			F		E	F				
Approach Delay		6.2			81.5			81.0				
Approach LOS		A			F			F				

Intersection Summary

Area Type: Other
Cycle Length: 108
Actuated Cycle Length: 108
Natural Cycle: 90
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 33.6
Intersection LOS: C
Intersection Capacity Utilization 71.7%
ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 220: Lat. GM & Alfonso Reyes

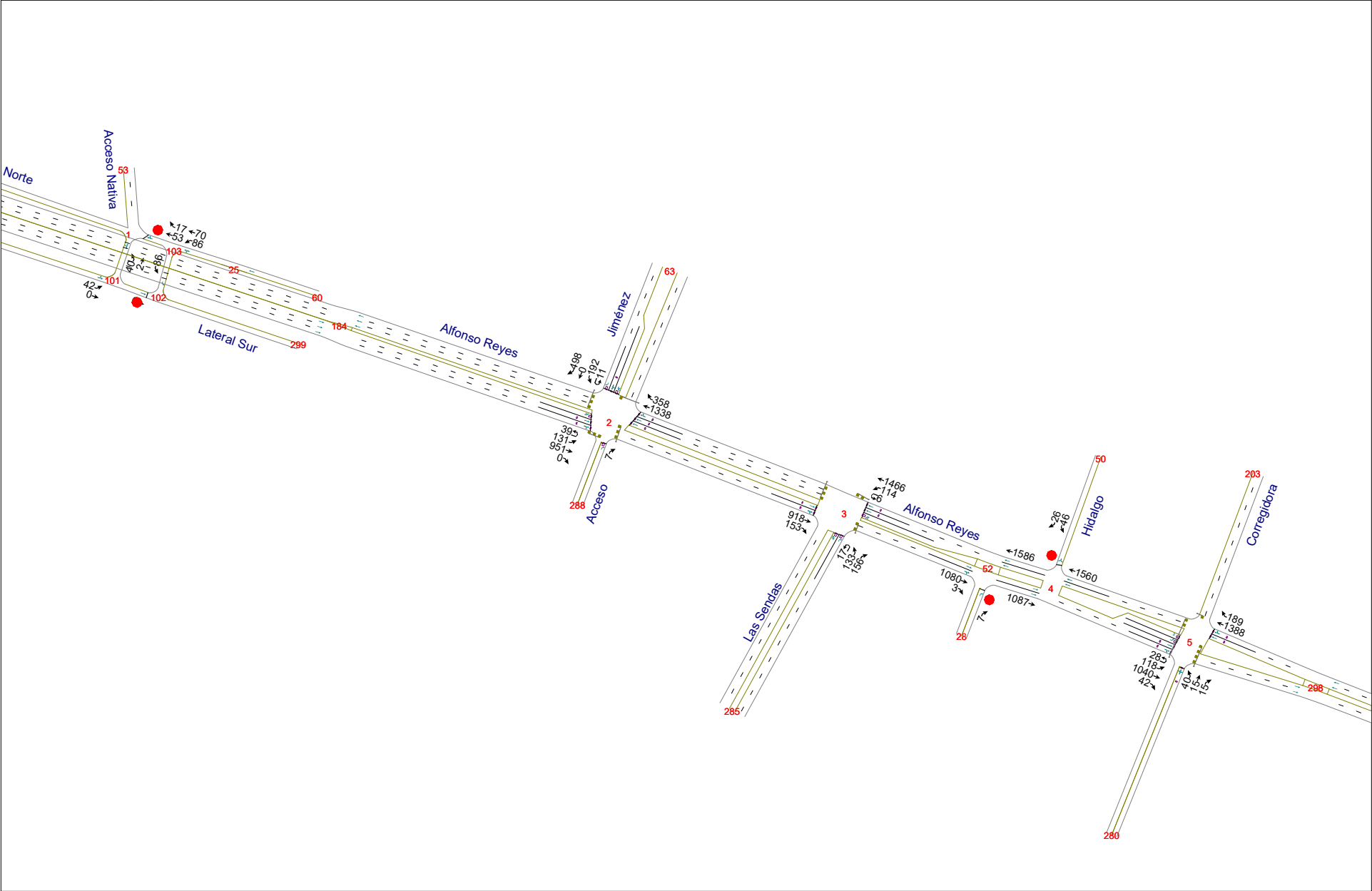


Lane Group	ø2	ø3
Detector Phase		
Switch Phase		
Minimum Initial (s)	4.0	4.0
Minimum Split (s)	10.0	10.0
Total Split (s)	23.0	40.0
Total Split (%)	21%	37%
Maximum Green (s)	19.0	36.0
Yellow Time (s)	3.0	3.0
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

Zone 22 Totals

Number of Intersections	2
Control Delay / Veh (s/v)	35
Queue Delay / Veh (s/v)	7
Total Delay / Veh (s/v)	41
Total Delay (hr)	66
Stops / Veh	0.49
Stops (#)	2820
Average Speed (km/hr)	15
Total Travel Time (hr)	95
Distance Traveled (km)	1415
Fuel Consumed (l)	381
Fuel Economy (km/l)	3.7
CO Emissions (kg)	7.09
NOx Emissions (kg)	1.37
VOC Emissions (kg)	1.64
Unserved Vehicles (#)	23
Vehicles in dilemma zone (#)	0
Performance Index	74.2

Map - Ciclovía Alfonso Reyes
Análisis de la operación actual - PM - PROYECTO

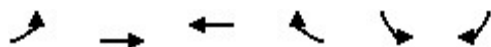


Ciclovía Alfonso Reyes
Vargas Torres y Asociados, S.A. de C.V.

1: Retorno Pte/Acceso Nativa & Lateral Norte
Análisis de la operación actual - PM - PROYECTO

05/09/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	53	17	40	2	0	0	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.78	0.47	0.87	0.50	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	68	36	46	4	0	0	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	166	96	0	96	96	4	0			4		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	166	96	0	96	96	4	0			4		
tC, single (s)	7.1	6.5	6.2	7.1	6.7	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.2	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	91	97	97			100		
cM capacity (veh/h)	706	775	1091	872	733	1085	1636			1631		
Direction, Lane #	WB 1	NB 1										
Volume Total	104	50										
Volume Left	0	46										
Volume Right	36	0										
cSH	826	1636										
Volume to Capacity	0.13	0.03										
Queue Length 95th (m)	3.4	0.7										
Control Delay (s)	10.0	6.7										
Lane LOS	A	A										
Approach Delay (s)	10.0	6.7										
Approach LOS	A											
Intersection Summary												
Average Delay		8.9										
Intersection Capacity Utilization		13.8%				ICU Level of Service			A			
Analysis Period (min)		15										

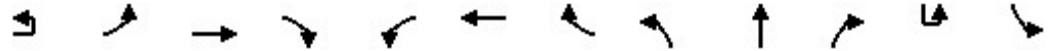


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑			↘	
Volume (veh/h)	0	0	0	0	86	0
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.60	0.92	0.92	0.89	0.92
Hourly flow rate (vph)	0	0	0	0	97	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	193	193	193	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	193	193	193	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	100	100	100	100	94	
cM capacity (veh/h)	736	664	664	1091	1636	
Direction, Lane #	EB 1	SB 1				
Volume Total	0	97				
Volume Left	0	97				
Volume Right	0	0				
cSH	1700	1636				
Volume to Capacity	0.00	0.06				
Queue Length 95th (m)	0.0	1.5				
Control Delay (s)	0.0	7.3				
Lane LOS	A	A				
Approach Delay (s)	0.0	7.3				
Approach LOS	A					
Intersection Summary						
Average Delay		7.3				
Intersection Capacity Utilization		18.4%		ICU Level of Service		A
Analysis Period (min)		15				

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	39	131	951	0	0	1338	358	0	0	7	11	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0		0.0	0.0		0.0	0.0		0.0		45.0
Storage Lanes		1		0	0		0	0		1		1
Taper Length (m)		7.5			7.5			7.5				7.5
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00	0.91	0.91	1.00	1.00	1.00	1.00	0.95
Ped Bike Factor		0.99				0.99				0.98		0.89
Frt						0.967				0.865		
Flt Protected		0.950										0.950
Satd. Flow (prot)	0	1785	3535	0	0	4880	0	0	0	1625	0	1575
Flt Permitted		0.950										0.950
Satd. Flow (perm)	0	1775	3535	0	0	4880	0	0	0	1585	0	1403
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)						107				336		
Link Speed (k/h)			50			50			50			
Link Distance (m)			182.0			160.4			56.3			
Travel Time (s)			13.1			11.5			4.1			
Confl. Peds. (#/hr)	20	19		16			19			43	19	43
Confl. Bikes (#/hr)				40			43					
Peak Hour Factor	0.75	0.88	0.90	0.37	0.92	0.93	0.89	0.92	0.92	0.41	0.69	0.96
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	1%	0%	0%	0%	0%	9%
Adj. Flow (vph)	52	149	1057	0	0	1439	402	0	0	17	16	200
Shared Lane Traffic (%)												54%
Lane Group Flow (vph)	0	201	1057	0	0	1841	0	0	0	17	0	108
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	R NA	Left
Median Width(m)			6.0			4.0			0.0			
Link Offset(m)			0.0			0.0			0.0			
Crosswalk Width(m)			4.8			4.8			4.8			
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	15	25		15	25		15	25		15	15	25
Turn Type	custom	custom	NA			NA				Free	custom	custom
Protected Phases	1	1	2			2					3	3
Permitted Phases	1	1	2			2				Free	3	3
Minimum Split (s)	15.0	15.0	20.0			20.0					15.0	15.0
Total Split (s)	24.0	24.0	56.0			56.0					20.0	20.0
Total Split (%)	24.0%	24.0%	56.0%			56.0%					20.0%	20.0%
Maximum Green (s)	21.0	21.0	53.0			53.0					17.0	17.0
Yellow Time (s)	3.0	3.0	3.0			3.0					3.0	3.0
All-Red Time (s)	0.0	0.0	0.0			0.0					0.0	0.0
Lost Time Adjust (s)		0.0	0.0			0.0						0.0
Total Lost Time (s)		3.0	3.0			3.0						3.0
Lead/Lag	Lead	Lead	Lag			Lag						
Lead-Lag Optimize?	Yes	Yes	Yes			Yes						
Walk Time (s)			5.0			5.0						
Flash Dont Walk (s)			11.0			11.0						
Pedestrian Calls (#/hr)			0			0						



Lane Group	SBT	SBR
Lane Configurations	↕	↗
Volume (vph)	0	498
Ideal Flow (vphpl)	1900	1900
Storage Length (m)		0.0
Storage Lanes		1
Taper Length (m)		
Lane Util. Factor	0.95	1.00
Ped Bike Factor	0.92	0.98
Frt		0.850
Flt Protected	0.950	
Satd. Flow (prot)	1556	1551
Flt Permitted	0.950	
Satd. Flow (perm)	1438	1522
Right Turn on Red		Yes
Satd. Flow (RTOR)		
Link Speed (k/h)	50	
Link Distance (m)	103.5	
Travel Time (s)	7.5	
Confl. Peds. (#/hr)		20
Confl. Bikes (#/hr)		
Peak Hour Factor	0.54	0.91
Heavy Vehicles (%)	0%	3%
Adj. Flow (vph)	0	547
Shared Lane Traffic (%)		
Lane Group Flow (vph)	108	547
Enter Blocked Intersection	No	No
Lane Alignment	Left	Right
Median Width(m)	8.0	
Link Offset(m)	0.0	
Crosswalk Width(m)	4.8	
Two way Left Turn Lane		
Headway Factor	1.01	1.01
Turning Speed (k/h)		15
Turn Type	NA	custom
Protected Phases	3	3
Permitted Phases	3	1 2 3
Minimum Split (s)	15.0	15.0
Total Split (s)	20.0	20.0
Total Split (%)	20.0%	20.0%
Maximum Green (s)	17.0	17.0
Yellow Time (s)	3.0	3.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	3.0	3.0
Lead/Lag		
Lead-Lag Optimize?		
Walk Time (s)		
Flash Dont Walk (s)		
Pedestrian Calls (#/hr)		



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Act Effct Green (s)		21.0	53.0			53.0				100.0		17.0
Actuated g/C Ratio		0.21	0.53			0.53				1.00		0.17
v/c Ratio		0.54	0.56			0.70				0.01		0.40
Control Delay		41.3	17.2			18.1				0.0		42.2
Queue Delay		0.0	0.0			0.8				0.0		0.0
Total Delay		41.3	17.2			19.0				0.0		42.2
LOS		D	B			B				A		D
Approach Delay			21.1			19.0						
Approach LOS			C			B						

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green

Natural Cycle: 60

Control Type: Pretimed

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 18.3

Intersection LOS: B

Intersection Capacity Utilization 86.4%

ICU Level of Service E

Analysis Period (min) 15

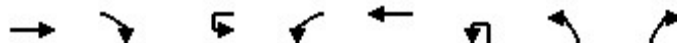
Splits and Phases: 2: Acceso/Jiménez & Alfonso Reyes





Lane Group	SBT	SBR
Act Effct Green (s)	17.0	94.0
Actuated g/C Ratio	0.17	0.94
v/c Ratio	0.41	0.38
Control Delay	42.4	0.9
Queue Delay	0.0	0.0
Total Delay	42.4	0.9
LOS	D	A
Approach Delay	12.6	
Approach LOS	B	
Intersection Summary		

	→	↘	↶	↙	←	↗	↘	↖
Lane Group	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑			↘	↑↑		↘	↖
Volume (vph)	918	153	6	114	1466	17	133	156
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0		50.0			0.0	0.0
Storage Lanes		0		1			1	1
Taper Length (m)				30.0			7.5	
Lane Util. Factor	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00
Ped Bike Factor	1.00			1.00				0.99
Frt	0.979							0.850
Flt Protected				0.950			0.950	
Satd. Flow (prot)	3421	0	0	1785	3570	0	1659	1536
Flt Permitted				0.950			0.950	
Satd. Flow (perm)	3421	0	0	1784	3570	0	1659	1515
Right Turn on Red		Yes						Yes
Satd. Flow (RTOR)	28							220
Link Speed (k/h)	50				50		50	
Link Distance (m)	160.4				97.5		144.1	
Travel Time (s)	11.5				7.0		10.4	
Confl. Peds. (#/hr)		1	1	1				1
Confl. Bikes (#/hr)		42						
Peak Hour Factor	0.81	0.85	0.50	0.86	0.83	0.61	0.90	0.71
Heavy Vehicles (%)	1%	6%	0%	0%	0%	0%	9%	4%
Adj. Flow (vph)	1133	180	12	133	1766	28	148	220
Shared Lane Traffic (%)								
Lane Group Flow (vph)	1313	0	0	145	1766	0	176	220
Enter Blocked Intersection	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	R NA	Left	Left	R NA	Left	Right
Median Width(m)	4.0				5.5		7.5	
Link Offset(m)	0.0				2.0		0.0	
Crosswalk Width(m)	4.8				4.8		4.8	
Two way Left Turn Lane								
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	15	25		15	25	15
Number of Detectors	2		1	1	2	1	1	1
Detector Template	Thru		Left	Left	Thru	Left	Left	Right
Leading Detector (m)	10.0		2.0	2.0	10.0	2.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	2.0	0.6	2.0	2.0	2.0
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel								
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4				9.4			
Detector 2 Size(m)	0.6				0.6			
Detector 2 Type	CI+Ex				CI+Ex			
Detector 2 Channel								
Detector 2 Extend (s)	0.0				0.0			



Lane Group	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Turn Type	NA		custom	custom	NA	Prot	Prot	Prot
Protected Phases	1		2	2	1	3	3	3
Permitted Phases	1		2	2	1	3	3	3
Detector Phase	1		2	2	1	3	3	3
Switch Phase								
Minimum Initial (s)	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0		20.0	20.0	20.0	10.0	10.0	10.0
Total Split (s)	42.0		20.0	20.0	42.0	23.0	23.0	23.0
Total Split (%)	49.4%		23.5%	23.5%	49.4%	27.1%	27.1%	27.1%
Maximum Green (s)	39.0		17.0	17.0	39.0	20.0	20.0	20.0
Yellow Time (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	3.0			3.0	3.0		3.0	3.0
Lead/Lag	Lead		Lag	Lag	Lead			
Lead-Lag Optimize?	Yes		Yes	Yes	Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Min		None	None	C-Min	None	None	None
Walk Time (s)	5.0		5.0	5.0	5.0			
Flash Dont Walk (s)	11.0		11.0	11.0	11.0			
Pedestrian Calls (#/hr)	0		0	0	0			
Act Effct Green (s)	49.6			12.1	49.6		14.2	14.2
Actuated g/C Ratio	0.58			0.14	0.58		0.17	0.17
v/c Ratio	0.65			0.57	0.85		0.64	0.50
Control Delay	15.2			41.6	14.9		42.8	8.5
Queue Delay	0.4			0.0	0.0		0.0	0.0
Total Delay	15.6			41.6	14.9		42.8	8.5
LOS	B			D	B		D	A
Approach Delay	15.6				17.0		23.7	
Approach LOS	B				B		C	

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 85

Offset: 35 (41%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 17.2

Intersection LOS: B

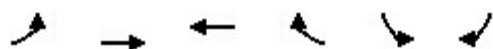
Intersection Capacity Utilization 56.7%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: Las Sendas & Alfonso Reyes

 01 (R)	 02	 03
42 s	20 s	23 s



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Volume (veh/h)	0	1087	1560	0	46	26
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.86	0.82	0.92	0.92	0.69
Hourly flow rate (vph)	0	1264	1902	0	50	38
Pedestrians		15				
Lane Width (m)		3.5				
Walking Speed (m/s)		1.2				
Percent Blockage		1				
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)		140	94			
pX, platoon unblocked	0.69				0.80	0.69
vC, conflicting volume	1902				2534	966
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1406				1132	47
tC, single (s)	4.1				6.8	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				69	94
cM capacity (veh/h)	339				161	684
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	632	632	951	951	88	
Volume Left	0	0	0	0	50	
Volume Right	0	0	0	0	38	
cSH	1700	1700	1700	1700	239	
Volume to Capacity	0.37	0.37	0.56	0.56	0.37	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	12.8	
Control Delay (s)	0.0	0.0	0.0	0.0	28.5	
Lane LOS					D	
Approach Delay (s)	0.0		0.0		28.5	
Approach LOS					D	
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			57.9%		ICU Level of Service	B
Analysis Period (min)			15			

5: Alfonso Reyes & Corregidora
Análisis de la operación actual - PM - PROYECTO

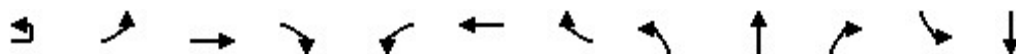
05/09/2021

												
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	28	118	1040	42	0	1388	189	40	15	15	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		35.0		0.0	0.0		0.0	0.0		0.0	0.0	
Storage Lanes		2		0	0		0	0		0	0	
Taper Length (m)		7.5			7.5			7.5			7.5	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00	1.00			1.00			0.99			
Frt			0.992			0.982			0.970			
Flt Protected	0.950	0.950							0.978			
Satd. Flow (prot)	1716	1342	3499	0	0	3480	0	0	1775	0	0	0
Flt Permitted	0.950	0.950							0.978			
Satd. Flow (perm)	1716	1342	3499	0	0	3480	0	0	1771	0	0	0
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)			12			31			14			
Link Speed (k/h)			50			50			50			50
Link Distance (m)			94.4			85.3			132.7			114.2
Travel Time (s)			6.8			6.1			9.6			8.2
Confl. Peds. (#/hr)	2	2		1			2	2		2		
Confl. Bikes (#/hr)				42			43					
Peak Hour Factor	0.70	0.89	0.95	0.66	0.92	0.96	0.95	0.83	0.42	0.63	0.92	0.92
Heavy Vehicles (%)	4%	33%	1%	0%	0%	0%	3%	0%	0%	0%	0%	0%
Adj. Flow (vph)	40	133	1095	64	0	1446	199	48	36	24	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	133	1159	0	0	1645	0	0	108	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(m)			12.0			12.0			0.0			0.0
Link Offset(m)			0.0			0.0			0.0			0.0
Crosswalk Width(m)			4.8			4.8			4.8			4.8
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	15	25		15	25		15	25		15	25	
Number of Detectors	1	1	2			2		1	2			
Detector Template	Left	Left	Thru			Thru		Left	Thru			
Leading Detector (m)	2.0	2.0	10.0			10.0		2.0	10.0			
Trailing Detector (m)	0.0	0.0	0.0			0.0		0.0	0.0			
Detector 1 Position(m)	0.0	0.0	0.0			0.0		0.0	0.0			
Detector 1 Size(m)	2.0	2.0	0.6			0.6		2.0	0.6			
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex			CI+Ex		CI+Ex	CI+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0			0.0		0.0	0.0			
Detector 1 Queue (s)	0.0	0.0	0.0			0.0		0.0	0.0			
Detector 1 Delay (s)	0.0	0.0	0.0			0.0		0.0	0.0			
Detector 2 Position(m)			9.4			9.4			9.4			
Detector 2 Size(m)			0.6			0.6			0.6			
Detector 2 Type			CI+Ex			CI+Ex			CI+Ex			
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			

Lane Group	SBR
Lane Configurations	
Volume (vph)	0
Ideal Flow (vphpl)	1900
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	0.92
Heavy Vehicles (%)	0%
Adj. Flow (vph)	0
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	1.01
Turning Speed (k/h)	15
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	

5: Alfonso Reyes & Corregidora
Análisis de la operación actual - PM - PROYECTO

05/09/2021



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Turn Type	custom	custom	NA			NA		custom	NA			
Protected Phases	2	2	1			1		3	3			
Permitted Phases	2	2	1			1		3	3			
Detector Phase	2	2	1			1		3	3			
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0			4.0		4.0	4.0			
Minimum Split (s)	20.0	20.0	20.0			20.0		10.0	10.0			
Total Split (s)	20.0	20.0	53.0			53.0		12.0	12.0			
Total Split (%)	23.5%	23.5%	62.4%			62.4%		14.1%	14.1%			
Maximum Green (s)	17.0	17.0	50.0			50.0		9.0	9.0			
Yellow Time (s)	3.0	3.0	3.0			3.0		3.0	3.0			
All-Red Time (s)	0.0	0.0	0.0			0.0		0.0	0.0			
Lost Time Adjust (s)	0.0	0.0	0.0			0.0			0.0			
Total Lost Time (s)	3.0	3.0	3.0			3.0			3.0			
Lead/Lag	Lag	Lag	Lead			Lead						
Lead-Lag Optimize?	Yes	Yes	Yes			Yes						
Vehicle Extension (s)	3.0	3.0	3.0			3.0		3.0	3.0			
Recall Mode	None	None	C-Min			C-Min		None	None			
Walk Time (s)	5.0	5.0	5.0			5.0						
Flash Dont Walk (s)	11.0	11.0	11.0			11.0						
Pedestrian Calls (#/hr)	0	0	0			0						
Act Effct Green (s)	13.1	13.1	56.1			56.1			8.6			
Actuated g/C Ratio	0.15	0.15	0.66			0.66			0.10			
v/c Ratio	0.15	0.65	0.50			0.71			0.57			
Control Delay	22.1	36.8	13.2			13.0			43.3			
Queue Delay	0.0	0.0	0.0			0.8			0.0			
Total Delay	22.1	36.8	13.2			13.8			43.3			
LOS	C	D	B			B			D			
Approach Delay			15.8			13.8			43.3			
Approach LOS			B			B			D			

Intersection Summary

Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 85
Offset: 10 (12%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 15.7
Intersection Capacity Utilization 64.9%
Analysis Period (min) 15

Intersection LOS: B
ICU Level of Service C

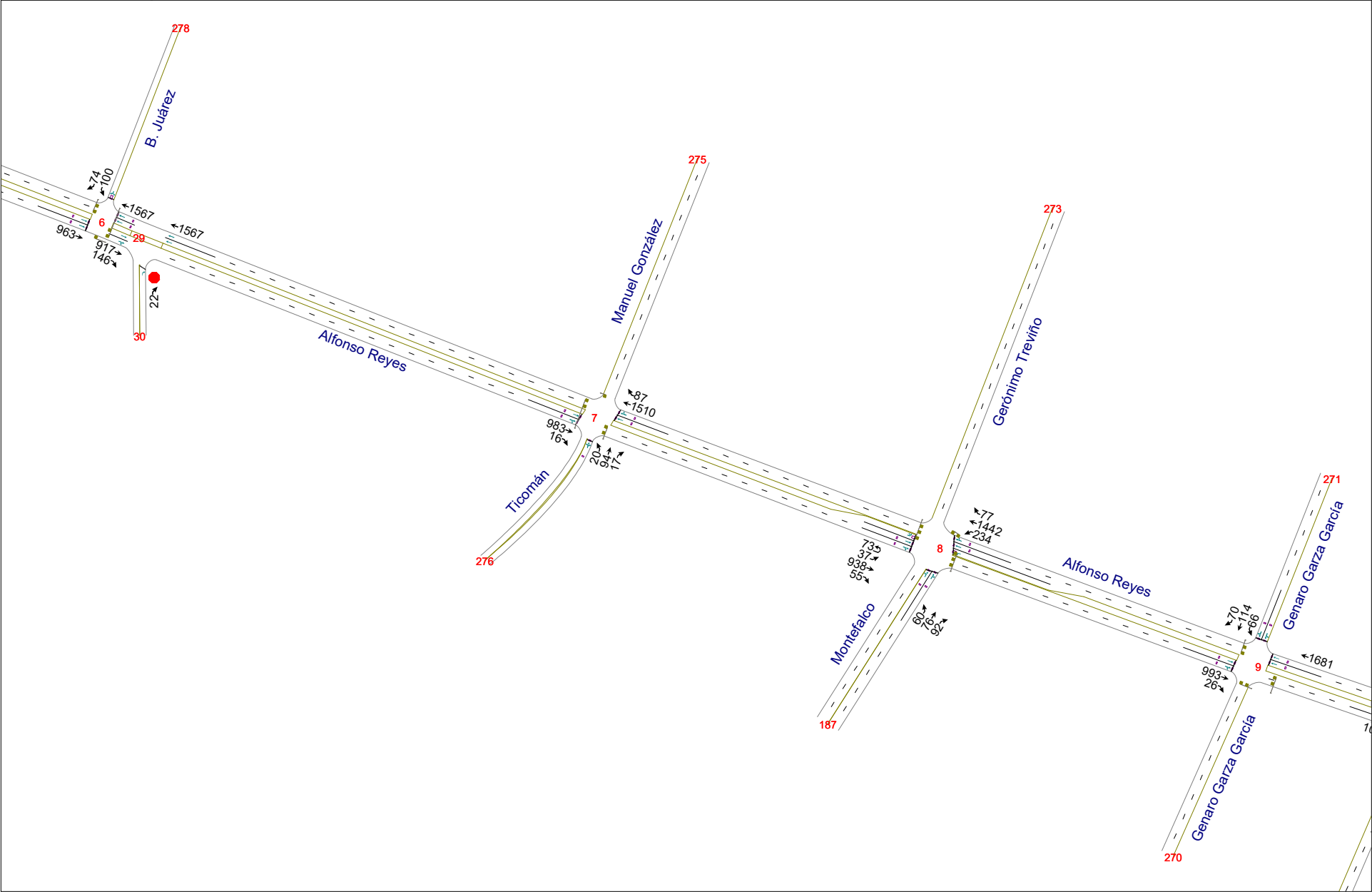
Splits and Phases: 5: Alfonso Reyes & Corregidora

 ø1 (R)	 ø2	 ø3
53 s	20 s	12 s

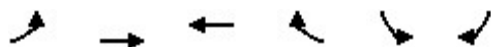


Lane Group	SBR
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

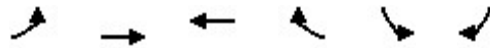
Map - Ciclovía Alfonso Reyes
Análisis de la operación actual - PM - PROYECTO



Ciclovía Alfonso Reyes
Vargas Torres y Asociados, S.A. de C.V.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Volume (vph)	0	963	1567	0	100	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor					0.99	
Frt					0.947	
Flt Protected					0.971	
Satd. Flow (prot)	0	3570	3570	0	1707	0
Flt Permitted					0.971	
Satd. Flow (perm)	0	3570	3570	0	1705	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)					36	
Link Speed (k/h)		50	50		50	
Link Distance (m)		78.3	22.5		117.7	
Travel Time (s)		5.6	1.6		8.5	
Confl. Peds. (#/hr)					1	3
Confl. Bikes (#/hr)				46		
Peak Hour Factor	0.92	0.95	0.92	0.92	0.71	0.80
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%
Adj. Flow (vph)	0	1014	1703	0	141	92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1014	1703	0	233	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.0	3.0		3.5	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Number of Detectors		2	2		1	
Detector Template		Thru	Thru		Left	
Leading Detector (m)		10.0	10.0		2.0	
Trailing Detector (m)		0.0	0.0		0.0	
Detector 1 Position(m)		0.0	0.0		0.0	
Detector 1 Size(m)		0.6	0.6		2.0	
Detector 1 Type		CI+Ex	CI+Ex		CI+Ex	
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	
Detector 1 Queue (s)		0.0	0.0		0.0	
Detector 1 Delay (s)		0.0	0.0		0.0	
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		CI+Ex	CI+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type		NA	NA		Prot	
Protected Phases		1	1		2	
Permitted Phases		1	1		2	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase		1	1		2	
Switch Phase						
Minimum Initial (s)		4.0	4.0		4.0	
Minimum Split (s)		20.0	20.0		20.0	
Total Split (s)		50.0	50.0		20.0	
Total Split (%)		71.4%	71.4%		28.6%	
Maximum Green (s)		47.0	47.0		17.0	
Yellow Time (s)		3.0	3.0		3.0	
All-Red Time (s)		0.0	0.0		0.0	
Lost Time Adjust (s)		0.0	0.0		0.0	
Total Lost Time (s)		3.0	3.0		3.0	
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Vehicle Extension (s)		3.0	3.0		3.0	
Recall Mode		C-Min	C-Min		None	
Act Effct Green (s)		51.0	51.0		13.0	
Actuated g/C Ratio		0.73	0.73		0.19	
v/c Ratio		0.39	0.65		0.68	
Control Delay		4.6	11.8		31.9	
Queue Delay		0.0	0.0		0.0	
Total Delay		4.6	11.8		31.9	
LOS		A	B		C	
Approach Delay		4.6	11.8		31.9	
Approach LOS		A	B		C	

Intersection Summary

Area Type: Other
 Cycle Length: 70
 Actuated Cycle Length: 70
 Offset: 20 (29%), Referenced to phase 1:EBWB, Start of Green
 Natural Cycle: 55
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.68
 Intersection Signal Delay: 10.9 Intersection LOS: B
 Intersection Capacity Utilization 60.2% ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 6: Alfonso Reyes & B. Juárez



7: Ticomán/Manuel González & Alfonso Reyes
Análisis de la operación actual - PM - PROYECTO

05/09/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	983	16	0	1510	87	20	94	17	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00							
Frt		0.997			0.990			0.982				
Flt Protected								0.990				
Satd. Flow (prot)	0	3556	0	0	3525	0	0	1809	0	0	0	0
Flt Permitted								0.990				
Satd. Flow (perm)	0	3556	0	0	3525	0	0	1809	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			23			10				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		274.5			207.0			102.9			155.8	
Travel Time (s)		19.8			14.9			7.4			11.2	
Confl. Bikes (#/hr)			40			53						
Peak Hour Factor	0.86	0.83	0.57	0.73	0.90	0.72	0.56	0.75	0.71	0.92	0.92	0.92
Heavy Vehicles (%)	1%	0%	0%	3%	0%	1%	5%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1184	28	0	1678	121	36	125	24	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1212	0	0	1799	0	0	185	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.0			3.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2		1	2				
Detector Template		Thru			Thru		Left	Thru				
Leading Detector (m)		10.0			10.0		2.0	10.0				
Trailing Detector (m)		0.0			0.0		0.0	0.0				
Detector 1 Position(m)		0.0			0.0		0.0	0.0				
Detector 1 Size(m)		0.6			0.6		2.0	0.6				
Detector 1 Type		CI+Ex			CI+Ex		CI+Ex	CI+Ex				
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0		0.0	0.0				
Detector 1 Queue (s)		0.0			0.0		0.0	0.0				
Detector 1 Delay (s)		0.0			0.0		0.0	0.0				
Detector 2 Position(m)		9.4			9.4			9.4				
Detector 2 Size(m)		0.6			0.6			0.6				
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type		NA			NA		custom	NA				
Protected Phases		1			1		2	2				
Permitted Phases		1			1		2	2				
Detector Phase		1			1		2	2				

7: Ticomán/Manuel González & Alfonso Reyes
Análisis de la operación actual - PM - PROYECTO

05/09/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)		4.0			4.0		4.0	4.0				
Minimum Split (s)		20.0			20.0		10.0	10.0				
Total Split (s)		50.0			50.0		20.0	20.0				
Total Split (%)		71.4%			71.4%		28.6%	28.6%				
Maximum Green (s)		47.0			47.0		17.0	17.0				
Yellow Time (s)		3.0			3.0		3.0	3.0				
All-Red Time (s)		0.0			0.0		0.0	0.0				
Lost Time Adjust (s)		0.0			0.0			0.0				
Total Lost Time (s)		3.0			3.0			3.0				
Lead/Lag		Lead			Lead		Lag	Lag				
Lead-Lag Optimize?		Yes			Yes		Yes	Yes				
Vehicle Extension (s)		3.0			3.0		3.0	3.0				
Recall Mode		C-Min			C-Min		None	None				
Walk Time (s)							5.0	5.0				
Flash Dont Walk (s)							11.0	11.0				
Pedestrian Calls (#/hr)							0	0				
Act Effct Green (s)		52.0			52.0			12.0				
Actuated g/C Ratio		0.74			0.74			0.17				
v/c Ratio		0.46			0.69			0.58				
Control Delay		3.2			7.0			32.1				
Queue Delay		0.0			0.1			0.0				
Total Delay		3.2			7.1			32.1				
LOS		A			A			C				
Approach Delay		3.2			7.1			32.1				
Approach LOS		A			A			C				

Intersection Summary

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 40 (57%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 40

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 7.1

Intersection LOS: A

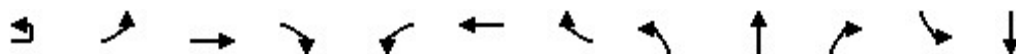
Intersection Capacity Utilization 58.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 7: Ticomán/Manuel González & Alfonso Reyes

	
ø1 (R)	ø2
50 s	20 s

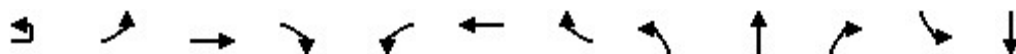


Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	73	37	938	55	234	1442	77	60	76	92	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0		0.0	55.0		0.0	0.0		0.0	0.0	
Storage Lanes		1		0	1		0	0		0	0	
Taper Length (m)		20.0			20.0			7.5			7.5	
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor		1.00	1.00		1.00	1.00			0.99			
Frt			0.991			0.993			0.941			
Flt Protected		0.950			0.950				0.986			
Satd. Flow (prot)	0	1785	3530	0	1767	3539	0	0	3291	0	0	0
Flt Permitted		0.950			0.950				0.986			
Satd. Flow (perm)	0	1783	3530	0	1765	3539	0	0	3278	0	0	0
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)			11			9			108			
Link Speed (k/h)			50			50			50			50
Link Distance (m)			207.0			190.3			117.2			200.7
Travel Time (s)			14.9			13.7			8.4			14.5
Confl. Peds. (#/hr)	6	1		4	4		1	6		2		
Confl. Bikes (#/hr)				44			55					
Peak Hour Factor	0.56	0.66	0.83	0.76	0.87	0.90	0.92	0.79	0.83	0.85	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	130	56	1130	72	269	1602	84	76	92	108	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	186	1202	0	269	1686	0	0	276	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(m)			4.0			4.0			0.0			0.0
Link Offset(m)			0.0			0.0			0.0			10.0
Crosswalk Width(m)			4.8			4.8			4.8			4.8
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	15	25		15	25		15	25		15	25	
Number of Detectors	1	1	2		1	2		1	2			
Detector Template	Left	Left	Thru		Left	Thru		Left	Thru			
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0		2.0	10.0			
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0		0.0	0.0			
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0		0.0	0.0			
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6		2.0	0.6			
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0			
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0			
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0			
Detector 2 Position(m)			9.4			9.4			9.4			
Detector 2 Size(m)			0.6			0.6			0.6			
Detector 2 Type			CI+Ex			CI+Ex			CI+Ex			
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			

Lane Group	SBR
Lane Configurations	
Volume (vph)	0
Ideal Flow (vphpl)	1900
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	0.92
Heavy Vehicles (%)	0%
Adj. Flow (vph)	0
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	1.01
Turning Speed (k/h)	15
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	

8: Montefalco/Gerónimo Treviño & Alfonso Reyes
Análisis de la operación actual - PM - PROYECTO

05/09/2021



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Turn Type	custom	custom	NA		custom	NA		custom	NA			
Protected Phases	1	1	2		1	2		3	3			
Permitted Phases	1	1	2		1	2		3	3			
Detector Phase	1	1	2		1	2		3	3			
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0		4.0	4.0			
Minimum Split (s)	15.0	15.0	20.0		15.0	20.0		15.0	15.0			
Total Split (s)	25.0	25.0	55.0		25.0	55.0		15.0	15.0			
Total Split (%)	26.3%	26.3%	57.9%		26.3%	57.9%		15.8%	15.8%			
Maximum Green (s)	22.0	22.0	52.0		22.0	52.0		12.0	12.0			
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0		3.0	3.0			
All-Red Time (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0			
Lost Time Adjust (s)		0.0	0.0		0.0	0.0			0.0			
Total Lost Time (s)		3.0	3.0		3.0	3.0			3.0			
Lead/Lag	Lead	Lead	Lag		Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0		3.0	3.0			
Recall Mode	C-Min	C-Min	None		C-Min	None		None	None			
Walk Time (s)			5.0			5.0						
Flash Dont Walk (s)			11.0			11.0						
Pedestrian Calls (#/hr)			0			0						
Act Effct Green (s)		22.9	53.2		22.9	53.2			9.9			
Actuated g/C Ratio		0.24	0.56		0.24	0.56			0.10			
v/c Ratio		0.43	0.61		0.63	0.85			0.63			
Control Delay		35.0	15.5		40.7	22.9			30.9			
Queue Delay		0.0	0.0		0.0	4.3			0.0			
Total Delay		35.0	15.5		40.7	27.1			30.9			
LOS		D	B		D	C			C			
Approach Delay			18.1			29.0			30.9			
Approach LOS			B			C			C			

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 80 (84%), Referenced to phase 1:EBWBL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 25.0

Intersection LOS: C

Intersection Capacity Utilization 65.3%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 8: Montefalco/Gerónimo Treviño & Alfonso Reyes

 ø1 (R)	 ø2	 ø3
25 s	55 s	15 s



Lane Group	SBR
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

9: Genaro Garza García & Alfonso Reyes
Análisis de la operación actual - PM - PROYECTO

05/09/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	993	26	0	1681	0	0	0	0	66	114	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor		1.00									1.00	
Frt		0.996									0.958	
Flt Protected											0.989	
Satd. Flow (prot)	0	3552	0	0	3570	0	0	0	0	0	3335	0
Flt Permitted											0.989	
Satd. Flow (perm)	0	3552	0	0	3570	0	0	0	0	0	3335	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5									15	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		190.3			91.9			117.0			112.9	
Travel Time (s)		13.7			6.6			8.4			8.1	
Confl. Peds. (#/hr)			5	5								5
Confl. Bikes (#/hr)			44									
Peak Hour Factor	0.92	0.82	0.72	0.72	0.91	0.92	0.92	0.92	0.92	0.87	0.68	0.73
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	1%	0%
Adj. Flow (vph)	0	1211	36	0	1847	0	0	0	0	76	168	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1247	0	0	1847	0	0	0	0	0	340	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2					1	2	
Detector Template		Thru			Thru					Left	Thru	
Leading Detector (m)		10.0			10.0					2.0	10.0	
Trailing Detector (m)		0.0			0.0					0.0	0.0	
Detector 1 Position(m)		0.0			0.0					0.0	0.0	
Detector 1 Size(m)		0.6			0.6					2.0	0.6	
Detector 1 Type		Cl+Ex			Cl+Ex					Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0					0.0	0.0	
Detector 1 Queue (s)		0.0			0.0					0.0	0.0	
Detector 1 Delay (s)		0.0			0.0					0.0	0.0	
Detector 2 Position(m)		9.4			9.4						9.4	
Detector 2 Size(m)		0.6			0.6						0.6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA			NA					custom	NA	
Protected Phases		1			1					2	2	
Permitted Phases		1			1					2	3	

Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (k/h)	
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	3
Permitted Phases	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1				1				2			
Switch Phase												
Minimum Initial (s)	4.0				4.0				4.0			
Minimum Split (s)	20.0				20.0				20.0			
Total Split (s)	64.0				64.0				20.0			
Total Split (%)	61.5%				61.5%				19.2%			
Maximum Green (s)	61.0				61.0				17.0			
Yellow Time (s)	3.0				3.0				3.0			
All-Red Time (s)	0.0				0.0				0.0			
Lost Time Adjust (s)	0.0				0.0				0.0			
Total Lost Time (s)	3.0				3.0				3.0			
Lead/Lag	Lead				Lead				Lag			
Lead-Lag Optimize?	Yes				Yes				Yes			
Vehicle Extension (s)	3.0				3.0				3.0			
Recall Mode	C-Min				C-Min				None			
Walk Time (s)	5.0				5.0							
Flash Dont Walk (s)	11.0				11.0							
Pedestrian Calls (#/hr)	0				0							
Act Effct Green (s)	83.1				83.1				14.9			
Actuated g/C Ratio	0.80				0.80				0.14			
v/c Ratio	0.44				0.65				0.69			
Control Delay	3.9				5.9				48.1			
Queue Delay	0.3				13.8				0.0			
Total Delay	4.3				19.7				48.1			
LOS	A				B				D			
Approach Delay	4.3				19.7				48.1			
Approach LOS	A				B				D			

Intersection Summary

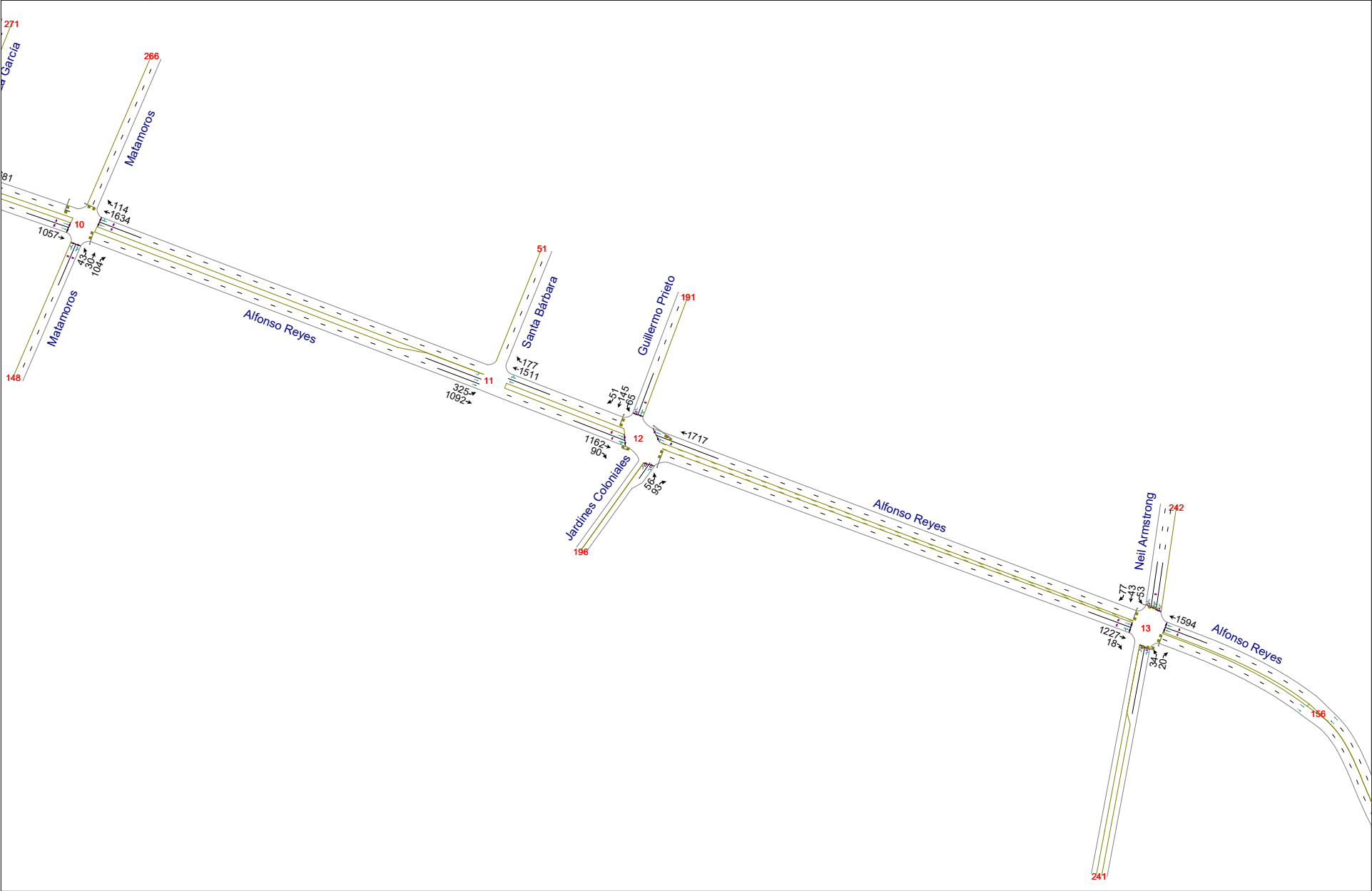
Area Type: Other
 Cycle Length: 104
 Actuated Cycle Length: 104
 Offset: 45 (43%), Referenced to phase 1:EBWB, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 16.9 Intersection LOS: B
 Intersection Capacity Utilization 61.5% ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 9: Genaro Garza García & Alfonso Reyes



Lane Group	ø3
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	19%
Maximum Green (s)	17.0
Yellow Time (s)	3.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Map - Ciclovía Alfonso Reyes
Análisis de la operación actual - PM - PROYECTO



Ciclovía Alfonso Reyes
Vargas Torres y Asociados, S.A. de C.V.

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↑				
Volume (vph)	0	1057	0	0	1634	114	43	30	104	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor					1.00			0.99				
Frt					0.986			0.915				
Flt Protected								0.987				
Satd. Flow (prot)	0	3570	0	0	3510	0	0	3149	0	0	0	0
Flt Permitted								0.987				
Satd. Flow (perm)	0	3570	0	0	3510	0	0	3144	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					33			79				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		91.9			294.9			112.5			123.1	
Travel Time (s)		6.6			21.2			8.1			8.9	
Confl. Peds. (#/hr)						3	5		10			
Confl. Bikes (#/hr)			46			52						
Peak Hour Factor	0.92	0.83	0.92	0.92	0.92	0.64	0.77	0.75	0.84	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	3%	0%	0%	0%	0%
Adj. Flow (vph)	0	1273	0	0	1776	178	56	40	124	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1273	0	0	1954	0	0	220	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			4.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2		1	2				
Detector Template		Thru			Thru		Left	Thru				
Leading Detector (m)		10.0			10.0		2.0	10.0				
Trailing Detector (m)		0.0			0.0		0.0	0.0				
Detector 1 Position(m)		0.0			0.0		0.0	0.0				
Detector 1 Size(m)		0.6			0.6		2.0	0.6				
Detector 1 Type		CI+Ex			CI+Ex		CI+Ex	CI+Ex				
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0		0.0	0.0				
Detector 1 Queue (s)		0.0			0.0		0.0	0.0				
Detector 1 Delay (s)		0.0			0.0		0.0	0.0				
Detector 2 Position(m)		9.4			9.4			9.4				
Detector 2 Size(m)		0.6			0.6			0.6				
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type		NA			NA		custom	NA				
Protected Phases		1			1		2	2				
Permitted Phases		1			1		2	2				

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1			1			2		2			
Switch Phase												
Minimum Initial (s)	4.0			4.0			4.0		4.0			
Minimum Split (s)	20.0			20.0			20.0		20.0			
Total Split (s)	45.0			45.0			20.0		20.0			
Total Split (%)	69.2%			69.2%			30.8%		30.8%			
Maximum Green (s)	42.0			42.0			17.0		17.0			
Yellow Time (s)	3.0			3.0			3.0		3.0			
All-Red Time (s)	0.0			0.0			0.0		0.0			
Lost Time Adjust (s)	0.0			0.0					0.0			
Total Lost Time (s)	3.0			3.0					3.0			
Lead/Lag	Lead			Lead			Lag		Lag			
Lead-Lag Optimize?	Yes			Yes			Yes		Yes			
Vehicle Extension (s)	3.0			3.0			3.0		3.0			
Recall Mode	C-Min			C-Min			None		None			
Act Effct Green (s)	50.7			50.7					8.3			
Actuated g/C Ratio	0.78			0.78					0.13			
v/c Ratio	0.46			0.71					0.47			
Control Delay	3.3			5.7					19.5			
Queue Delay	0.9			0.0					0.0			
Total Delay	4.2			5.7					19.5			
LOS	A			A					B			
Approach Delay	4.2			5.7					19.5			
Approach LOS	A			A					B			

Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

Offset: 20 (31%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 6.0

Intersection LOS: A

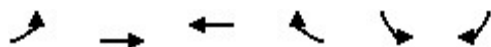
Intersection Capacity Utilization 61.5%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 10: Matamoros & Alfonso Reyes

					
ø1 (R)			ø2		
45 s			20 s		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	325	1092	1511	177	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.98	0.97	0.96	0.82	0.92	0.92
Hourly flow rate (vph)	332	1126	1574	216	0	0
Pedestrians					1	
Lane Width (m)					0.0	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)		295	108			
pX, platoon unblocked	0.63				0.63	0.63
vC, conflicting volume	1791				2909	896
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1074				2819	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	20				100	100
cM capacity (veh/h)	412				2	685
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	
Volume Total	332	563	563	1049	741	
Volume Left	332	0	0	0	0	
Volume Right	0	0	0	0	216	
cSH	412	1700	1700	1700	1700	
Volume to Capacity	0.80	0.33	0.33	0.62	0.44	
Queue Length 95th (m)	57.6	0.0	0.0	0.0	0.0	
Control Delay (s)	41.1	0.0	0.0	0.0	0.0	
Lane LOS	E					
Approach Delay (s)	9.4			0.0		
Approach LOS						
Intersection Summary						
Average Delay			4.2			
Intersection Capacity Utilization			72.1%		ICU Level of Service	C
Analysis Period (min)			15			

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1162	90	0	1717	0	56	0	93	65	145	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		10.0	0.0		0.0
Storage Lanes	0		0	0		0	1		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00										
Frt		0.987							0.850			0.850
Flt Protected							0.950				0.984	
Satd. Flow (prot)	0	3549	0	0	3574	0	1805	0	1615	0	1870	1615
Flt Permitted							0.950				0.984	
Satd. Flow (perm)	0	3549	0	0	3574	0	1805	0	1615	0	1870	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18										
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		107.8			364.5			85.4			100.9	
Travel Time (s)		7.8			26.2			6.1			7.3	
Confl. Peds. (#/hr)			1			56						
Confl. Bikes (#/hr)			46									
Peak Hour Factor	0.92	0.98	0.83	0.92	0.96	0.92	0.54	0.92	0.86	0.90	0.93	0.80
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1186	108	0	1789	0	104	0	108	72	156	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1294	0	0	1789	0	104	0	108	0	228	64
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.6			3.6	
Link Offset(m)		0.0			0.0			15.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane					Yes							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2		1		1	1	2	1
Detector Template		Thru			Thru		Left		Right	Left	Thru	Right
Leading Detector (m)		10.0			10.0		2.0		2.0	2.0	10.0	2.0
Trailing Detector (m)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)		0.6			0.6		2.0		2.0	2.0	0.6	2.0
Detector 1 Type		Cl+Ex			Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4						9.4	
Detector 2 Size(m)		0.6			0.6						0.6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA			NA		Prot		custom	custom	NA	custom
Protected Phases		1			1		3		3	2	2	2
Permitted Phases		1			1		3		1 2 3	2	2	1 2 3
Detector Phase		1			1		3		3	2	2	2
Switch Phase												
Minimum Initial (s)		4.0			4.0		4.0		4.0	4.0	4.0	4.0
Minimum Split (s)		10.0			10.0		10.0		10.0	10.0	10.0	10.0
Total Split (s)		61.0			61.0		13.0		13.0	21.0	21.0	21.0
Total Split (%)		64.2%			64.2%		13.7%		13.7%	22.1%	22.1%	22.1%
Maximum Green (s)		58.0			58.0		10.0		10.0	18.0	18.0	18.0
Yellow Time (s)		3.0			3.0		3.0		3.0	3.0	3.0	3.0
All-Red Time (s)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Lost Time Adjust (s)		0.0			0.0		0.0		0.0		0.0	0.0
Total Lost Time (s)		3.0			3.0		3.0		3.0		3.0	3.0
Lead/Lag		Lead			Lead					Lag	Lag	Lag
Lead-Lag Optimize?		Yes			Yes					Yes	Yes	Yes
Vehicle Extension (s)		3.0			3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode		C-Min			C-Min		Min		Min	Min	Min	Min
Act Effct Green (s)		61.1			61.1		9.3		95.0		15.6	95.0
Actuated g/C Ratio		0.64			0.64		0.10		1.00		0.16	1.00
v/c Ratio		0.57			0.78		0.59		0.07		0.75	0.04
Control Delay		11.1			16.0		54.7		0.1		52.9	0.0
Queue Delay		0.0			0.0		0.0		0.0		0.0	0.0
Total Delay		11.1			16.0		54.7		0.1		52.9	0.0
LOS		B			B		D		A		D	A
Approach Delay		11.1			16.0						41.3	
Approach LOS		B			B						D	

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 30 (32%), Referenced to phase 1:WBEB, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 16.9

Intersection LOS: B

Intersection Capacity Utilization 72.0%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 12: Jardines Coloniales/Guillermo Prieto & Alfonso Reyes

											
ø1 (R)			ø2			ø3					
61 s			21 s			13 s					

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1227	18	0	1594	0	34	0	20	53	43	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.0	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	0.0		0.0	0.0		0.0	45.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor		1.00					0.99					0.99
Frt		0.997							0.850			0.850
Flt Protected							0.950			0.950	0.994	
Satd. Flow (prot)	0	3596	0	0	3610	0	1805	0	1615	1715	1794	1583
Flt Permitted							0.950			0.950	0.994	
Satd. Flow (perm)	0	3596	0	0	3610	0	1795	0	1615	1715	1794	1563
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5										
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		364.5			130.4			170.2			83.6	
Travel Time (s)		26.2			9.4			12.3			6.0	
Confl. Peds. (#/hr)			1	1			2					2
Confl. Bikes (#/hr)			44			53						
Peak Hour Factor	0.92	0.97	0.64	0.63	0.96	0.92	0.50	0.92	0.83	0.70	0.72	0.77
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%
Adj. Flow (vph)	0	1265	28	0	1660	0	68	0	24	76	60	100
Shared Lane Traffic (%)										12%		
Lane Group Flow (vph)	0	1293	0	0	1660	0	68	0	24	67	69	100
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		1.0			1.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			-7.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.00	1.00	1.00	1.09	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2		1		1	1	2	1
Detector Template		Thru			Thru		Left		Right	Left	Thru	Right
Leading Detector (m)		10.0			10.0		2.0		2.0	2.0	10.0	2.0
Trailing Detector (m)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)		0.6			0.6		2.0		2.0	2.0	0.6	2.0
Detector 1 Type		Cl+Ex			Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4						9.4	
Detector 2 Size(m)		0.6			0.6						0.6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA			NA		Prot		custom	custom	NA	custom
Protected Phases		1			1		3		3	2	2	2
Permitted Phases		1			1		3		1 2 3	2	2	1 2 3
Detector Phase		1			1		3		3	2	2	2
Switch Phase												
Minimum Initial (s)		4.0			4.0		4.0		4.0	4.0	4.0	4.0
Minimum Split (s)		10.0			10.0		10.0		10.0	10.0	10.0	10.0
Total Split (s)		70.0			70.0		14.0		14.0	16.0	16.0	16.0
Total Split (%)		70.0%			70.0%		14.0%		14.0%	16.0%	16.0%	16.0%
Maximum Green (s)		66.0			66.0		10.0		10.0	12.0	12.0	12.0
Yellow Time (s)		3.0			3.0		3.0		3.0	3.0	3.0	3.0
All-Red Time (s)		1.0			1.0		1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)		4.0			4.0		4.0		4.0	4.0	4.0	4.0
Lead/Lag		Lead			Lead					Lag	Lag	Lag
Lead-Lag Optimize?		Yes			Yes					Yes	Yes	Yes
Vehicle Extension (s)		3.0			3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode		C-Max			C-Max		None		None	Min	Min	Min
Act Effct Green (s)		72.3			72.3		8.6		100.0	9.1	9.1	92.0
Actuated g/C Ratio		0.72			0.72		0.09		1.00	0.09	0.09	0.92
v/c Ratio		0.50			0.64		0.44		0.01	0.43	0.43	0.07
Control Delay		7.8			9.7		51.9		0.0	50.9	50.3	0.3
Queue Delay		0.0			0.0		0.0		0.0	0.0	0.0	0.0
Total Delay		7.8			9.7		51.9		0.0	50.9	50.3	0.3
LOS		A			A		D		A	D	D	A
Approach Delay		7.8			9.7						29.3	
Approach LOS		A			A						C	

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 30 (30%), Referenced to phase 1:WBEB, Start of Green
 Natural Cycle: 55
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.64
 Intersection Signal Delay: 11.2
 Intersection Capacity Utilization 62.4%
 Analysis Period (min) 15

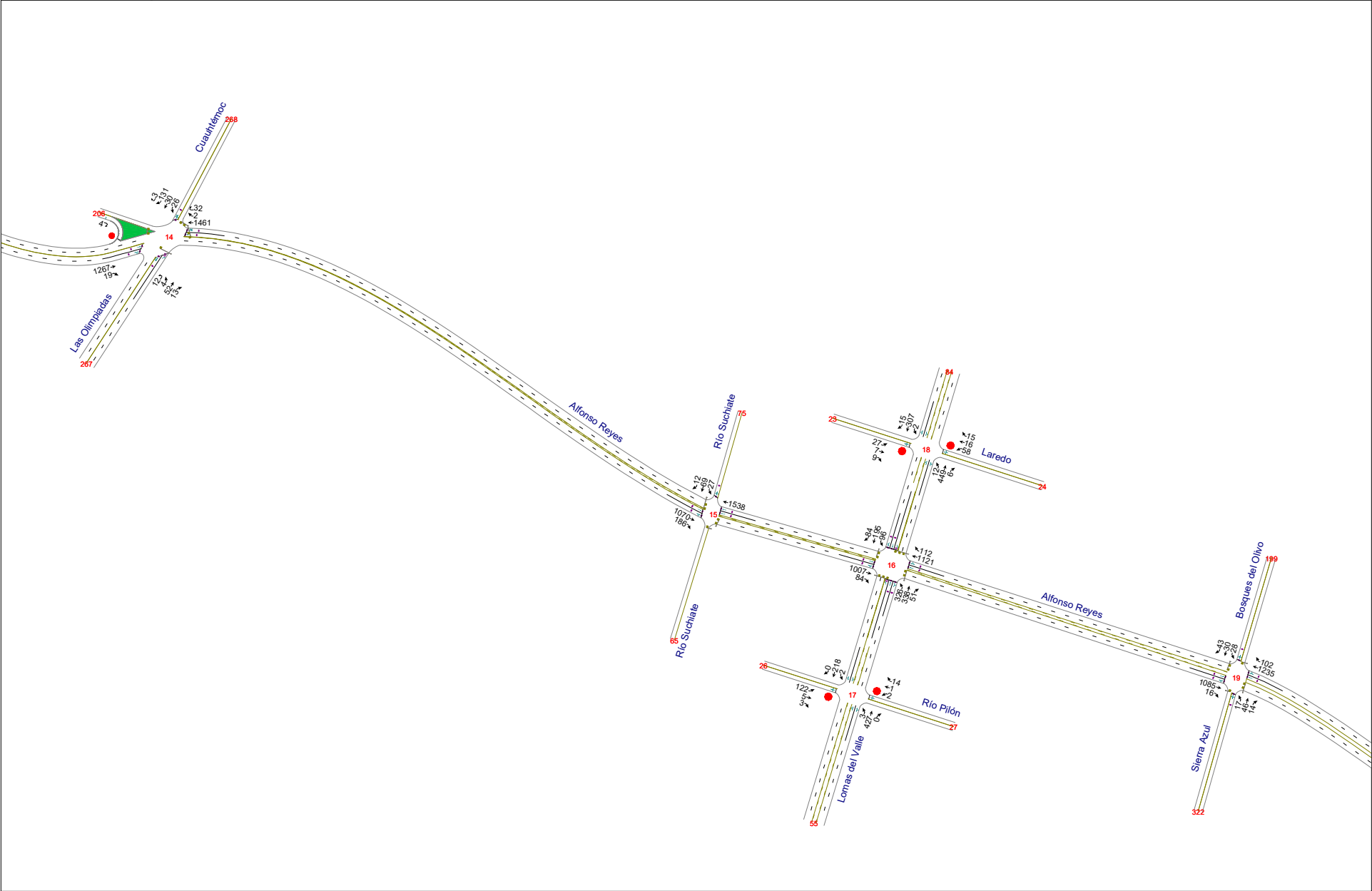
Intersection LOS: B

ICU Level of Service B

Splits and Phases: 13: Neil Armstrong & Alfonso Reyes

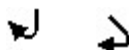


Map - Ciclovía Alfonso Reyes
Análisis de la operación actual - PM - PROYECTO



Ciclovía Alfonso Reyes
Vargas Torres y Asociados, S.A. de C.V.

	→	↘	←	↖	↗	↙	↘	↑	↗	↘	↓	↙
Lane Group	EBT	EBR	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑		↑↑					↑	↑		↑↑	
Volume (vph)	1267	19	1461	2	32	12	4	52	13	26	30	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Storage Length (m)		30.0		0.0			0.0		0.0	0.0		0.0
Storage Lanes		0		0			0		1	0		0
Taper Length (m)							7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		1.00									
Frt	0.997		0.995						0.850		0.899	
Flt Protected								0.985			0.993	
Satd. Flow (prot)	3563	0	3553	0	0	0	0	1750	1615	0	1672	0
Flt Permitted								0.985			0.993	
Satd. Flow (perm)	3563	0	3553	0	0	0	0	1750	1615	0	1672	0
Right Turn on Red		Yes			Yes				Yes			
Satd. Flow (RTOR)	4		7						36		1	
Link Speed (k/h)	50		50					50			50	
Link Distance (m)	282.0		508.5					124.3			109.6	
Travel Time (s)	20.3		36.6					8.9			7.9	
Confl. Peds. (#/hr)		3			3							
Confl. Bikes (#/hr)		17			22							
Peak Hour Factor	0.95	0.79	0.89	0.50	0.62	0.50	0.50	0.72	0.75	0.70	0.94	0.68
Heavy Vehicles (%)	1%	0%	1%	0%	0%	0%	0%	10%	0%	0%	0%	2%
Adj. Flow (vph)	1334	24	1642	4	52	24	8	72	17	37	32	193
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1358	0	1698	0	0	0	0	104	17	0	270	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Right	Left	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0		0.0					0.0			0.0	
Link Offset(m)	0.0		0.0					0.0			0.0	
Crosswalk Width(m)	4.8		4.8					4.8			4.8	
Two way Left Turn Lane			Yes									
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15		15	15	25	25		15	25		15
Number of Detectors	2		2			1	1	2	1	1	2	
Detector Template	Thru		Thru			Left	Left	Thru	Right	Left	Thru	
Leading Detector (m)	10.0		10.0			2.0	2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0		0.0			0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0		0.0			0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	0.6		0.6			2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	CI+Ex		CI+Ex			CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0			0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0			0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0			0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)	9.4		9.4					9.4			9.4	
Detector 2 Size(m)	0.6		0.6					0.6			0.6	
Detector 2 Type	CI+Ex		CI+Ex					CI+Ex			CI+Ex	
Detector 2 Channel												



Lane Group	SBR2	SER2
Lane Configurations		↑
Volume (vph)	3	4
Ideal Flow (vphpl)	1900	1900
Lane Width (m)	3.6	3.6
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor		
Frt		0.865
Flt Protected		
Satd. Flow (prot)	0	1644
Flt Permitted		
Satd. Flow (perm)	0	1644
Right Turn on Red	Yes	Yes
Satd. Flow (RTOR)		176
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor	0.38	0.50
Heavy Vehicles (%)	0%	0%
Adj. Flow (vph)	8	8
Shared Lane Traffic (%)		
Lane Group Flow (vph)	0	8
Enter Blocked Intersection	No	No
Lane Alignment	Right	Right
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor	1.00	1.00
Turning Speed (k/h)	15	15
Number of Detectors		1
Detector Template		Right
Leading Detector (m)		2.0
Trailing Detector (m)		0.0
Detector 1 Position(m)		0.0
Detector 1 Size(m)		2.0
Detector 1 Type		CI+Ex
Detector 1 Channel		
Detector 1 Extend (s)		0.0
Detector 1 Queue (s)		0.0
Detector 1 Delay (s)		0.0
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		



Lane Group	EBT	EBR	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)	0.0		0.0					0.0			0.0	
Turn Type	NA		NA			custom	custom	NA	custom	custom	NA	
Protected Phases	1		1			2	2	2	2	3	3	
Permitted Phases	1		1			2	2	2	2	3	3	
Detector Phase	1		1			2	2	2	2	3	3	
Switch Phase												
Minimum Initial (s)	4.0		4.0			4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	10.0		10.0			10.0	10.0	10.0	10.0	10.0	10.0	
Total Split (s)	60.0		60.0			15.0	15.0	15.0	15.0	15.0	15.0	
Total Split (%)	66.7%		66.7%			16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	
Maximum Green (s)	57.0		57.0			12.0	12.0	12.0	12.0	12.0	12.0	
Yellow Time (s)	3.0		3.0			3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	0.0		0.0			0.0	0.0	0.0	0.0	0.0	0.0	
Lost Time Adjust (s)	0.0		0.0					0.0	0.0		0.0	
Total Lost Time (s)	3.0		3.0					3.0	3.0		3.0	
Lead/Lag	Lead		Lead			Lag	Lag	Lag	Lag			
Lead-Lag Optimize?	Yes		Yes			Yes	Yes	Yes	Yes			
Vehicle Extension (s)	3.0		3.0			3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max		C-Max			None	None	None	None	None	None	
Act Effct Green (s)	57.0		57.0					10.0	10.0		15.9	
Actuated g/C Ratio	0.63		0.63					0.11	0.11		0.18	
v/c Ratio	0.60		0.75					0.54	0.08		0.91	
Control Delay	11.1		14.3					47.7	5.5		75.6	
Queue Delay	0.0		0.0					0.0	0.0		0.0	
Total Delay	11.1		14.3					47.7	5.5		75.6	
LOS	B		B					D	A		E	
Approach Delay	11.1		14.3					41.7			75.6	
Approach LOS	B		B					D			E	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 30 (33%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 18.8

Intersection LOS: B

Intersection Capacity Utilization 66.1%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 14: Las Olimpiadas/Cuauhtémoc & Alfonso Reyes/Av. Alfonso Reyes





Lane Group	SBR2	SER2
Detector 2 Extend (s)		
Turn Type	Free	
Protected Phases		
Permitted Phases	Free	
Detector Phase		
Switch Phase		
Minimum Initial (s)		
Minimum Split (s)		
Total Split (s)		
Total Split (%)		
Maximum Green (s)		
Yellow Time (s)		
All-Red Time (s)		
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)		
Recall Mode		
Act Effct Green (s)	90.0	
Actuated g/C Ratio	1.00	
v/c Ratio	0.00	
Control Delay	0.0	
Queue Delay	0.0	
Total Delay	0.0	
LOS	A	
Approach Delay		
Approach LOS		
Intersection Summary		

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1070	186	0	1538	0	0	0	0	27	69	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00										
Frt		0.976									0.981	
Flt Protected											0.987	
Satd. Flow (prot)	0	3468	0	0	3535	0	0	0	0	0	1819	0
Flt Permitted											0.987	
Satd. Flow (perm)	0	3468	0	0	3535	0	0	0	0	0	1819	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		71									9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		508.5			152.4			108.3			86.7	
Travel Time (s)		36.6			11.0			7.8			6.2	
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)			17			20						
Peak Hour Factor	0.92	0.93	0.85	0.88	0.97	0.92	0.92	0.92	0.92	0.75	0.80	0.60
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1151	219	0	1586	0	0	0	0	36	86	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1370	0	0	1586	0	0	0	0	0	142	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		1.0			1.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2					1	2	
Detector Template		Thru			Thru					Left	Thru	
Leading Detector (m)		10.0			10.0					2.0	10.0	
Trailing Detector (m)		0.0			0.0					0.0	0.0	
Detector 1 Position(m)		0.0			0.0					0.0	0.0	
Detector 1 Size(m)		0.6			0.6					2.0	0.6	
Detector 1 Type		Cl+Ex			Cl+Ex					Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0					0.0	0.0	
Detector 1 Queue (s)		0.0			0.0					0.0	0.0	
Detector 1 Delay (s)		0.0			0.0					0.0	0.0	
Detector 2 Position(m)		9.4			9.4						9.4	
Detector 2 Size(m)		0.6			0.6						0.6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA			NA					custom	NA	
Protected Phases		1			1					2	2	
Permitted Phases		1			1					2	2	

15: Río Suchiate & Alfonso Reyes
Análisis de la operación actual - PM - PROYECTO

28/09/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1			1						2	2	
Switch Phase												
Minimum Initial (s)	4.0			4.0						4.0	4.0	
Minimum Split (s)	10.0			10.0						10.0	10.0	
Total Split (s)	61.0			61.0						19.0	19.0	
Total Split (%)	76.3%			76.3%						23.8%	23.8%	
Maximum Green (s)	58.0			58.0						16.0	16.0	
Yellow Time (s)	3.0			3.0						3.0	3.0	
All-Red Time (s)	0.0			0.0						0.0	0.0	
Lost Time Adjust (s)	0.0			0.0							0.0	
Total Lost Time (s)	3.0			3.0							3.0	
Lead/Lag	Lead			Lead						Lag	Lag	
Lead-Lag Optimize?	Yes			Yes						Yes	Yes	
Vehicle Extension (s)	3.0			3.0						3.0	3.0	
Recall Mode	None			None						C-Max	C-Max	
Act Effct Green (s)	54.5			54.5							19.5	
Actuated g/C Ratio	0.68			0.68							0.24	
v/c Ratio	0.57			0.66							0.32	
Control Delay	7.1			8.6							27.3	
Queue Delay	0.0			0.7							0.0	
Total Delay	7.1			9.3							27.3	
LOS	A			A							C	
Approach Delay	7.1			9.3							27.3	
Approach LOS	A			A							C	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 16 (20%), Referenced to phase 2:SBTL and 6:, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 9.1 Intersection LOS: A
Intersection Capacity Utilization 55.0% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 15: Río Suchiate & Alfonso Reyes



16: Lomas del Valle & Alfonso Reyes
Análisis de la operación actual - PM - PROYECTO

28/09/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑		↑	↑↑		↑	↑↑	
Volume (vph)	0	1007	84	0	1121	112	326	338	51	96	195	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	50.0		0.0	50.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		1.00			1.00							
Frt		0.989			0.985			0.979			0.959	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	3525	0	0	3467	0	1785	3495	0	1785	3399	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	3525	0	0	3467	0	1785	3495	0	1785	3399	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			17			19			45	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		152.4			298.2			111.2			99.7	
Travel Time (s)		11.0			21.5			8.0			7.2	
Confl. Peds. (#/hr)	2					2						
Confl. Bikes (#/hr)			17			19						
Peak Hour Factor	0.86	0.87	0.91	0.77	0.93	0.82	0.87	0.87	0.80	0.83	0.78	0.88
Heavy Vehicles (%)	3%	0%	0%	0%	1%	3%	0%	0%	0%	0%	1%	0%
Adj. Flow (vph)	0	1157	92	0	1205	137	375	389	64	116	250	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1249	0	0	1342	0	375	453	0	116	345	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		1.0			1.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes			Yes			Yes			Yes	
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2		1	2		1	2	
Detector Template		Thru			Thru		Left	Thru		Left	Thru	
Leading Detector (m)		10.0			10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)		0.6			0.6		2.0	0.6		2.0	0.6	
Detector 1 Type		Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

16: Lomas del Valle & Alfonso Reyes
Análisis de la operación actual - PM - PROYECTO

28/09/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	NA			NA			custom	NA	custom	NA		
Protected Phases	1			1			2	2	3	3		
Permitted Phases	1			1			2	2	3	3		
Detector Phase	1			1			2	2	3	3		
Switch Phase												
Minimum Initial (s)	4.0			4.0			4.0	4.0	4.0	4.0		
Minimum Split (s)	20.0			20.0			20.0	20.0	8.0	8.0		
Total Split (s)	51.0			51.0			33.0	33.0	16.0	16.0		
Total Split (%)	51.0%			51.0%			33.0%	33.0%	16.0%	16.0%		
Maximum Green (s)	48.0			48.0			30.0	30.0	13.0	13.0		
Yellow Time (s)	3.0			3.0			3.0	3.0	3.0	3.0		
All-Red Time (s)	0.0			0.0			0.0	0.0	0.0	0.0		
Lost Time Adjust (s)	0.0			0.0			0.0	0.0	0.0	0.0		
Total Lost Time (s)	3.0			3.0			3.0	3.0	3.0	3.0		
Lead/Lag	Lead			Lead			Lag	Lag				
Lead-Lag Optimize?	Yes			Yes			Yes	Yes				
Vehicle Extension (s)	3.0			3.0			3.0	3.0	3.0	3.0		
Recall Mode	C-Min			C-Min			Min	Min	None	None		
Act Effct Green (s)	52.7			52.7			25.7	25.7	12.6	12.6		
Actuated g/C Ratio	0.53			0.53			0.26	0.26	0.13	0.13		
v/c Ratio	0.67			0.73			0.82	0.50	0.52	0.74		
Control Delay	20.4			22.0			49.4	31.5	49.5	46.8		
Queue Delay	1.2			0.0			0.0	0.0	0.0	0.0		
Total Delay	21.6			22.0			49.4	31.5	49.5	46.8		
LOS	C			C			D	C	D	D		
Approach Delay	21.6			22.0			39.6			47.5		
Approach LOS	C			C			D			D		

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 2 (2%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 28.7 Intersection LOS: C
Intersection Capacity Utilization 70.7% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 16: Lomas del Valle & Alfonso Reyes

		
ø1 (R)	ø2	ø3
51 s	33 s	16 s

17: Lomas del Valle & Río Pílon
Análisis de la operación actual - PM - PROYECTO

28/09/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	122	5	3	2	1	14	3	427	0	2	218	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			5%	
Peak Hour Factor	0.75	0.42	0.75	0.50	0.25	0.44	0.75	0.93	0.92	0.50	0.79	0.92
Hourly flow rate (vph)	163	12	4	4	4	32	4	459	0	4	276	0
Pedestrians		20			2			4				
Lane Width (m)		3.5			3.5			3.5				
Walking Speed (m/s)		1.2			1.2			1.2				
Percent Blockage		2			0			0				
Right turn flare (veh)												
Median type								TW	LT		TW	LT
Median storage veh								2			2	
Upstream signal (m)											111	
pX, platoon unblocked												
vC, conflicting volume	575	773	162	629	773	232	296			461		
vC1, stage 1 conf vol	304	304		469	469							
vC2, stage 2 conf vol	271	469		160	304							
vCu, unblocked vol	575	773	162	629	773	232	296			461		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	71	98	100	99	99	96	100			100		
cM capacity (veh/h)	560	492	844	512	493	776	1256			1109		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	179	40	234	230	142	138						
Volume Left	163	4	4	0	4	0						
Volume Right	4	32	0	0	0	0						
cSH	559	699	1256	1700	1109	1700						
Volume to Capacity	0.32	0.06	0.00	0.14	0.00	0.08						
Queue Length 95th (m)	10.9	1.4	0.1	0.0	0.1	0.0						
Control Delay (s)	14.4	10.5	0.2	0.0	0.3	0.0						
Lane LOS	B	B	A		A							
Approach Delay (s)	14.4	10.5	0.1		0.1							
Approach LOS	B	B										
Intersection Summary												
Average Delay			3.2									
Intersection Capacity Utilization			34.4%		ICU Level of Service					A		
Analysis Period (min)			15									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	27	7	9	58	16	15	12	449	6	2	307	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.44	0.75	0.85	0.67	0.54	0.70	0.93	0.50	0.50	0.94	0.63
Hourly flow rate (vph)	36	16	12	68	24	28	17	483	12	4	327	24
Pedestrians		31			6			9			3	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		3			0			1			0	
Right turn flare (veh)												
Median type								TWLT			TWLT	
Median storage (veh)								2			2	
Upstream signal (m)								100				
pX, platoon unblocked	0.91	0.91		0.91	0.91	0.91				0.91		
vC, conflicting volume	696	913	215	729	918	256	381			501		
vC1, stage 1 conf vol	378	378		529	529							
vC2, stage 2 conf vol	318	535		200	389							
vCu, unblocked vol	457	696	215	494	703	0	381			242		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	94	97	98	88	95	97	99			100		
cM capacity (veh/h)	559	495	770	563	488	981	1158			1205		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	64	120	259	253	167	187						
Volume Left	36	68	17	0	4	0						
Volume Right	12	28	0	12	0	24						
cSH	570	604	1158	1700	1205	1700						
Volume to Capacity	0.11	0.20	0.01	0.15	0.00	0.11						
Queue Length 95th (m)	3.0	5.9	0.4	0.0	0.1	0.0						
Control Delay (s)	12.1	12.4	0.7	0.0	0.2	0.0						
Lane LOS	B	B	A		A							
Approach Delay (s)	12.1	12.4	0.3		0.1							
Approach LOS	B	B										
Intersection Summary												
Average Delay			2.4									
Intersection Capacity Utilization			34.6%		ICU Level of Service		A					
Analysis Period (min)			15									

19: Sierra Azul/Bosques del Olivo & Alfonso Reyes
Análisis de la operación actual - PM - PROYECTO

05/09/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1085	16	0	1235	102	17	46	14	28	30	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			1.00			0.99	
Frt		0.997			0.988			0.968			0.958	
Flt Protected								0.988			0.985	
Satd. Flow (prot)	0	3557	0	0	3485	0	0	1797	0	0	1753	0
Flt Permitted								0.988			0.985	
Satd. Flow (perm)	0	3557	0	0	3485	0	0	1795	0	0	1753	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			18			14			22	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		298.2			545.9			114.8			102.4	
Travel Time (s)		21.5			39.3			8.3			7.4	
Confl. Peds. (#/hr)			1				3					3
Confl. Bikes (#/hr)			14			22						
Peak Hour Factor	0.92	0.87	0.67	0.92	0.92	0.85	0.61	0.72	0.50	0.54	0.47	0.83
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	2%
Adj. Flow (vph)	0	1247	24	0	1342	120	28	64	28	52	64	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1271	0	0	1462	0	0	120	0	0	168	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.0			3.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2		1	2		1	2	
Detector Template		Thru			Thru		Left	Thru		Left	Thru	
Leading Detector (m)		10.0			10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)		0.6			0.6		2.0	0.6		2.0	0.6	
Detector 1 Type		Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type		NA			NA		custom	NA		custom	NA	
Protected Phases		1			1		2	2		3	3	
Permitted Phases		1			1		2	2		3	3	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	1			1			2		2	3		3
Switch Phase												
Minimum Initial (s)	4.0			4.0			4.0		4.0	4.0		4.0
Minimum Split (s)	20.0			20.0			10.0		10.0	10.0		10.0
Total Split (s)	57.0			57.0			15.0		15.0	18.0		18.0
Total Split (%)	63.3%			63.3%			16.7%		16.7%	20.0%		20.0%
Maximum Green (s)	54.0			54.0			12.0		12.0	15.0		15.0
Yellow Time (s)	3.0			3.0			3.0		3.0	3.0		3.0
All-Red Time (s)	0.0			0.0			0.0		0.0	0.0		0.0
Lost Time Adjust (s)	0.0			0.0			0.0		0.0	0.0		0.0
Total Lost Time (s)	3.0			3.0			3.0		3.0	3.0		3.0
Lead/Lag	Lead			Lead			Lag		Lag			
Lead-Lag Optimize?	Yes			Yes			Yes		Yes			
Vehicle Extension (s)	3.0			3.0			3.0		3.0	3.0		3.0
Recall Mode	C-Max			C-Max			Min		Min	Min		Min
Act Effct Green (s)	58.9			58.9			10.0		10.0	12.2		12.2
Actuated g/C Ratio	0.65			0.65			0.11		0.11	0.14		0.14
v/c Ratio	0.55			0.64			0.57		0.57	0.66		0.66
Control Delay	10.3			8.3			43.9		43.9	44.0		44.0
Queue Delay	0.0			0.0			0.0		0.0	0.0		0.0
Total Delay	10.3			8.3			43.9		43.9	44.0		44.0
LOS	B			A			D		D	D		D
Approach Delay	10.3			8.3			43.9		43.9	44.0		44.0
Approach LOS	B			A			D		D	D		D

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 45 (50%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 12.5

Intersection LOS: B

Intersection Capacity Utilization 52.6%

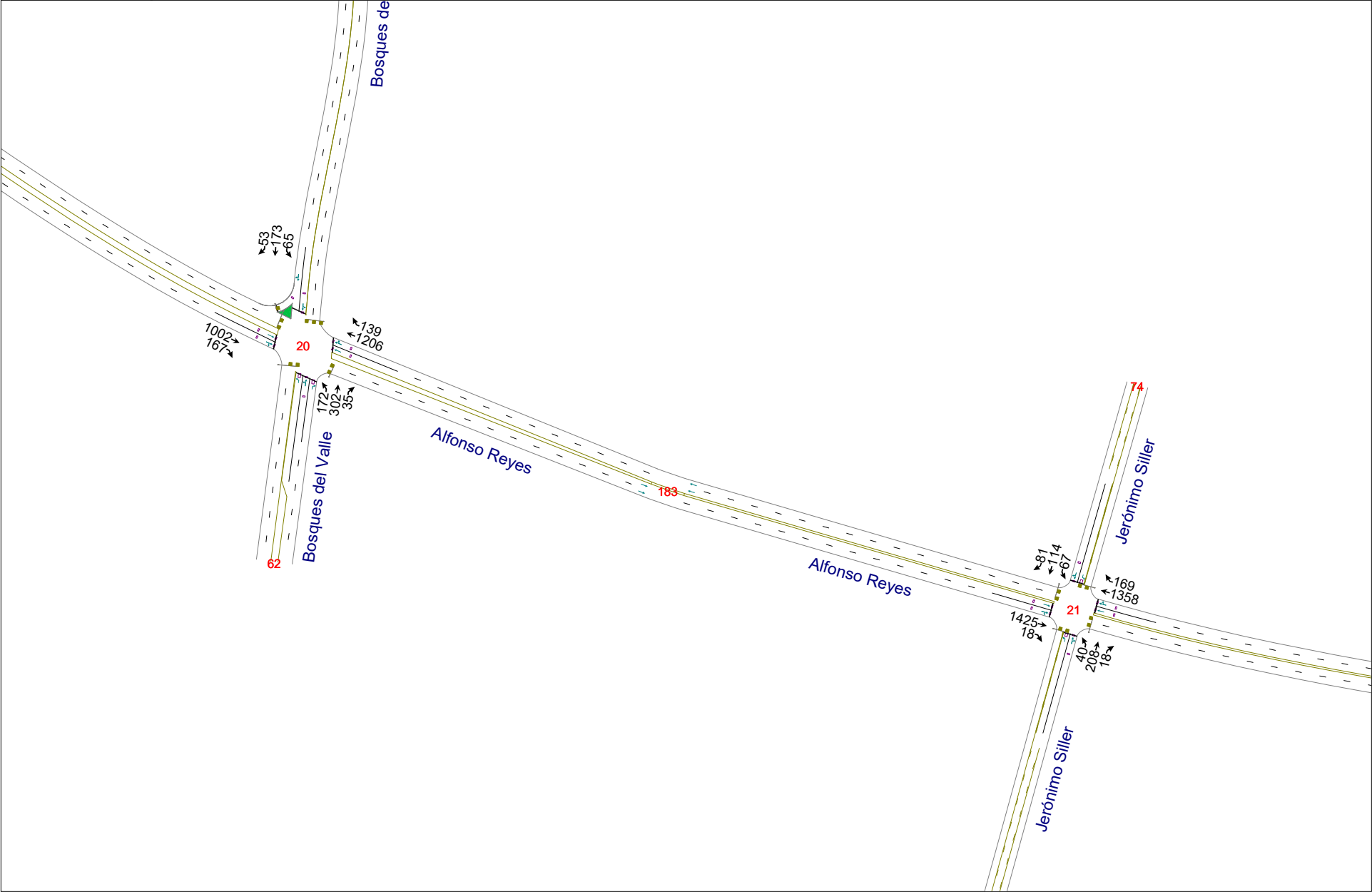
ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 19: Sierra Azul/Bosques del Olivo & Alfonso Reyes

								
ø1 (R)			ø2			ø3		
57 s			15 s			18 s		

Map - Ciclovía Alfonso Reyes
Análisis de la operación actual - PM - PROYECTO



Ciclovía Alfonso Reyes
Vargas Torres y Asociados, S.A. de C.V.

20: Bosques del Valle & Alfonso Reyes
Análisis de la operación actual - PM - PROYECTO

28/09/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑		↑	↑	↑		↑↑	
Volume (vph)	0	1002	167	0	1206	139	172	302	35	65	173	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-5%			5%	
Storage Length (m)	0.0		0.0	60.0		0.0	50.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	1		1	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	0.95	0.95	0.95
Ped Bike Factor		1.00			1.00				0.99		1.00	
Frt		0.978			0.983				0.850		0.975	
Flt Protected							0.950	0.997			0.988	
Satd. Flow (prot)	0	3477	0	0	3500	0	1721	1823	1637	0	3353	0
Flt Permitted							0.950	0.997			0.988	
Satd. Flow (perm)	0	3477	0	0	3500	0	1721	1823	1616	0	3352	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32			23				76		22	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		545.9			190.7			106.6			290.7	
Travel Time (s)		39.3			13.7			7.7			20.9	
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			14			22						
Peak Hour Factor	0.92	0.90	0.85	0.92	0.92	0.81	0.83	0.80	0.46	0.77	0.82	0.88
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	1%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	1113	196	0	1311	172	207	378	76	84	211	60
Shared Lane Traffic (%)							10%					
Lane Group Flow (vph)	0	1309	0	0	1483	0	186	399	76	0	355	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.0			3.0			4.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	0.98	0.98	0.98	1.05	1.05	1.05
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2		1	2	1	1	2	
Detector Template		Thru			Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)		10.0			10.0		2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)		0.6			0.6		2.0	0.6	2.0	2.0	0.6	
Detector 1 Type		Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

20: Bosques del Valle & Alfonso Reyes
Análisis de la operación actual - PM - PROYECTO

28/09/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type		NA			NA	custom		NA	custom	custom	NA	
Protected Phases		1			1		2	2	2	3	3	
Permitted Phases		1			1		2	2	2	3	3	
Detector Phase		1			1		2	2	2	3	3	
Switch Phase												
Minimum Initial (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)		20.0			20.0		10.0	10.0	10.0	10.0	10.0	
Total Split (s)		48.0			48.0		28.0	28.0	28.0	14.0	14.0	
Total Split (%)		53.3%			53.3%		31.1%	31.1%	31.1%	15.6%	15.6%	
Maximum Green (s)		45.0			45.0		25.0	25.0	25.0	11.0	11.0	
Yellow Time (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0		0.0	
Total Lost Time (s)		3.0			3.0		3.0	3.0	3.0		3.0	
Lead/Lag		Lead			Lead		Lag	Lag	Lag			
Lead-Lag Optimize?		Yes			Yes		Yes	Yes	Yes			
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode		C-Min			C-Min		Min	Min	Min	Min	Min	
Act Effct Green (s)		46.7			46.7		23.0	23.0	23.0		11.4	
Actuated g/C Ratio		0.52			0.52		0.26	0.26	0.26		0.13	
v/c Ratio		0.72			0.81		0.42	0.86	0.16		0.80	
Control Delay		29.9			22.8		30.7	50.7	7.1		51.1	
Queue Delay		0.0			0.0		0.0	0.0	0.0		0.0	
Total Delay		29.9			22.8		30.7	50.7	7.1		51.1	
LOS		C			C		C	D	A		D	
Approach Delay		29.9			22.8			40.1			51.1	
Approach LOS		C			C			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 28 (31%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 30.9

Intersection LOS: C

Intersection Capacity Utilization 72.0%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 20: Bosques del Valle & Alfonso Reyes

											
ø1 (R)			ø2			ø3					
48 s			28 s			14 s					

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑		↑	↑		↑	↑	
Volume (vph)	0	1425	18	0	1358	169	40	208	18	67	114	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	50.0		0.0	50.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00			1.00		1.00		
Frt		0.998			0.985			0.979			0.927	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	3492	0	0	3472	0	1750	1835	0	1785	1716	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	3492	0	0	3472	0	1750	1835	0	1778	1716	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			21			7			41	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		205.5			612.3			152.6			112.8	
Travel Time (s)		14.8			44.1			11.0			8.1	
Confl. Peds. (#/hr)	3		2	2		3			3	3		
Confl. Bikes (#/hr)			14			23						
Peak Hour Factor	0.75	0.96	0.75	0.57	0.85	0.92	0.91	0.85	0.45	0.80	0.80	0.60
Heavy Vehicles (%)	0%	2%	0%	0%	1%	0%	2%	0%	0%	0%	2%	1%
Adj. Flow (vph)	0	1484	24	0	1598	184	44	245	40	84	142	135
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1508	0	0	1782	0	44	285	0	84	277	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		1.0			1.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane								Yes			Yes	
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	*0.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2			2		1	2		1	2	
Detector Template		Thru			Thru		Left	Thru		Left	Thru	
Leading Detector (m)		10.0			10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)		0.6			0.6		2.0	0.6		2.0	0.6	
Detector 1 Type		Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	NA			NA			custom	NA	custom	NA		
Protected Phases	1			1			2	2		3	3	
Permitted Phases	1			1			2	2		3	3	
Detector Phase	1			1			2	2		3	3	
Switch Phase												
Minimum Initial (s)	1.0			1.0			4.0	4.0		4.0	4.0	
Minimum Split (s)	10.0			10.0			10.0	10.0		8.0	8.0	
Total Split (s)	61.0			61.0			20.0	20.0		19.0	19.0	
Total Split (%)	61.0%			61.0%			20.0%	20.0%		19.0%	19.0%	
Maximum Green (s)	58.0			58.0			17.0	17.0		16.0	16.0	
Yellow Time (s)	3.0			3.0			3.0	3.0		3.0	3.0	
All-Red Time (s)	0.0			0.0			0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	0.0			0.0			0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0			3.0			3.0	3.0		3.0	3.0	
Lead/Lag	Lead			Lead			Lag	Lag				
Lead-Lag Optimize?	Yes			Yes			Yes	Yes				
Vehicle Extension (s)	3.0			3.0			3.0	3.0		3.0	3.0	
Recall Mode	C-Max			C-Max			None	None		None	None	
Act Effct Green (s)	58.6			58.6			16.7	16.7		15.6	15.6	
Actuated g/C Ratio	0.59			0.59			0.17	0.17		0.16	0.16	
v/c Ratio	0.74			0.87			0.15	0.91		0.30	0.91	
Control Delay	18.0			23.6			37.0	74.0		40.4	70.5	
Queue Delay	0.0			0.0			0.0	0.0		0.0	0.0	
Total Delay	18.0			23.6			37.0	74.0		40.4	70.5	
LOS	B			C			D	E		D	E	
Approach Delay	18.0			23.6			69.1			63.5		
Approach LOS	B			C			E			E		

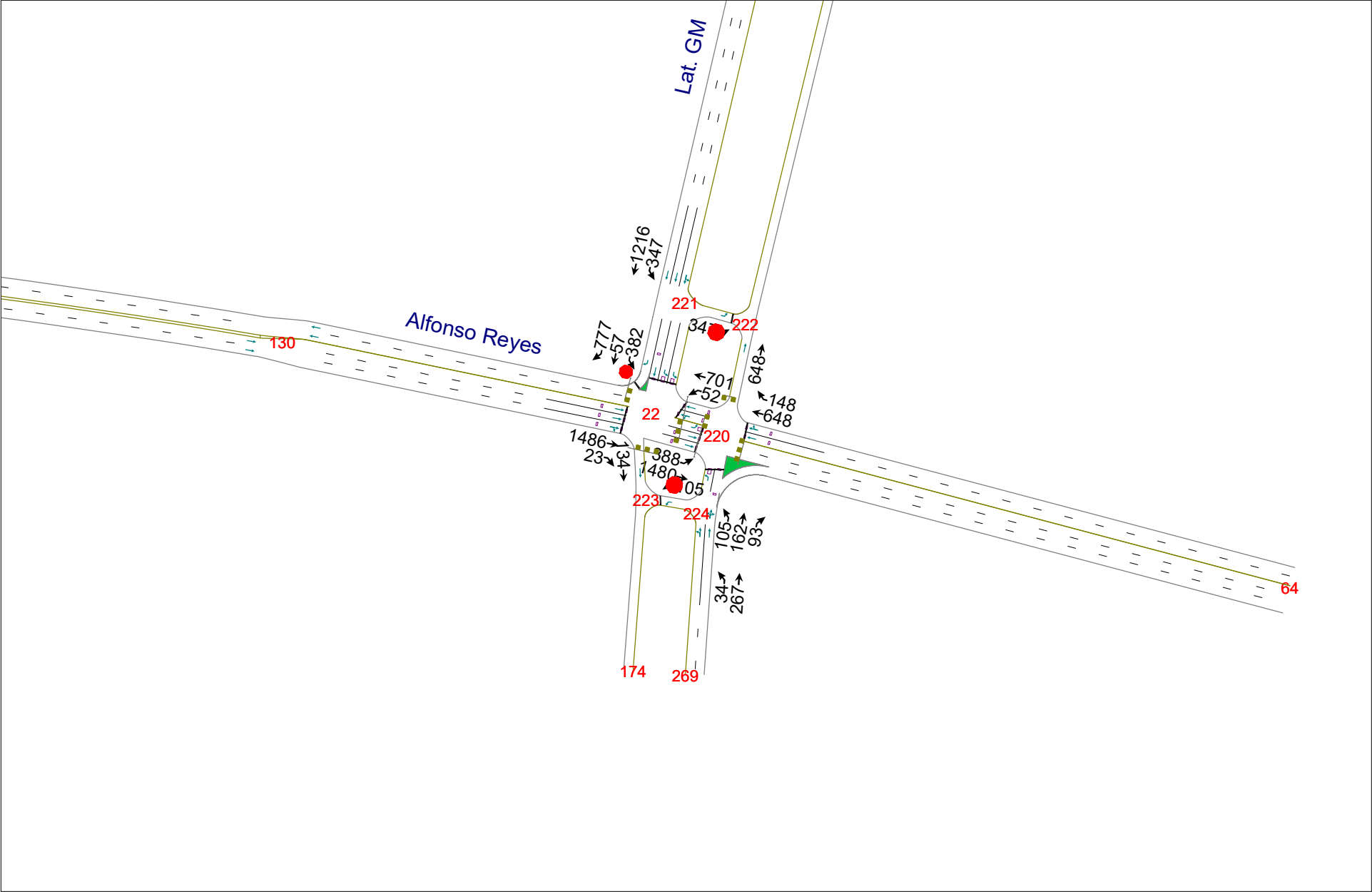
Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 57 (57%), Referenced to phase 1:EBWB, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 28.8
 Intersection LOS: C
 Intersection Capacity Utilization 68.7%
 ICU Level of Service C
 Analysis Period (min) 15
 * User Entered Value

Splits and Phases: 21: Jerónimo Siller & Alfonso Reyes

ø1 (R)	ø2	ø3
61 s	20 s	19 s

Map - Ciclovía Alfonso Reyes
Análisis de la operación actual - PM - PROYECTO



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑					↑↑	↑	↑
Volume (vph)	0	1486	23	52	701	0	0	0	0	382	57	777
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	0.95	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Ped Bike Factor		1.00			1.00							0.98
Frt		0.997										0.850
Flt Protected					0.997					0.950		
Satd. Flow (prot)	0	5057	0	0	3551	0	0	0	0	3463	1620	1566
Flt Permitted					0.997					0.950		
Satd. Flow (perm)	0	5057	0	0	3550	0	0	0	0	3463	1620	1529
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2										
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		140.3			26.0			32.5			43.2	
Travel Time (s)		10.1			1.9			2.3			3.1	
Confl. Peds. (#/hr)			15	15								36
Confl. Bikes (#/hr)			2									
Peak Hour Factor	0.92	0.95	0.72	0.93	0.81	0.92	0.92	0.92	0.92	0.83	0.68	0.92
Heavy Vehicles (%)	0%	1%	2%	4%	0%	0%	0%	0%	0%	0%	16%	2%
Adj. Flow (vph)	0	1564	32	56	865	0	0	0	0	460	84	845
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1596	0	0	921	0	0	0	0	460	84	845
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			-3.5	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors		2		1	2					1	2	1
Detector Template		Thru		Left	Thru					Left	Thru	Right
Leading Detector (m)		10.0		2.0	10.0					2.0	10.0	2.0
Trailing Detector (m)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Position(m)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Size(m)		0.6		2.0	0.6					2.0	0.6	2.0
Detector 1 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Queue (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 1 Delay (s)		0.0		0.0	0.0					0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4						9.4	
Detector 2 Size(m)		0.6			0.6						0.6	
Detector 2 Type		Cl+Ex			Cl+Ex						Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0						0.0	
Turn Type		NA		custom	NA					custom	NA	custom
Protected Phases		3		1 4	1 4					2	2	2
Permitted Phases		3		1 4	1 4					2	2 1 2 3 4	

Lane Group	ø1	ø4
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	1	4
Permitted Phases		

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase		3		1 4	1 4					2	2	2
Switch Phase												
Minimum Initial (s)		4.0								4.0	4.0	4.0
Minimum Split (s)		10.0								10.0	10.0	10.0
Total Split (s)		32.0								30.0	30.0	30.0
Total Split (%)		27.6%								25.9%	25.9%	25.9%
Maximum Green (s)		28.0								26.0	26.0	26.0
Yellow Time (s)		3.0								3.0	3.0	3.0
All-Red Time (s)		1.0								1.0	1.0	1.0
Lost Time Adjust (s)		0.0								0.0	0.0	0.0
Total Lost Time (s)		4.0								4.0	4.0	4.0
Lead/Lag		Lead								Lag	Lag	Lag
Lead-Lag Optimize?		Yes								Yes	Yes	Yes
Vehicle Extension (s)		3.0								3.0	3.0	3.0
Recall Mode		Min								Min	Min	Min
Act Effct Green (s)		28.0			50.0					26.0	26.0	108.0
Actuated g/C Ratio		0.24			0.43					0.22	0.22	0.93
v/c Ratio		1.31			0.60					0.59	0.23	0.59
Control Delay		180.2			5.6					43.9	38.9	2.1
Queue Delay		0.9			0.0					0.0	0.0	0.0
Total Delay		181.1			5.6					43.9	38.9	2.1
LOS		F			A					D	D	A
Approach Delay		181.1			5.6						18.2	
Approach LOS		F			A						B	

Intersection Summary

Area Type: Other

Cycle Length: 116

Actuated Cycle Length: 116

Natural Cycle: 120

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.40

Intersection Signal Delay: 81.8

Intersection LOS: F

Intersection Capacity Utilization 78.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 22: Lat. GM & Alfonso Reyes



Lane Group	ø1	ø4
Detector Phase		
Switch Phase		
Minimum Initial (s)	4.0	4.0
Minimum Split (s)	10.0	10.0
Total Split (s)	35.0	19.0
Total Split (%)	30%	16%
Maximum Green (s)	31.0	15.0
Yellow Time (s)	3.0	3.0
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	388	1480	0	0	648	148	105	162	93	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99				0.97			0.98				
Frt					0.971			0.948				
Flt Protected	0.950						0.950	0.998				
Satd. Flow (prot)	1750	3500	0	0	3319	0	1696	1609	0	0	0	0
Flt Permitted	0.950						0.950	0.998				
Satd. Flow (perm)	1736	3500	0	0	3319	0	1696	1609	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					24			19				
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		26.0			221.6			29.9			43.1	
Travel Time (s)		1.9			16.0			2.2			3.1	
Confl. Peds. (#/hr)	27					27			25			
Confl. Bikes (#/hr)						47						
Peak Hour Factor	0.94	0.96	0.92	0.92	0.92	0.88	0.82	0.84	0.86	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	0%	0%	2%	1%	0%	4%	0%	0%	0%	0%
Adj. Flow (vph)	413	1542	0	0	704	168	128	193	108	0	0	0
Shared Lane Traffic (%)							10%					
Lane Group Flow (vph)	413	1542	0	0	872	0	115	314	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2			2		1	2				
Detector Template	Left	Thru			Thru		Left	Thru				
Leading Detector (m)	2.0	10.0			10.0		2.0	10.0				
Trailing Detector (m)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Position(m)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Size(m)	2.0	0.6			0.6		2.0	0.6				
Detector 1 Type	CI+Ex	CI+Ex			CI+Ex		CI+Ex	CI+Ex				
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				
Detector 2 Position(m)		9.4			9.4			9.4				
Detector 2 Size(m)		0.6			0.6			0.6				
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex				
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				
Turn Type	custom	NA			NA		custom	NA				
Protected Phases	2 3	2 3			1		4	4				
Permitted Phases	2 3	2 3			1		4	4				

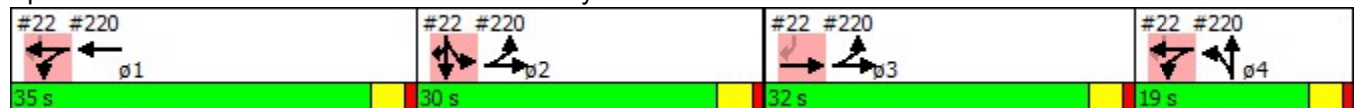
Lane Group	ø2	ø3
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	2	3
Permitted Phases		

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2 3	2 3			1		4	4				
Switch Phase												
Minimum Initial (s)					4.0		4.0	4.0				
Minimum Split (s)					10.0		10.0	10.0				
Total Split (s)					35.0		19.0	19.0				
Total Split (%)					30.2%		16.4%	16.4%				
Maximum Green (s)					31.0		15.0	15.0				
Yellow Time (s)					3.0		3.0	3.0				
All-Red Time (s)					1.0		1.0	1.0				
Lost Time Adjust (s)					0.0		0.0	0.0				
Total Lost Time (s)					4.0		4.0	4.0				
Lead/Lag					Lead		Lag	Lag				
Lead-Lag Optimize?					Yes		Yes	Yes				
Vehicle Extension (s)					3.0		3.0	3.0				
Recall Mode					None		None	None				
Act Effct Green (s)	58.0	58.0			31.0		15.0	15.0				
Actuated g/C Ratio	0.50	0.50			0.27		0.13	0.13				
v/c Ratio	0.47	0.88			0.96		0.53	1.40				
Control Delay	10.3	18.0			63.7		56.6	241.3				
Queue Delay	0.0	0.0			0.8		0.0	0.4				
Total Delay	10.3	18.0			64.5		56.7	241.7				
LOS	B	B			E		E	F				
Approach Delay		16.4			64.5			192.1				
Approach LOS		B			E			F				

Intersection Summary

Area Type: Other
Cycle Length: 116
Actuated Cycle Length: 116
Natural Cycle: 120
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.40
Intersection Signal Delay: 52.4
Intersection LOS: D
Intersection Capacity Utilization 65.2%
ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 220: Lat. GM & Alfonso Reyes



Lane Group	ø2	ø3
Detector Phase		
Switch Phase		
Minimum Initial (s)	4.0	4.0
Minimum Split (s)	10.0	10.0
Total Split (s)	30.0	32.0
Total Split (%)	26%	28%
Maximum Green (s)	26.0	28.0
Yellow Time (s)	3.0	3.0
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	Min	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

Zone 22 Totals

Number of Intersections	2
Control Delay / Veh (s/v)	69
Queue Delay / Veh (s/v)	0
Total Delay / Veh (s/v)	69
Total Delay (hr)	125
Stops / Veh	0.52
Stops (#)	3387
Average Speed (km/hr)	9
Total Travel Time (hr)	154
Distance Traveled (km)	1444
Fuel Consumed (l)	559
Fuel Economy (km/l)	2.6
CO Emissions (kg)	10.40
NOx Emissions (kg)	2.01
VOC Emissions (kg)	2.40
Unserved Vehicles (#)	429
Vehicles in dilemma zone (#)	0
Performance Index	134.3

Arterial Level of Service: EB Alfonso Reyes

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (km)	Arterial Speed	Arterial LOS
Acceso	III	50	15.9	29.9	45.8	0.18	14.3	F
Las Sendas	III	50	14.1	29.5	43.6	0.16	13.2	F
	III	50	19.5	29.8	49.3	0.23	17.1	E
B. Juárez	III	50	14.3	9.9	24.2	0.16	24.3	D
Ticomán	III	50	23.4	2.3	25.7	0.30	41.6	B
Montefalco	III	50	17.2	16.8	34.0	0.21	21.9	E
Genaro Garza García	III	50	16.7	4.2	20.9	0.19	32.8	C
Matamoros	III	50	8.9	4.5	13.4	0.09	24.7	D
Jardines Coloniales	III	50	31.8	10.0	41.8	0.40	34.7	C
Neil Armstrong	III	50	28.8	20.4	49.2	0.36	26.7	D
Las Olimpiadas	III	50	59.6	11.0	70.6	0.75	38.5	B
Río Suchiate	III	50	40.1	6.3	46.4	0.51	39.5	B
Lomas del Valle	III	50	13.4	25.4	38.8	0.15	14.1	F
Sierra Azul	III	50	23.5	10.8	34.3	0.30	31.3	C
Bosques del Valle	III	50	43.1	14.7	57.8	0.55	34.0	C
Jerónimo Siller	III	50	31.3	19.4	50.7	0.40	28.1	D
Lat. GM	III	50	59.4	58.6	118.0	0.75	23.0	D
Lat. GM	III	50	2.5	2.2	4.7	0.03	19.9	E
Total	III		463.5	305.7	769.2	5.73	26.8	D

Arterial Level of Service: WB Alfonso Reyes

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (km)	Arterial Speed	Arterial LOS
Lat. GM	III	50	18.5	75.4	93.9	0.22	8.5	F
Lat. GM	III	50	2.5	5.4	7.9	0.03	11.8	F
Jerónimo Siller	III	50	59.4	14.6	74.0	0.75	36.6	C
Bosques del Valle	III	50	31.3	11.4	42.7	0.40	33.4	C
Bosques del Olivo	III	50	43.1	4.8	47.9	0.55	41.0	B
Lomas del Valle	III	50	23.5	18.1	41.6	0.30	25.8	D
Río Suchiate	III	50	13.4	4.6	18.0	0.15	30.5	C
Cauhtémoc	III	50	40.1	8.8	48.9	0.51	37.4	C
Neil Armstrong	III	50	59.6	6.0	65.6	0.75	41.4	B
Guillermo Prieto	III	50	28.8	9.4	38.2	0.36	34.4	C
Matamoros	III	50	31.8	3.6	35.4	0.40	41.0	B
Genaro Garza García	III	50	8.9	3.5	12.4	0.09	26.7	D
Gerónimo Treviño	III	50	16.7	13.7	30.4	0.19	22.5	D
Manuel González	III	50	17.2	5.0	22.2	0.21	33.6	C
B. Juárez	III	50	23.4	14.7	38.1	0.30	28.1	D
Corregidora	III	50	14.3	14.3	28.6	0.16	20.6	E
Las Sendas	III	50	19.5	13.7	33.2	0.23	25.4	D
Jiménez	III	50	14.1	20.1	34.2	0.16	16.9	E
Total	III		466.1	247.1	713.2	5.77	29.1	C

Arterial Level of Service: EB Alfonso Reyes

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (km)	Arterial Speed	Arterial LOS
Acceso	III	50	15.9	17.2	33.1	0.18	19.8	E
Las Sendas	III	50	14.1	15.2	29.3	0.16	19.7	E
	III	50	19.5	13.2	32.7	0.23	25.8	D
B. Juárez	III	50	14.3	4.6	18.9	0.16	31.2	C
Ticomán	III	50	23.4	3.2	26.6	0.30	40.2	B
Montefalco	III	50	17.2	15.5	32.7	0.21	22.8	D
Genaro Garza García	III	50	16.7	3.9	20.6	0.19	33.3	C
Matamoros	III	50	8.9	3.3	12.2	0.09	27.1	D
Jardines Coloniales	III	50	31.8	11.1	42.9	0.40	33.8	C
Neil Armstrong	III	50	28.8	7.8	36.6	0.36	35.9	C
Las Olimpiadas	III	50	59.6	11.1	70.7	0.75	38.4	B
Río Suchiate	III	50	40.1	7.1	47.2	0.51	38.8	B
Lomas del Valle	III	50	13.4	20.4	33.8	0.15	16.2	E
Sierra Azul	III	50	23.5	10.3	33.8	0.30	31.8	C
Bosques del Valle	III	50	43.1	29.9	73.0	0.55	26.9	D
Jerónimo Siller	III	50	31.3	18.0	49.3	0.40	28.9	C
Lat. GM	III	50	59.4	180.2	239.6	0.75	11.3	F
Lat. GM	III	50	2.5	18.0	20.5	0.03	4.6	F
Total	III		463.5	390.0	853.5	5.73	24.2	D

Arterial Level of Service: WB Alfonso Reyes

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (km)	Arterial Speed	Arterial LOS
Lat. GM	III	50	18.5	63.7	82.2	0.22	9.7	F
Lat. GM	III	50	2.5	5.6	8.1	0.03	11.6	F
Jerónimo Siller	III	50	59.4	23.6	83.0	0.75	32.6	C
Bosques del Valle	III	50	31.3	22.8	54.1	0.40	26.4	D
Bosques del Olivo	III	50	43.1	8.3	51.4	0.55	38.2	C
Lomas del Valle	III	50	23.5	22.0	45.5	0.30	23.6	D
Río Suchiate	III	50	13.4	8.6	22.0	0.15	24.9	D
Cauhtémoc	III	50	40.1	14.3	54.4	0.51	33.7	C
Neil Armstrong	III	50	59.6	9.7	69.3	0.75	39.2	B
Guillermo Prieto	III	50	28.8	16.0	44.8	0.36	29.3	C
Matamoros	III	50	31.8	5.7	37.5	0.40	38.7	B
Genaro Garza García	III	50	8.9	5.9	14.8	0.09	22.4	E
Gerónimo Treviño	III	50	16.7	22.9	39.6	0.19	17.3	E
Manuel González	III	50	17.2	7.0	24.2	0.21	30.8	C
B. Juárez	III	50	23.4	11.8	35.2	0.30	30.4	C
Corregidora	III	50	14.3	13.0	27.3	0.16	21.6	E
Las Sendas	III	50	19.5	14.9	34.4	0.23	24.5	D
Jiménez	III	50	14.1	18.1	32.2	0.16	17.9	E
Total	III		466.1	293.9	760.0	5.77	27.3	D