1 INTRODUCCIÓN

El siguiente informe presenta un estudio de tránsito en el área destinada para la construcción de un proyecto residencial en el sector Aguirre del municipio de Salinas. Este informe evalúa las condiciones presentes del área y el impacto que tendrá la acción propuesta. Se modelará el funcionamiento de las intersecciones afectadas por el nuevo desarrollo mediante el uso del programa de computadoras para el análisis de intersecciones "**S**ignalised & unsignalised **I**ntersection **D**esign & **R**esearch **A**id", con el fin de determinar el efecto final del mismo en las intersecciones de interés. También se evaluará el efecto de las mejoras geométricas que sean necesarias para mitigar el efecto del proyecto.

2 LOCALIZACIÓN Y DESCRIPCIÓN DE LA ACCIÓN PROPUESTA

El proyecto propuesto estará localizado en el lado norte del kilómetro 152.7 de la carretera PR-3 en el sector Aguirre del municipio de Salinas. El desarrollo propuesto consta de 967 unidades de vivienda unifamiliar. La siguiente figura muestra un mapa de localización del proyecto.

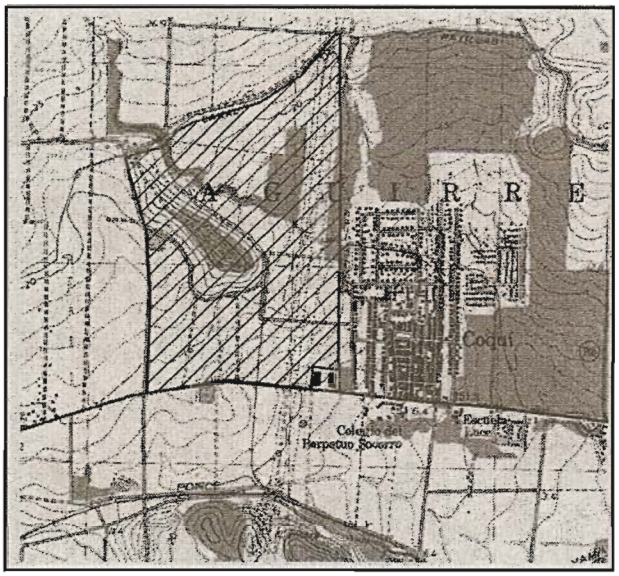


Figura 1 Mapa de Localización

3 METODOLOGÍA PARA LA EVALUACIÓN DEL IMPACTO EN EL TRÁNSITO DEBIDO A LA ACCIÓN PROPUESTA

1. El miércoles 5 de abril de 2006 se realizaron conteos de vehículos en el área de estudio durante las 12 horas de mayor afluencia vehicular. Los horarios de conteos fueron realizados de 6:00 AM a 6:00 PM. Este conteo se hizo para determinar el número de vehículos usuarios de las vías de tránsito cercanas al área del proyecto. Estos datos fueron recopilados para un estudio que realizamos en el mismo predio, pero que posterior a la realización del estudio, el concepto del proyecto cambió. Las intersecciones medidas fueron las siguientes:

    a. Int. PR-3 y PR-706
    b. Int. PR-3 y acceso área residencial Paseo Costa del Sur
    c. Int. PR-3 y PR-180

2. Dado que el proyecto no estará completado hasta aproximadamente el año 2012, los flujos del año 2006 fueron expandidos a ese año usando un factor de crecimiento anual.

3. Utilizando como referencia el Manual de Generación de Viajes del ITE se estimó el número de viajes que se generarían desde y hacia el proyecto propuesto.

4. Con toda la data recopilada se procedió a analizar las intersecciones en cuestión. Para realizar este análisis se utilizó el programa de computadoras SIDRA Intersection 3.1. Las situaciones estudiadas fueron los períodos pico de la mañana y de la tarde con los flujos existentes, y las mismas situaciones al añadirse el crecimiento anual esperado y los flujos generados por el proyecto. Las intersecciones bajo estudio son las que se mencionaron anteriormente.

4 TEORÍA

4.1 Evaluación de Nivel de Servicio (LOS) para una intersección

El nivel de servicio es la metodología más conocida utilizada para la evaluación de una facilidad. El nivel de servicio representa las condiciones de operación de las intersecciones: el nivel de servicio "A" representa las condiciones excelentes de tránsito y el nivel "F", las peores condiciones. Tanto las intersecciones semaforizadas como las no semaforizadas pueden ser categorizadas utilizando esta metodología. Estos niveles de servicio a su vez se encuentran basados en las demoras promedio que tienen los vehículos en las intersecciones. A continuación se definen las categorías para cada nivel de servicio.

LOS A: Excelente

Esta es una condición de flujo libre, acompañada por bajos volúmenes de tránsito y altas velocidades. Hay poca o ninguna restricción en maniobrabilidad del conductor y los conductores pueden mantener sus deseadas velocidades con poco o ningún retraso.

LOS B: Muy Buena

En esta condición, las velocidades de operación comienzan a estar restringidas un tanto por las condiciones del tránsito. Los conductores aún tienen una libertad considerable para seleccionar su velocidad y carril de operación.

LOS C: Buena

Las velocidades y maniobrabilidad se vuelven más controladas por volúmenes de tránsito más altos. La mayoría de los conductores están restringidos en su libertad para seleccionar su propia velocidad, cambiar de carril o pasar.

LOS D: Aceptable

Este nivel de servicio se acerca a un flujo inestable, con velocidades operacionales tolerables siendo mantenidas, aunque considerablemente

afectadas por los cambios en las condiciones operacionales. Los conductores tienen poca libertad para maniobrar y la comodidad y conveniencia son bajas.

LOS E: Capacidad

El flujo de tránsito se vuelve inestable y podría haber paradas momentáneas.

LOS F: Mala

En esta condición, la velocidad operacional podría bajar a cero y resultar en colas de tránsito.

4.2 Relación entre demoras y Nivel de Servicio

La Tabla 1, muestra las diferentes relaciones entre el nivel de servicio y las demoras promedio por cada vehículo en las intersecciones controladas ya sea por semáforo, señales de PARE o CEDA, o en rotondas. (Manual de aaSIDRA 2.1. Estas demoras tienen como componentes la demora de viajar a través de la intersección más la demora de la detención como consecuencia de la intersección.

Tabla 1 Criterio del Nivel de Servicio para intersecciones

Nivel de Servicio	Demora de vehículos (segs.)	
	Semáforo y Rotonda	PARE y CEDA
A	$d \leq 10$	$d \leq 10$
B	$10 < d \leq 20$	$10 < d \leq 15$
C	$20 < d \leq 35$	$15 < d \leq 25$
D	$35 < d \leq 55$	$25 < d \leq 35$
E	$55 < d \leq 80$	$35 < d \leq 50$
F	$80 < d$	$50 < d$

4.3 Glosario

A continuación se presenta una lista de términos comunes en la práctica de la ingeniería de tránsito, según definidos por la Autoridad de Carreteras y Transportación.

1. **Acceso (intersección)** – está caracterizado por un grupo de carriles en una dirección de la intersección, incluyendo los movimientos a la izquierda, recto y a la derecha.

2. **ADT** – "Average Daily Traffic", tránsito promedio diario en una facilidad de una carretera.
3. **Área de estudio** – área geográfica que contiene las intersecciones y segmentos más críticos de una carretera, los cuales se esperan sean afectados por el tránsito a ser generado por el desarrollo.
4. **Ciclo** – el período de tiempo requerido para una secuencia completa de indicaciones del semáforo.
5. **Desarrollo** – proyectos residenciales, comerciales, de oficinas, de hospederías e industriales, entre otros, que serán construidos en un predio de terreno sin desarrollar o que forman parte de una reconstrucción o expansión de una edificación existente.
6. **Día típico** – un martes, miércoles o jueves durante los días de clase entre los meses de enero a mayo y de agosto a diciembre. Para los usos comerciales, el sábado podrá incluirse entre los días típicos.
7. **Estudio operacional** – el análisis del impacto potencial al tránsito causado por un desarrollo propuesto. Este tipo de estudio dependerá del tipo y tamaño del proyecto. Para propósitos de este documento, un estudio operacional consistirá de un estudio de accesos o un estudio de tránsito.
8. **Factor de hora pico** – una medida de la fluctuación en la demanda vehicular dentro de la hora pico.
9. **Fase** – una parte del ciclo asignado a un movimiento de tránsito que tenga el derecho de paso o a una combinación de movimientos de tránsito que tengan simultáneamente el derecho de paso durante uno o más intervalos.
10. **Hora pico** – un período de una hora durante la mañana (AM) o durante la tarde (PM) que representa el volumen de tránsito más alto en el sistema, resultado de la suma de los volúmenes de cuatro (4) períodos de quince (15) minutos consecutivos.
11. **Modelos de micro-simulación** – modelos que simulan el movimiento individual de vehículos, basados en teorías de cambio de carril, dirección de los vehículos y forma de conducir.
12. **Nivel de servicio ("Level of Service" - LOS)** – una medida cualitativa que describe las condiciones operacionales de un componente del sistema de transportación. Generalmente descrito por los siguientes factores: velocidad, tiempo de viaje, demora, interrupciones en el tránsito y seguridad.
13. **Semáforo actuado** – un tipo de sistema de semáforos mediante el cual se varían los intervalos de tiempo de acuerdo con las demandas del tránsito registradas por la actuación de los detectores localizados en el pavimento de rodaje.
14. **Semáforo semi-actuado** – un tipo de sistema de semáforos donde los detectores son colocados en los accesos de menor flujo vehicular para permitirle prioridad de verde a los accesos principales.

15. **Semáforo de tiempo fijo** – un tipo de sistema de semáforos que opera con programas predeterminados de ciclos en intervalos.
16. **Volumen** – el número de personas o vehículos pasando por un punto de un carril o un segmento de carretera durante cierto intervalo de

5 ANÁLISIS DE TRÁNSITO

5.1 Afluencia vehicular

A modo de determinar el patrón de viajes actuales del sector se realizó un conteo manual en las intersecciones mencionadas anteriormente. Dichos conteos se realizaron en los periodos de 6:00 AM a 6:00 PM. Estas intersecciones son las críticas alrededor del proyecto.

Las tablas en el apéndice 1 ilustran el flujo vehicular obtenido mediante dichos conteos manuales. Para determinar la hora pico se buscaron los cuatro períodos consecutivos de 15 minutos con más flujo. Una vez se encontraba esta hora en los períodos AM y PM, se buscaba el período de 15 minutos con mayor flujo, y este valor multiplicado por cuatro era el que se utilizaba para la modelación. Dado que ya se está usando el valor del período de 15 minutos mas alto, el factor de hora pico a utilizarse es 1.0.

Los flujos mostrados están identificados por dos letras separadas por un guión. La primera representa el acceso de procedencia del movimiento en inglés: North, South, East & West. La segunda letra representa el tipo de movimiento: Left, Thru & Right.

Las siguientes tablas muestran los flujos vehiculares por acceso de las intersecciones estudiadas.

Tabla 2 Flujos Int. PR-3 y PR-706 (Condición Presente)

2006	PR-3		PR-706		PR-3		
	E-T	E-R	N-L	N-R	W-L	W-T	Total
Pico AM	264	36	40	324	408	464	1536
Pico PM	460	64	72	324	272	312	1504

Tabla 3 Flujos Int. PR-3 y Acceso Residencial Proyecto (Condición Presente)

2006	Acceso Canto Alegre			PR-3			Acceso Proyecto			PR-3			
	S-L	S-T	S-R	E-L	E-T	E-R	N-L	N-T	N-R	W-L	W-T	W-R	Total
Pico AM	40	0	12	40	428	4	68	0	68	20	864	92	1636
Pico PM	36	4	12	12	748	52	28	0	16	52	516	16	1492

Tabla 4 Flujos Int. PR-3 y PR-180 (Condición Presente)

2006	PR-180			PR-3			PR-180			PR-3			
	S-L	S-T	S-R	E-L	E-T	E-R	N-L	N-T	N-R	W-L	W-T	W-R	Total
Pico AM	0	60	196	48	352	240	320	76	112	312	900	0	2616
Pico PM	0	96	60	124	420	244	304	100	56	304	424	0	2132

5.2 Crecimiento Anual

Los flujos obtenidos en el año 2006 fueron expandidos al año 2012, cuando entendemos que el proyecto estará operando. Los flujos de la zona fueron expandidos utilizando un factor de crecimiento que nos fue brindada por la Oficina de Recopilación de Datos y Análisis de Tránsito de la Autoridad de Carreteras y Transportación. Para las intersecciones en la PR-3, el factor de crecimiento a 20 años es de 1.33, por lo que podemos computar que el factor de crecimiento a 6 años es de 1.099.

En adición, dado que el proyecto es uno de tamaño mediano de acuerdo a las Guías de la Autoridad de Carreteras y Transportación, también se expandieron los datos a 5 años después de la fecha de operación. Para esta fecha el factor de crecimiento total es de 1.1815.

5.3 Generación de Viajes

El proyecto consiste de 967 unidades residenciales unifamiliares. Para realizar el cómputo de la cantidad de viajes que generaría este proyecto, se utilizó el Manual de Generación de Viajes de ITE. Se utilizó la categoría 210 correspondiente a residencias

unifamiliares, como uso de terreno, La siguiente tabla muestra los resultados de este análisis.

Tabla 5 Generación de Viajes

				ADT			Pico AM			Pico PM		
Uso	Categoria	Tamaño	Unidad	Total	In	Out	Total	In	Out	Total	In	Out
Res Unifamiliar	210	967	Viviendas	8,386	4,193	4,193	686	172	515	826	520	306

5.4 Distribución de Viajes

Para la distribución de los viajes desde y hacia el nuevo desarrollo se siguió el patrón observado en el desarrollo adyacente al propuesto y que compartirá el acceso en el futuro. En las intersecciones a lo largo de la PR-3 que se estudiaron (PR-180 y PR-706) se utilizó también las mismas proporciones que se observaron durante los conteos.

Los viajes generados en el proyecto fueron distribuidos en 50% hacia el Este y 50% hacia el Oeste. Los viajes generados una vez llegan a la intersección de la PR-3 con la PR-706 se distribuyeron en un 20% siguiendo en dirección este y un 30% doblando a la izquierda en dirección norte. En la intersección de la PR-3 con la PR-180 los viajes se distribuyeron en un 20% continuando en dirección oeste y un 30% doblando a la derecha en dirección norte.

5.5 Tránsito Futuro

Para la modelación de la situación futura se tomaron los flujos de la situación base, se multiplicaron por el factor de crecimiento anual y se le añadieron los flujos que se obtuvieron en la etapa de generación de viajes, repartidos de acuerdo a la distribución

que se explicó anteriormente más el crecimiento anual esperado. Las siguientes tablas muestran los flujos modelados.

Tabla 6 Flujos Int. PR-3 y PR-706 (Condición Futuro 2012)

2012+P	PR-3		PR-706		PR-3		
	E-T	E-R	N-L	N-R	W-L	W-T	Total
Pico AM	324	40	44	407	602	613	2030
Pico PM	610	70	79	512	391	404	2066

Tabla 7 Flujos Int. PR-3 y Acceso Proyecto (Condición Futuro 2012)

2012 + P	Acceso Canto Alegre			PR-3			Acceso Proyecto						
	S-L	S-T	S-R	E-L	E-T	E-R	N-L	N-T	N-R	W-L	W-T	W-R	Total
Pico AM	44	0	13	44	470	90	332	0	332	108	950	101	2484
Pico PM	40	4	13	13	822	317	184	0	171	317	567	18	2466

Tabla 8 Flujos Int. PR-3 y PR-180 (Condición Futuro 2012)

2012 + P	PR-180			PR-3			PR-180			PR-3			
	S-L	S-T	S-R	E-L	E-T	E-R	N-L	N-T	N-R	W-L	W-T	W-R	Total
Pico AM	0	66	215	53	490	418	403	84	123	343	1023	0	3218
Pico PM	0	106	66	136	523	360	490	110	62	334	570	0	2757

Tabla 9 Flujos Int. PR-3 y PR-706 (Condición Futuro 2017)

2017 + P	PR-3		PR-706		PR-3		
	E-T	E-R	N-L	N-R	W-L	W-T	Total
Pico AM	346	43	47	434	636	651	2157
Pico PM	647	76	85	539	413	430	2190

Tabla 10 Flujos Int. PR-3 y Acceso Proyecto (Condición Futuro 2017)

2017 + P	Acceso Canto Alegre			PR-3			Acceso Proyecto						
	S-L	S-T	S-R	E-L	E-T	E-R	N-L	N-T	N-R	W-L	W-T	W-R	Total
Pico AM	47	0	14	47	506	91	337	0	337	110	1021	109	2619
Pico PM	43	5	14	14	884	321	186	0	172	321	610	19	2589

Tabla 11 Flujos Int. PR-3 y PR-180 (Condición Futuro 2017)

2017 +P	PR-180			PR-3			PR-180			PR-3			
	S-L	S-T	S-R	E-L	E-T	E-R	N-L	N-T	N-R	W-L	W-T	W-R	Total
Pico AM	0	71	232	57	519	438	429	90	132	369	1097	0	3434
Pico PM	0	113	71	147	557	380	515	118	66	359	605	0	2931

5.6 Modelación de Tránsito

Para la evaluación de las intersecciones afectadas se utilizó el programa SIDRA Intersection 3.1. Este modelo permite la evaluación de intersecciones semaforizadas y de prioridad, además de la optimización de las de semáforo, y es el preferido debido a su capacidad de predicción, aún en situaciones de sobresaturación. Se realizaron modelaciones para los períodos pico de la mañana y de la tarde para la situación actual y la situación futura.

5.6.1 Intersección PR-3 y PR-706

Esta intersección es controlada por un semáforo, con una geometría en forma de "T". La carretera PR-706 compone el acceso norte de la intersección. Los accesos este y oeste es la carretera PR-3. Esta intersección está localizada al este del proyecto. Hay que mencionar que al momento del estudio, el semáforo estaba operando de forma intermitente ("Flashing"), operación que llevaba un tiempo ocurriendo, según fuimos informados.

Cada acceso cuenta con un carril por dirección. La calzada norte tiene un ancho de 8.2 metros, la este y la oeste miden 8.0 metros. La siguiente figura muestra un croquis de esta intersección, seguida por una tabla que muestra los resultados obtenidos para las distintas situaciones modeladas.

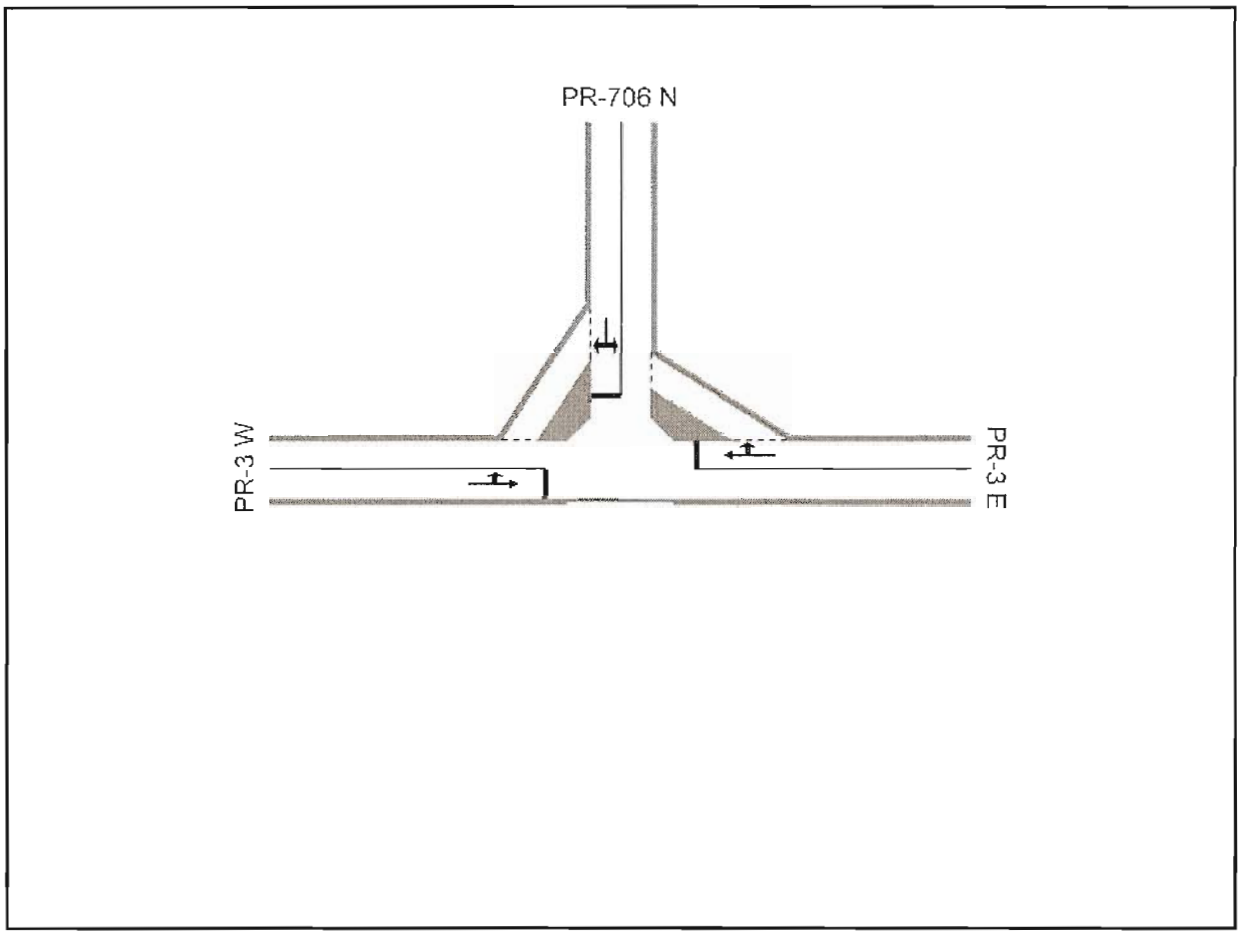


Figura 2 Int. PR-3 y PR-706

Tabla 12 Resultados Modelación Int. PR-1 y PR-706

		Demora Promedio por Vehículo [seg.], Nivel de Servicio (LOS) y Cola Promedio [metros]												
		Acceso Sur N/A			Acceso Este PR-3			Acceso Norte PR-706			Acceso Oeste PR-3			Demora y LOS Total Int.
		Demora y LOS		Cola	Demora y LOS		Cola	Demora y LOS		Cola	Demora y LOS		Cola	
Base 2006														
AM	Izquierda	--	--	--	--	--	--	10.0	A	1	11.3	B	5	6.6 A
	Recto	--	--	--	1.3	A	1	--	--	--	2.9	A	5	
	Derecha	--	--	--	9.2	A	1	9.4	A	1	--	--	--	
	Acceso	--	--	--	2.2	A	1	9.5	A	1	6.9	A	5	
PM	Izquierda	--	--	--	--	--	--	10.8	B	2	14.6	B	7	8.2 A
	Recto	--	--	--	3.4	A	3	--	--	--	6.2	A	7	
	Derecha	--	--	--	11.3	B	3	10.2	B	2	--	--	--	
	Acceso	--	--	--	4.4	A	3	10.3	B	2	10.1	B	7	
Futuro 2012														
AM	Izquierda	--	--	--	--	--	--	13.8	B	5	22.9	C	16	19.7 B
	Recto	--	--	--	52.4	D	37	--	--	--	2.6	A	3	
	Derecha	--	--	--	60.3	E	37	13.2	B	5	--	--	--	
	Acceso	--	--	--	53.3	D	37	13.3	B	5	12.4	B	16	
PM	Izquierda	--	--	--	--	--	--	21.0	C	14	33.9	C	19	23.9 C
	Recto	--	--	--	33.2	C	44	--	--	--	2.2	A	2	
	Derecha	--	--	--	41.1	D	44	20.4	C	14	--	--	--	
	Acceso	--	--	--	34.0	C	44	20.5	C	14	17.8	B	19	
Futuro 2017														
AM	Izquierda	--	--	--	--	--	--	14.0	B	5	23.4	C	16	18.9 B
	Recto	--	--	--	48.8	D	37	--	--	--	2.7	A	4	
	Derecha	--	--	--	56.6	E	37	13.4	B	5	--	--	--	
	Acceso	--	--	--	49.6	D	37	13.5	B	5	12.4	B	16	
PM	Izquierda	--	--	--	--	--	--	22.2	C	17	31.3	C	18	26.8 C
	Recto	--	--	--	42.3	D	59	--	--	--	2.2	A	2	
	Derecha	--	--	--	50.2	D	59	21.6	C	17	--	--	--	
	Acceso	--	--	--	43.1	D	59	21.7	C	17	16.5	B	18	

Para obtener los resultados mostrados en el escenario futuro, se requeriría la construcción de un carril corto de viraje a la izquierda en el acceso oeste. La base fue modelada presumiendo la operación del semáforo de manera optimizada

5.6.2 Intersección PR-3 y Acceso Proyecto

Esta intersección es controlada por prioridad, en una configuración de cruz. La carretera PR-3 corre en el eje este-oeste, y el acceso del proyecto está en el lado norte de la carretera. En el lado sur se encuentra el acceso de Canto Alegre. La carretera PR-3 cuenta con un ancho de 6.7 metros con un carril por dirección, pero como parte del proyecto entendemos que se hará un ensanche de la media sección de la carretera, en la que se tendrían dos carriles en la dirección de este a oeste. También se debe construir un carril corto de viraje a la izquierda en el acceso oeste. Los accesos norte y sur también cuentan con un carril por dirección. El acceso norte es utilizado por una fase previa de Paseo Costa del Sur, pero como parte del proyecto sería expandido a dos carriles por dirección. La siguiente figura muestra un croquis de esta intersección en la actualidad, seguida por un croquis de la geometría propuesta.

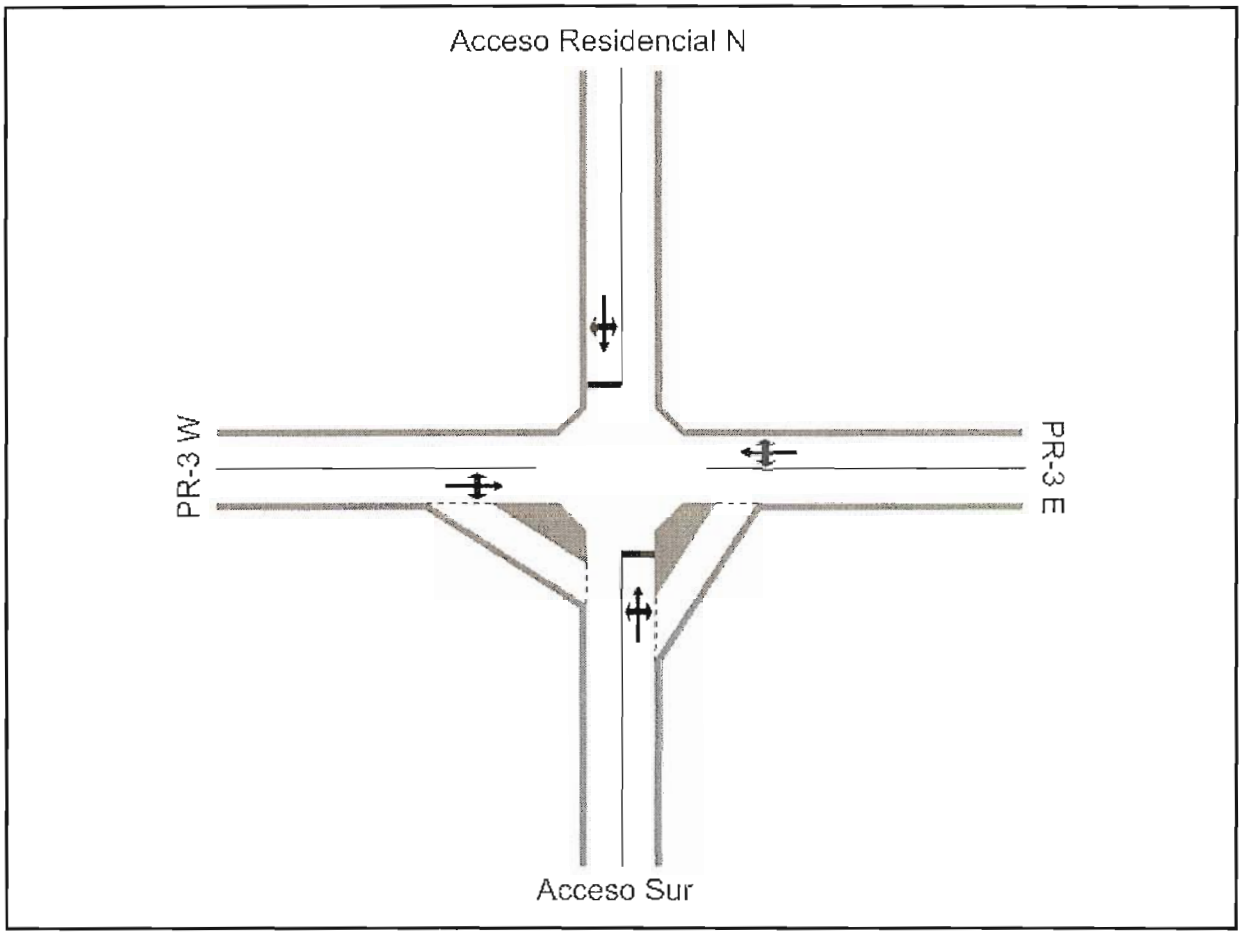


Figura 3 Int. PR-3 y Acceso Proyecto (Geometría Presente)

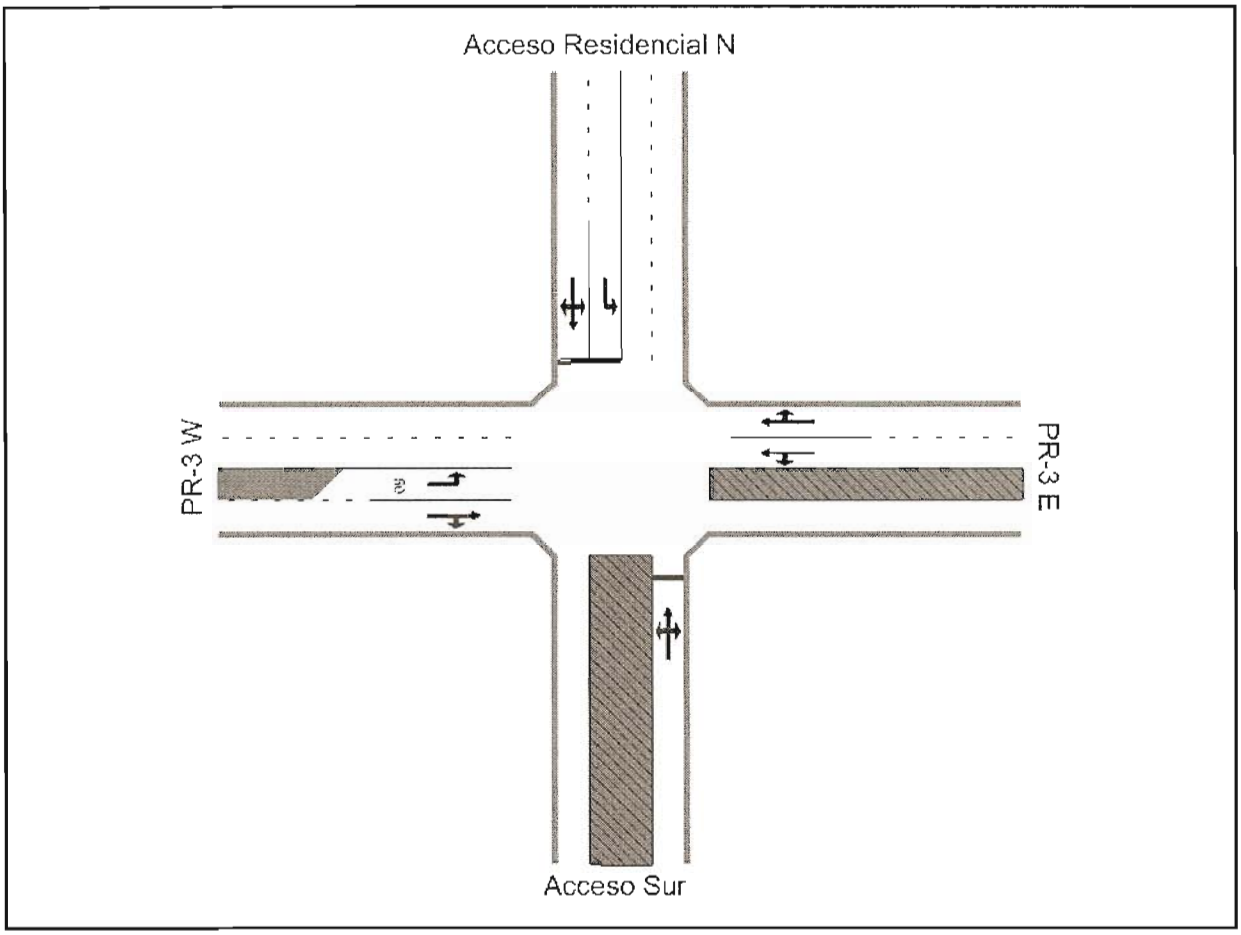


Figura 4 Int. PR-3 y Acceso Proyecto (Geometría Futuro)

La siguiente tabla muestra los resultados obtenidos para las distintas situaciones modeladas.

Tabla 13 Resultados Modelación Int. PR-3 y Acceso Proyecto

		Demora Promedio por Vehículo [seg.], Nivel de Servicio (LOS) y Cola Promedio [metros]										
		Acceso Sur Canto Alegre		Acceso Este PR-3		Acceso Norte Proyecto		Acceso Oeste PR-3		Demora y LOS Total Int.
		Demora y LOS	Cola	Demora y LOS	Cola	Demora y LOS	Cola	Demora y LOS	Cola	
Base 2006										
AM	Izquierda	23.1 C	1	23.4 C	14	18.6 C	2	14.0 B	11	10.7
	Recto	22.9 C	1	15.0 B	14	18.4 C	2	5.6 A	11	
	Derecha	23.5 C	1	23.1 C	14	18.8 C	2	13.5 B	11	
	Acceso	23.2 C	1	15.7 C	14	18.7 C	2	6.5 A	11	
PM	Izquierda	19.6 C	1	14.4 B	9	20.0 C	1	19.2 C	12	9.5
	Recto	19.4 C	1	5.9 A	9	19.8 C	1	10.8 B	12	
	Derecha	20.0 C	1	14.1 B	9	20.2 C	1	18.6 C	12	
	Acceso	19.7 C	1	6.6 A	9	20.1 C	1	11.7 B	12	
Futuro 2012										
AM	Izquierda	45.4 E	4	24.0 C	5	83.3 F	83	11.1 B	1	23.9
	Recto	45.6 E	4	4.4 A	5	69.6 F	53	0.0 A	0	
	Derecha	45.5 E	4	8.2 A	0	69.5 F	53	8.2 A	0	
	Acceso	45.4 E	4	6.4 A	5	76.4 F	53	1.7 A	1	
PM	Izquierda	40.0 E	3	13.6 B	6	75.8 F	21	40.2 E	20	17.9
	Recto	40.3 E	3	3.5 A	6	55.0 F	21	0.0 A	0	
	Derecha	40.1 E	3	8.2 A	0	54.8 F	21	8.2 A	0	
	Acceso	40.1 E	3	4.9 A	6	65.7 F	21	14.3 B	20	
Futuro 2017										
AM	Izquierda	60.4 F	6	28.7 D	6	155.4 F	120	11.4 B	1	42.1
	Recto	50.7 F	6	4.0 A	6	141.8 F	120	0.0 A	0	
	Derecha	60.5 F	6	8.2 A	6	141.7 F	120	8.2 A	0	
	Acceso	60.5 F	6	6.4 A	6	148.6 F	120	1.7 A	1	
PM	Izquierda	51.6 F	5	14.6 B	7	111.7 F	36	64.8 F	35	25.7
	Recto	51.8 F	5	4.1 A	7	88.4 F	36	0.0 A	0	
	Derecha	51.6 F	5	8.2 A	0	88.3 F	36	8.2 A	0	
	Acceso	51.6 F	5	5.3 A	7	100.4 F	36	22.1 C	35	

Como podemos notar, esta intersección podrá manejar el flujo esperado una vez comience la operación del proyecto propuesto. Sin embargo, debido a la demora en el acceso norte, en un futuro esta intersección podría ameritar la instalación de un semáforo, si usamos como referencia el "Warrant" 3 del MUTCD.

5.6.3 Intersección PR-3 y PR-180

Esta intersección es controlada por semáforo con una configuración de cruz. Cada acceso cuenta con un carril por dirección, mas un carril corto de viraje a la izquierda. Esta intersección está localizada al oeste del proyecto. La siguiente figura muestra un croquis de la geometría de esta intersección y su diagrama de fases.

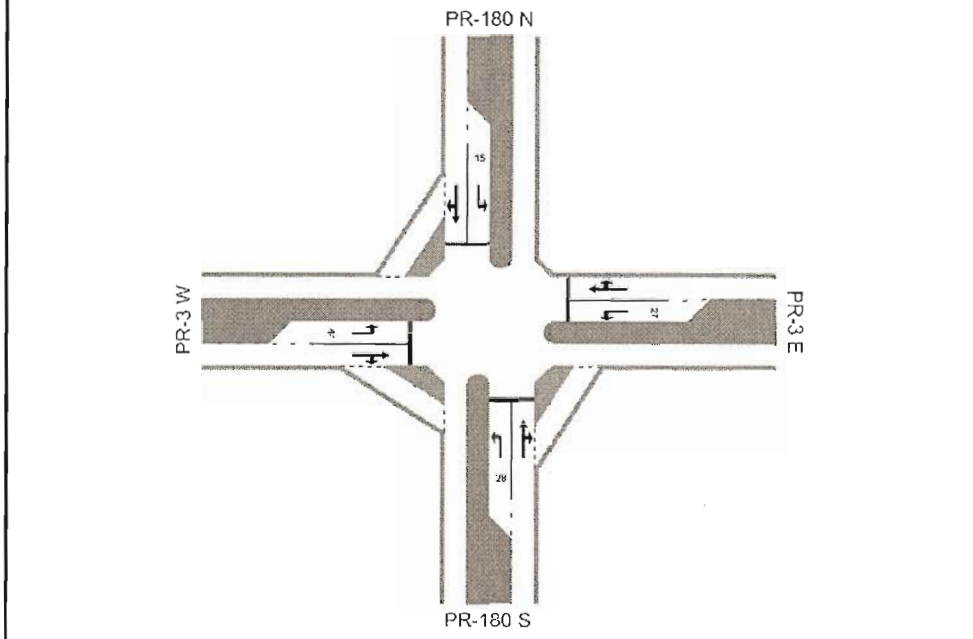


Diagrama de Fases

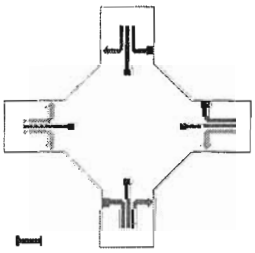
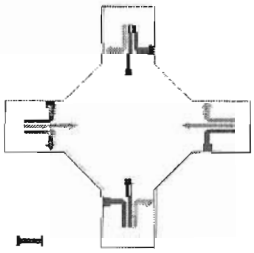
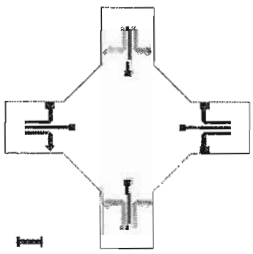
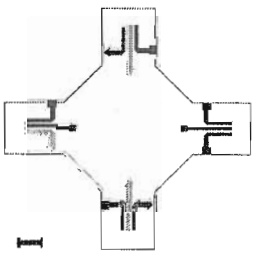
Fase 1	Fase 2	Fase 3	Fase 4
			
G = 10 segs. G + I = 14 segs.	G = 28 segs. G + I = 32 segs.	G = 8 segs. G + I = 12 segs.	G = 10 segs. G + I = 14 segs.

Figura 5 Croquis y Diagrama de Fases Int. PR-3 y PR-180

La siguiente tabla muestra los resultados obtenidos para las distintas situaciones modeladas.

Tabla 14 Resultados Modelación Int. PR-3 y PR-180

		Demora Promedio por Vehículo [seg.], Nivel de Servicio (LOS) y Cola Promedio [metros]								
		Acceso Sur PR-180		Acceso Este PR-3		Acceso Norte PR-180		Acceso Oeste PR-3		Demora y LOS Total Int.
		Demora y LOS	Cola	Demora y LOS	Cola	Demora y LOS	Cola	Demora y LOS	Cola	
Base 2006										
AM	Izquierda	39.2 D	0	38.9 D	3	42.7 D	7	48.4 D	20	11.1 B
	Recto	17.2 B	9	25.1 C	29	0.6 A	2	0.4 A	1	
	Derecha	25.1 C	9	33.3 C	29	10.2 B	2	8.3 A	1	
	Acceso	23.3 C	9	29.2 C	29	19.3 B	7	11.1 B	20	
PM	Izquierda	39.2 D	0	42.3 D	8	42.7 D	7	48.4 D	20	24.5 C
	Recto	22.3 C	7	34.8 C	45	1.0 A	2	0.7 A	1	
	Derecha	30.2 C	7	43.0 D	45	11.0 B	2	8.7 A	1	
	Acceso	25.4 C	7	38.5 D	45	20.3 B	7	18.8 B	20	
Futuro 2012										
AM	Izquierda	48.8 D	0	50.2 D	4	52.2 D	6	54.8 D	19	29.4 C
	Recto	59.3 E	32	57.4 E	101	1.3 A	7	0.5 A	1	
	Derecha	67.1 E	32	65.6 E	101	14.1 B	7	8.4 A	0	
	Acceso	65.2 E	32	60.6 E	101	22.0 B	7	9.7 A	19	
PM	Izquierda	43.9 D	0	52.6 D	12	49.2 D	7	54.8 D	19	39.2 D
	Recto	62.8 E	21	78.0 E	135	1.5 A	8	0.5 A	1	
	Derecha	70.7 E	21	86.5 F	135	14.9 B	8	8.4 A	1	
	Acceso	65.7 E	21	77.8 E	135	22.6 A	8	15.1 B	19	
Futuro 2017										
AM	Izquierda	52.0 D	0	55.9 E	5	55.7 E	7	60.4 E	19	31.4 C
	Recto	66.3 E	39	63.2 E	118	1.6 A	9	0.5 A	1	
	Derecha	74.1 E	39	71.4 E	118	15.6 B	9	8.4 A	0	
	Acceso	72.2 E	39	66.4 E	118	22.9 B	9	9.4 A	19	
PM	Izquierda	48.1 D	0	59.3 E	12	53.7 D	7	61.6 E	19	39.6 D
	Recto	71.6 E	26	75.5 E	149	1.8 A	10	0.5 A	1	
	Derecha	79.5 E	26	87.4 F	149	16.3 B	10	8.5 A	1	
	Acceso	74.5 E	26	79.9 E	149	23.5 A	10	15.0 B	19	

La situación base en esta intersección fue modelada utilizando los tiempos actuales del semáforo. Para los escenarios futuros se realizó optimización de los tiempos del

semáforo. Como se puede observar, la intersección podrá manejar el aumento en el flujo de manera efectiva.

En el apéndice 3 se muestran fotografías de las intersecciones analizaras, seguido por el apéndice 4, donde se muestran los resultados de las modelaciones de SIDRA. La versión electrónica de dichas modelaciones está disponible para la revisión de las agencias gubernamentales concernientes comunicándose a nuestra oficina vía telefónica ó a la dirección de correo electrónico: info@trafficpr.com .

6 Conclusiones y Recomendaciones

Luego de analizar los resultados de las modelaciones incluidas en este estudio podemos concluir que el proyecto bajo consideración es uno viable en el área donde se pretende su construcción. Sin embargo, es importante señalar unas mejoras que deben ser realizadas para la operación eficiente del tránsito del área.

1. En la intersección de la carretera PR-3 con la carretera PR-706 se recomienda añadir un carril corto de viraje a la izquierda en el acceso oeste. Además los tiempos del semáforo deben ser optimizados, de acuerdo a los patrones diarios del flujo.
2. En la intersección de la PR-3 y el acceso del proyecto se debe construir un carril corto de viraje a la izquierda en el acceso oeste.
3. Se debe optimizar los tiempos del semáforo en la intersección de las carreteras PR-3 y PR-180.

7 CERTIFICACIÓN

Certifico que la información presentada en este estudio es cierta, correcta y completa, y que fue obtenida utilizando los criterios de la practica usual y aceptada de la ingeniería de tránsito

Carlos M. Contreras, PE, PTOE
Lic. 13395

8 REFERENCIAS

1. Trip Generation Manual, Institute of Transportation Engineers, 7th edition, 2003
2. Trip Generation Handbook: An ITE Recommended Practice, Institute of Transportation Engineers, March 2001
3. SIDRA 3.1 User Manual
4. Guías para la Preparación de Estudios Operacionales de Accesos y de Tránsito para Puerto Rico, Autoridad de Carretera y Transportación, 2004

9 APÉNDICES

9.1 Apéndice 1: Flujos Obtenidos Mediante Conteos

Conteo PR-3 y PR-706

Beginning of Period	E-T	E-R	N-L	N-R	W-L	W-T	Total
6:00	38	7	2	16	24	40	127
6:15	49	13	2	18	38	55	175
6:30	51	7	7	30	49	42	186
6:45	64	5	8	51	65	47	240
7:00	71	9	7	83	94	65	329
7:15	72	9	16	100	99	65	361
7:30	**66**	**9**	**10**	**81**	**102**	**116**	**384**
7:45	67	4	18	73	96	84	342
8:00	55	17	8	58	92	53	283
8:15	59	13	9	48	80	51	260
8:30	61	6	8	45	58	64	242
8:45	58	16	9	43	53	54	233
9:00	54	6	7	44	45	42	198
9:15	51	11	8	45	70	40	225
9:30	52	9	9	38	43	41	192
9:45	46	8	8	41	36	51	190
10:00	41	7	9	39	33	46	175
10:15	47	13	11	39	41	55	206
10:30	52	7	10	33	34	48	184
10:45	44	8	12	33	32	55	184
11:00	41	9	14	37	34	64	199
11:15	65	10	11	42	31	80	239
11:30	69	14	17	47	24	65	236
11:45	71	11	14	45	40	73	254
12:00	65	11	17	62	26	94	275
12:15	95	17	8	63	29	101	313
12:30	61	12	11	54	44	60	242
12:45	86	11	14	42	32	72	257
13:00	78	14	15	44	33	73	257
13:15	63	14	17	37	32	51	214
13:30	72	16	14	32	31	57	222
13:45	81	12	14	35	39	56	237
14:00	77	14	11	31	42	60	235
14:15	84	11	12	32	45	68	252
14:30	84	12	13	39	32	63	243
14:45	81	12	20	42	42	52	249
15:00	88	18	14	51	51	67	289
15:15	91	11	11	70	63	68	314
15:30	93	13	17	72	61	93	349
15:45	100	16	18	65	64	62	325
16:00	117	18	16	83	57	74	365
16:15	110	23	19	93	52	61	358
16:30	104	25	23	84	57	73	366
16:45	**115**	**16**	**18**	**81**	**68**	**78**	**376**
17:00	109	24	20	78	65	68	364
17:15	100	22	17	67	64	80	350
17:30	89	20	21	60	59	75	324
17:45	93	14	17	43	43	71	281

Conteo PR-3 y Acceso Residencial Paseo Costa del Sur

Beginning	Movement												
of Period	S-L	S-T	S-R	E-L	E-T	E-R	N-L	N-T	N-R	W-L	W-T	W-R	Total
6:00	2	0	3	11	54	1	3	0	8	6	57	13	158
6:15	4	0	8	13	75	1	8	0	9	7	63	14	202
6:30	6	0	7	19	99	0	11	0	18	7	77	17	261
6:45	9	0	4	17	96	1	6	0	13	4	104	15	269
7:00	14	0	2	11	97	1	23	0	17	6	149	21	341
7:15	**10**	**0**	**3**	**10**	**107**	**1**	**17**	**0**	**17**	**5**	**216**	**23**	**409**
7:30	9	0	8	8	122	1	15	0	24	7	168	15	377
7:45	8	0	8	6	124	6	8	0	21	3	120	14	318
8:00	10	0	7	5	108	2	4	0	13	4	92	13	258
8:15	8	0	7	7	97	6	5	0	7	6	80	11	234
8:30	14	0	6	6	99	6	8	0	9	6	84	8	246
8:45	9	0	6	3	89	2	8	0	6	5	71	11	210
9:00	8	0	8	5	74	7	5	0	9	8	75	12	211
9:15	7	1	3	6	75	6	4	0	8	9	62	11	192
9:30	6	0	5	3	74	3	7	0	12	6	78	12	206
9:45	5	0	7	7	78	3	8	0	9	7	68	12	204
10:00	4	0	4	4	84	4	9	0	7	9	67	17	209
10:15	9	0	3	6	78	2	6	0	5	6	63	9	187
10:30	11	1	5	3	97	8	6	0	6	7	66	8	218
10:45	4	0	9	9	111	8	5	0	3	7	72	7	235
11:00	9	0	11	4	85	1	5	0	9	8	71	7	210
11:15	5	0	10	5	84	7	5	0	8	10	99	7	240
11:30	4	0	8	5	83	2	7	0	10	8	89	11	227
11:45	10	0	9	5	73	5	6	0	6	3	105	22	244
12:00	5	0	8	10	48	3	5	0	5	7	117	30	238
12:15	8	1	7	9	78	3	11	0	7	7	118	25	274
12:30	13	0	7	10	93	2	6	0	18	6	98	13	266
12:45	15	0	8	5	96	3	5	0	7	5	80	9	233
13:00	11	0	6	4	103	3	4	0	5	6	96	5	243
13:15	19	0	6	3	101	4	3	0	7	3	84	6	236
13:30	10	0	7	4	103	6	6	0	8	4	87	7	242
13:45	14	1	5	3	108	5	4	0	9	9	95	5	258
14:00	19	0	6	3	105	4	4	0	6	8	105	4	264
14:15	13	0	4	2	118	11	3	0	9	7	86	3	256
14:30	19	0	4	4	124	8	3	0	7	10	82	8	269
14:45	22	0	5	2	125	3	5	0	3	9	88	9	271
15:00	23	0	3	3	134	13	7	0	6	10	108	11	318
15:15	26	0	14	5	143	9	6	0	9	10	105	6	333
15:30	40	1	5	6	135	4	4	0	8	9	97	12	321
15:45	35	0	9	4	155	12	3	0	6	8	103	3	338
16:00	33	0	5	2	160	8	4	0	6	14	108	5	345
16:15	25	0	8	3	175	15	5	0	6	17	107	6	367
16:30	19	0	9	5	159	5	3	0	7	16	105	8	336
16:45	12	0	7	3	143	13	7	0	6	10	132	5	338
17:00	10	0	8	2	180	15	11	0	5	9	123	3	366
17:15	**9**	**1**	**3**	**3**	**187**	**13**	**7**	**0**	**4**	**13**	**129**	**4**	**373**
17:30	8	0	4	2	175	12	5	0	3	12	115	5	341
17:45	8	0	3	2	164	9	6	0	3	12	104	3	314

Conteo PR-3 y PR-180

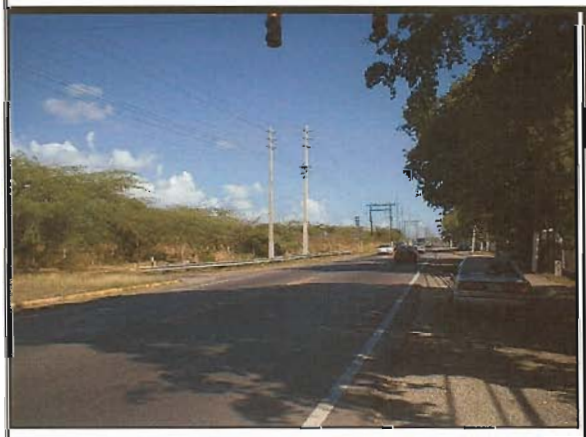
Beginning	Movement												
of Period	S-L	S-T	S-R	E-L	E-T	E-R	N-L	N-T	N-R	W-L	W-T	W-R	Total
6:00	0	10	11	2	42	23	33	6	8	34	63	0	232
6:15	0	13	13	2	66	45	54	10	12	45	62	1	323
6:30	0	22	25	12	73	52	74	12	17	52	80	0	419
6:45	0	12	22	20	83	92	90	16	8	60	94	0	497
7:00	1	19	26	14	94	61	83	14	7	63	165	1	548
7:15	**0**	**15**	**49**	**12**	**88**	**60**	**80**	**19**	**28**	**78**	**225**	**0**	**654**
7:30	0	17	14	30	109	77	73	10	19	69	127	0	545
7:45	0	20	19	31	119	62	84	14	26	54	96	0	525
8:00	1	25	30	15	98	64	52	22	33	86	96	0	522
8:15	0	18	14	10	53	40	33	13	21	46	73	0	321
8:30	0	17	15	21	49	32	34	16	21	30	73	1	309
8:45	0	12	15	11	54	25	24	14	21	54	83	1	314
9:00	0	14	11	12	67	26	34	14	14	32	78	0	302
9:15	0	7	20	11	74	31	40	9	16	42	69	1	320
9:30	0	12	14	18	76	30	42	18	16	40	68	2	336
9:45	4	9	8	21	79	32	40	21	13	50	73	1	351
10:00	0	11	18	9	84	29	42	16	16	24	60	1	310
10:15	0	12	14	12	79	29	34	12	13	24	59	0	288
10:30	0	15	10	16	92	34	36	16	12	44	69	0	344
10:45	0	24	13	25	98	43	28	24	22	42	73	1	393
11:00	3	9	16	11	46	36	49	23	24	50	74	1	342
11:15	0	10	16	27	46	38	34	19	14	38	93	0	335
11:30	0	31	13	14	59	51	41	15	29	92	85	1	431
11:45	0	3	17	19	37	33	39	17	24	50	85	0	324
12:00	0	19	14	2	57	12	60	10	20	100	90	6	390
12:15	2	78	46	0	39	11	67	18	28	78	78	2	447
12:30	1	76	34	1	51	21	59	20	28	74	79	5	449
12:45	2	49	47	0	68	17	32	15	29	70	66	0	395
13:00	3	28	19	2	78	22	47	29	31	40	78	0	377
13:15	0	18	20	8	74	25	52	20	28	68	79	1	393
13:30	0	23	21	18	69	41	48	21	18	54	92	2	407
13:45	0	20	20	14	66	38	53	21	24	56	94	2	408
14:00	0	19	14	21	59	40	69	15	19	64	80	5	405
14:15	0	22	11	21	71	68	51	17	16	58	90	1	426
14:30	0	20	10	27	78	66	50	28	22	50	84	2	437
14:45	0	28	17	40	76	72	64	27	19	62	105	0	510
15:00	0	25	21	27	89	39	47	28	23	120	96	0	515
15:15	0	18	14	31	91	76	65	30	20	80	104	1	530
15:30	0	24	16	27	89	50	40	37	8	48	93	1	433
15:45	0	32	8	27	93	40	57	34	17	54	98	0	460
16:00	0	38	11	31	79	57	52	34	20	58	108	0	488
16:15	0	10	26	14	99	48	50	11	7	78	109	0	452
16:30	0	29	18	21	78	75	34	30	19	66	89	4	463
16:45	1	21	12	25	73	64	48	31	20	36	96	1	428
17:00	**0**	**24**	**15**	**31**	**105**	**61**	**76**	**25**	**14**	**76**	**106**	**0**	**533**
17:15	0	20	22	21	106	64	71	31	7	46	94	2	484
17:30	0	38	14	39	107	55	56	22	10	68	89	2	500
17:45	0	28	19	30	95	52	73	31	25	38	87	0	478

9.2 Apéndice 2: Listado de Archivos de Modelaciones

Archivo	Lugar	Periodo
SalinasBase.aap	01 Int. PR-3 y PR-706	Pico AM Base
SalinasBase.aap	01 Int. PR-3 y PR-706	Pico PM Base
Salinas2012.aap	01 Int. PR-3 y PR-706	Pico AM Futuro 2012
Salinas2017.aap	01 Int. PR-3 y PR-706	Pico AM Futuro 2017
Salinas2012.aap	01 Int. PR-3 y PR-706	Pico PM Futuro 2012
Salinas2017.aap	01 Int. PR-3 y PR-706	Pico PM Futuro 2017
SalinasBase.aap	02 Int. PR-3 y Acceso Proyecto	Pico AM Base
SalinasBase.aap	02 Int. PR-3 y Acceso Proyecto	Pico PM Base
Salinas2012.aap	02 Int. PR-3 y Acceso Proyecto	Pico AM Futuro
Salinas2017.aap	02 Int. PR-3 y Acceso Proyecto	Pico AM Futuro 2017
Salinas2012.aap	02 Int. PR-3 y Acceso Proyecto	Pico PM Futuro 2012
Salinas2017.aap	02 Int. PR-3 y Acceso Proyecto	Pico PM Futuro 2017
SalinasBase.aap	03 Int PR-3 y PR-180	Pico AM Base
SalinasBase.aap	03 Int PR-3 y PR-180	Pico PM Base
Salinas2012.aap	03 Int PR-3 y PR-180	Pico AM Futuro 2012
Salinas2017.aap	03 Int PR-3 y PR-180	Pico AM Futuro 2017
Salinas2012.aap	03 Int PR-3 y PR-180	Pico PM Futuro 2012
Salinas2017.aap	03 Int PR-3 y PR-180	Pico PM Futuro 2017

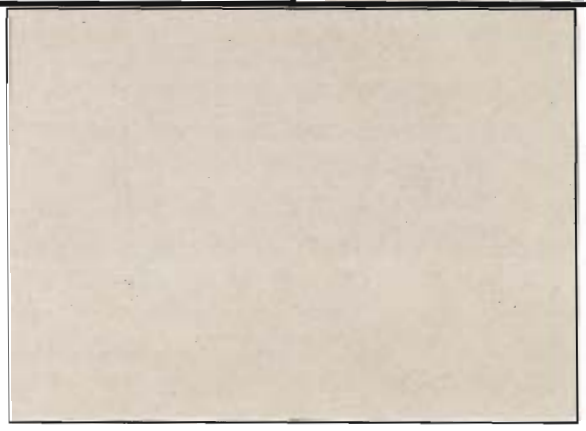
9.3 Apéndice 3: Fotografías de las intersecciones

Acceso Norte



Acceso Oeste

Acceso Este

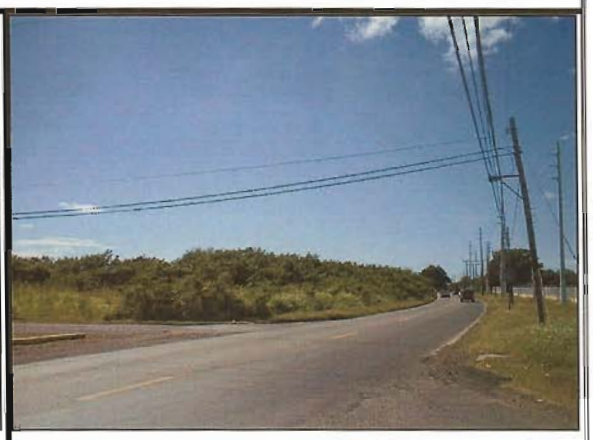


Acceso Sur

Figura 6 Fotografías Accesos Int. PR-3 y PR-706

Acceso Norte

Acceso Oeste



Acceso Este

Acceso Sur

Figura 7 Fotografías Accesos Int. PR-3 y Proyecto

Acceso Norte

Acceso Oeste

Acceso Este

Acceso Sur

Figura 8 Fotografías Accesos Int. PR-3 y PR-180

9.4 Apéndice 4: Resultados modelaciones

Output Tables
Output Tables
01 Int. PR-3 y PR-706
Pico AM Base

Run Information
Cycle Time = 90 (Optimum Cycle Time)

* Basic Parameters:
Intersection Type: Signalised - Fixed Time
Driving on the right-hand side of the road
Input data specified in Metric units
Model Defaults: Standard Right
Peak Flow Period (for performance): 15 minutes
Unit time (for volumes): 60 minutes.
Specified performance measure for "best" cycle time in variable run - Delay
Delay definition: Control delay
Geometric delay included
SIDRA Standard Delay model used
SIDRA Standard Queue model used
Level of Service based on: Delay (HCM method)
Queue definition: Cycle average queue, Average

* Iteration Data:
No. of Main (Timing-Capacity) Iterations = 4
Comparison of last two iterations:
Difference in intersection degree of satn = 0.0 %
Largest difference in eff. green times = 0 secs
(max. value for stopping = 0 secs)

* If an "optimum" cycle time solution is adopted for actuated signal purposes ensure that vehicle-actuated settings reflect this solution in real life. Consider using the "sensitivity analysis" facility to optimise maximum green settings for actuated signals.

Table B.1 - Movement Definitions and Flow Rates (Origin-Destination)
01 Int. PR-3 y PR-706
Pico AM Base
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

From Approach	To Approach	Mov ID	Turn	Flow Rate LV	Flow Rate HV	Flow Scale	Peak Flow Factor
East: PR-3 E							
	North	6	Right	36	0	1.00	1.00
	West	5	Thru	264	0	1.00	1.00
North: PR-706 N							
	East	7	Left	40	0	1.00	1.00
	West	9	Right	324	0	1.00	1.00

```
 West: PR-3 W
           East          11   Thru     464      0     1.00      1.00
           North         10   Left     408      0     1.00      1.00
 ------------------------------------------------------------------
 Unit Time for Volumes =  60 minutes
 Peak Flow Period =  15 minutes
 Flow Rates include effects of Flow Scale and Peak Flow Factor


Table S.1 - Movement Phase and Timing Parameters
 01 Int. PR-3 y PR-706
  Pico AM Base
 Intersection ID: 1
 Fixed-Time Signals, Cycle Time =  90 (Optimum Cycle Time)

 ------------------------------------------------------------------------------
----------
  Mov     Mov          P H A S E  M A T R I X          Lost Tim  Req.Mov.Time
Eff. Grn
  ID      Typ     First Green          Second Green     --------  ------------
--------
                 ------------------  ------------------ 1st  2nd  1st      2nd
1st  2nd
                  Fr    To   Op Pr    Fr    To   Op Pr  Grn  Grn  Grn      Grn
Grn  Grn
 ------------------------------------------------------------------------------
----------
 East: PR-3 E
    5 T        B     A                                  4        22.6
76
    6 R  (Slp) A     B            B     A      Y       4    6   23.5     16.4
6   74
 ------------------------------------------------------------------------------
----------
 North: PR-706 N
    7 L       *A     B                                  4        10.0Min
6
    9 R  (Slp) A     B            B     A      Y       4    6   23.0
10.0Min   6   74
 ------------------------------------------------------------------------------
----------
 West: PR-3 W
   10 L       *B     A      Y                           6        64.6
74
   11 T        B     A                                  4        64.2
76
 ------------------------------------------------------------------------------
----------
 ------------------------------------------------------------------------------
----------
   Current Phase Sequence: Sequence 1
   Input phase sequence: A B
   Output phase sequence: A B
 ------------------------------------------------------------------------------
----------
   *  Critical Movement/Green Period
```

Movement Types:
  Slp Slip Lane Movement
  Ped Pedestrian
  Dum Dummy

Under heading 'Op':
  Y If opposed turn

Table S.2 - Movement Capacity Parameters
01 Int. PR-3 y PR-706
Pico AM Base
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Mov ID	Dem Flow (veh /h)	HV (%)	Satn Flow 1st Grn	Satn Flow 2nd Grn	Flow Ratio 1st Grn	Flow Ratio 2nd Grn	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
East: PR-3 E											
5 T	264	0.0	1423		0.186		1202	0.90	310	100	0.220
6 R	36	0.0	82	193	0.195	0.104	164	0.90	310	100	0.219
North: PR-706 N											
7 L	40	0.0	1219		0.033		81	0.90	83	100	0.492
9 R	324	0.0	1562	674	0.207	0.000	658	0.90	83	100	0.492
West: PR-3 W											
10 L	408	0.0	696		0.586		572	0.90	26	100	0.713*
11 T	464	0.0	771		0.602		651	0.90	26	100	0.713*

Table S.3 - Intersection Parameters
01 Int. PR-3 y PR-706
Pico AM Base
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Crit Mov ID	App. and Turn	Green Period	Phases Fr	Phases To	Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
7	N_L		A	B	10	-	-	10.0Min
10	W_L		B	A	6	0.586	0.651	64.6
				Total:	16	0.586	0.651	74.6

- Flow ratio not used for cycle time calculations and the adjusted lost time equals the required movement time (=Min or Max as shown in Table S.1)

Cycle Time:

Minimum	Maximum	Practical	Chosen
20	150	46	90

(Program-determined Optimum Cycle Time)

Intersection Level of Service	=	A
Worst movement Level of Service	=	B
Average intersection delay (s/pers)	=	6.6
Largest average movement delay (s)	=	11.3
Largest cycle-average queue, mean (m)	=	5
Performance Index	=	23.74
Degree of saturation (highest)	=	0.713
Practical Spare Capacity (lowest)	=	26 %
Effective intersection capacity, (veh/h)	=	2154
Total vehicle flow (veh/h)	=	1536
Total person flow (pers/h)	=	2304
Total vehicle delay (veh-h/h)	=	2.81
Total person delay (pers-h/h)	=	4.21
Total effective vehicle stops (veh/h)	=	802
Total effective person stops (pers/h)	=	1202
Total vehicle travel (veh-km/h)	=	930.2
Total cost ($/h)	=	632.91
Total fuel (L/h)	=	93.2
Total CO2 (kg/h)	=	232.90

Table S.4 - Phase Information
01 Int. PR-3 y PR-706
Pico AM Base
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Phase	Change Time	Starting Intgrn	Green Start	Displayed Green	Green End	Terminating Intgrn	Phase Time	Phase Split
A	0	4	4	6	10	4	10	11%
B	10	4	14	76	90	4	80	89%

Current Phase Sequence: Sequence 1
Input phase sequence: A B
Output phase sequence: A B

Table S.5 - Movement Performance

Mov ID		Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue Cycle (vehs)	Longest Queue Aver. (m)	Perf. Index	Aver. Speed (km/h)
East: PR-3 E										
5	T	0.10	0.14	1.3	0.20	0.14	0.1	1	3.07	57.2
6	R	0.09	0.14	9.2	0.20	0.68	0.1	1	0.61	48.0
North: PR-706 N										
7	L	0.11	0.17	10.0	0.30	0.75	0.2	1	0.70	46.9
9	R	0.85	1.27	9.4	0.30	0.70	0.2	1	5.54	47.5

West: PR-3 W									
10	L	1.28	1.93	11.3	0.43	0.80	0.7	5	7.51	45.7
11	T	0.38	0.57	2.9	0.43	0.34	0.7	5	6.32	54.5

Table S.6 - Intersection Performance
01 Int. PR-3 y PR-706
Pico AM Base
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Total Flow (veh/h)	Deg. Satn x	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue (m)	Perf. Index	Aver. Speed (km/h)
East: PR-3 E									
300	0.220	0.19	0.28	2.2	0.20	0.21	1	3.67	55.9
North: PR-706 N									
364	0.492	0.96	1.44	9.5	0.30	0.70	1	6.23	47.4
West: PR-3 W									
872	0.713	1.66	2.49	6.9	0.43	0.56	5	13.84	50.0
ALL VEHICLES:									
1536	0.713	2.81	4.21	6.6	0.35	0.52	5	23.74	50.4
INTERSECTION (persons):									
2304	0.713		4.21	6.6	0.35	0.52		23.74	50.4

Queue values in this table are mean cycle-average queue (metres).

Table S.7 - Lane Performance
01 Int. PR-3 y PR-706
Pico AM Base
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Lane No.	Effective Green Times (sec) R1	G1	R2	G2	Dem Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue Cycle (vehs)	Queue Aver. (m)	Lane Length (m)
East: PR-3 E												
1 TR	4	1	9	76	300	1366	0.220	2.2	0.21	0.1	0.8	500.0
North: PR-706 N												
1 LR	12	6	6	66	364	739	0.492	9.5	0.70	0.2	1.1	500.0
West: PR-3 W												
1 LT	14	76	0	0	872	1223	0.713	6.9	0.56	0.7	5.0	500.0

Table S.8 - Lane Flow and Capacity Information
01 Int. PR-3 y PR-706
Pico AM Base
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Lane Width (m)	Saturation Flow Adj. Basic (tcu)	Aver 1st (veh)	Aver 2nd (veh)	End Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
East: PR-3 E												
1 TR	0	264	36	300	3.70	1990	490	1611	40	1366	0.220	100
North: PR-706 N												
1 LR	40	0	324	364	4.10	2030	1934	832	40	739	0.492	100
West: PR-3 W												
1 LT	408	464	0	872	4.30	2050	1448	0	62	1223	0.713	100

Basic Saturation Flow in this table is adjusted for lane width, approach grade, parking manoeuvres and number of buses stopping. Saturation flow scale applies if specified.

Table S.10 - Movement Capacity and Performance Summary
01 Int. PR-3 y PR-706
Pico AM Base
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Mov ID	Mov Typ	Dem Flow (veh /h)	Total Cap. (veh /h)	Lane Util (%)	Deg. Satn x	Eff. Grn 1st Grn	Eff. Grn 2nd Grn	Aver. Delay (sec)	Eff. Stop Rate	Cycle Average Queue (veh)	Perf. Index
East: PR-3 E											
5 T		264	1202	100	0.220	76		1.3	0.14	0.1	3.07
6 R	(Slp)	36	164	100	0.219	6	74	9.2	0.68	0.1	0.61
North: PR-706 N											
7 L		40	81	100	0.492	6*		10.0	0.75	0.2	0.70
9 R	(Slp)	324	658	100	0.492	6	74	9.4	0.70	0.2	5.54
West: PR-3 W											
10 L		408	572	100	0.713*	74*		11.3	0.80	0.7	7.51
11 T		464	651	100	0.713*	76		2.9	0.34	0.7	6.32

* Maximum degree of saturation, or critical green periods

Table S.14 - Summary of Input and Output Data
01 Int. PR-3 y PR-706

Pico AM Base
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Lane No.	Demand Flow (veh/h) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
East: PR-3 E												
1 TR		264	36	300	0	1990	1	76	0.220	2.2	1	500
	0	264	36	300	0				0.220	2.2	1	
North: PR-706 N												
1 LR	40		324	364	0	2030	6	66	0.492	9.5	1	500
	40	0	324	364	0				0.492	9.5	1	
West: PR-3 W												
1 LT	408	464		872	0	2050	76		0.713	6.9	5	500
	408	464	0	872	0				0.713	6.9	5	

ALL VEHICLES	Total Flow	% HV	Cycle Time	Max X	Aver. Delay	Max Queue
	1536	0	90	0.713	6.6	5

Peak flow period = 15 minutes.

Queue values in this table are mean cycle-average queue (metres).

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

Table S.15 - Capacity and Level of Service
01 Int. PR-3 y PR-706
Pico AM Base
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Mov ID	Mov Typ	Green Time Ratio (g/C) 1st grn	2nd grn	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Queue Cycle (vehs)	Aver. (m)
East: PR-3 E										
5 T		0.844		264	1202	0.220	1.3	A	0.1	1
6 R	(Slp)	0.067	0.822	36	164	0.219	9.2	A	0.1	1
North: PR-706 N										
7 L		0.067*		40	81	0.492	10.0	A	0.2	1
9 R	(Slp)	0.067	0.822	324	658	0.492	9.4	A	0.2	1

West: PR-3 W								
10 L	0.822*	408	572	0.713*	11.3	B	0.7	5
11 T	0.844	464	651	0.713*	2.9	A	0.7	5
ALL VEHICLES:		1536		0.713	6.6	A	0.7	5
INTERSECTION (persons):		2304			6.6		0.7	5

Level of Service calculations are based on
average control delay including geometric delay (HCM criteria),
independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the
SIDRA Output Guide or the Output section of the on-line help.
* Maximum v/c ratio, or critical green periods

Table S.21 - Optimum Cycle Time Results
01 Int. PR-3 y PR-706
Pico AM Base
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Performance Measure	Smallest Value	Cycle Time
Degree of Satn	0.677	130
Average Delay	6.6	90
Stop Rate	0.49	120
Max. Queue for Any Movement	0.5	120
Perf. Index	23.6	120
Cost	631.7	120

Performance Measure	Largest Value	Cycle Time
Eff. Inters. Cap.	2268	130
Prac. Spare Cap.	33	130

If an "optimum" cycle time solution is adopted for actuated signal purposes
ensure that vehicle-actuated settings reflect this solution in real life.
Consider using the "sensitivity analysis" facility to optimise maximum
green settings for actuated signals.

Table V.21 - Intersection Summary for Optimum Cycle Time
01 Int. PR-3 y PR-706
Pico AM Base
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 90 (Optimum Cycle Time)

Cycle	Eff.	Intersn	Prac.	Aver.	Stop	Longest	Perf.	Cost	Unsett

Time (sec)	Int. Cap.	Deg. of Satn	Spare Cap.	Delay (sec)	Rate	Queue (veh)	Index	Total $/h
60	1968	0.780	15	8.9	0.65	1.7	26.8	665.9
70	2047	0.750	20	7.1	0.57	1.0	24.6	643.0
80	2108	0.729	24	6.7	0.54	0.8	24.0	636.5
90	2154	0.713	26	6.6	0.52	0.7	23.7	632.9
100	2192	0.701	28	6.6	0.51	0.6	23.6	631.8
110	2220	0.692	30	6.8	0.50	0.6	23.7	632.6
120	2245	0.684	32	6.8	0.49	0.5	23.6	631.7
130	2268	0.677	33	7.3	0.49	0.7	24.1	637.1
140	2266	0.678	33	7.8	0.50	0.9	24.6	642.7
150	2263	0.679	33	8.4	0.51	1.1	25.1	648.6

Site: 01_PR-3 y PR-706_BA
D:\Documents and Settings\Carlos M. Contreras\My Documents\My Projects\Salinas Development\Revision 2007\SalinasBase.aap
Processed Jan 13, 2007 10:07:51AM

M0276, TCG, Large Office
Produced by SIDRA Intersection 3.1.061208.34

www.sidrasolutions.com

Output Tables
Output Tables
01 Int. PR-3 y PR-706
Pico PM Base

Run Information
Cycle Time = 70 (Optimum Cycle Time)

* Basic Parameters:
Intersection Type: Signalised - Fixed Time
Driving on the right-hand side of the road
Input data specified in Metric units
Model Defaults: Standard Right
Peak Flow Period (for performance): 15 minutes
Unit time (for volumes): 60 minutes.
Specified performance measure for "best" cycle time in variable run - Delay
Delay definition: Control delay
Geometric delay included
SIDRA Standard Delay model used
SIDRA Standard Queue model used
Level of Service based on: Delay (HCM method)
Queue definition: Cycle average queue, Average

* Iteration Data:
No. of Main (Timing-Capacity) Iterations = 4
Comparison of last two iterations:
Difference in intersection degree of satn = 0.0 %
Largest difference in eff. green times = 0 secs
(max. value for stopping = 0 secs)

* If an "optimum" cycle time solution is adopted for actuated signal purposes ensure that vehicle-actuated settings reflect this solution in real life. Consider using the "sensitivity analysis" facility to optimise maximum green settings for actuated signals.

Table B.1 - Movement Definitions and Flow Rates (Origin-Destination)
01 Int. PR-3 y PR-706
Pico PM Base
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 70 (Optimum Cycle Time)

From Approach	To Approach	Mov ID	Turn	Flow Rate LV	Flow Rate HV	Flow Scale	Peak Flow Factor
East: PR-3 E							
	North	6	Right	64	0	1.00	1.00
	West	5	Thru	460	0	1.00	1.00
North: PR-706 N							
	East	7	Left	72	0	1.00	1.00
	West	9	Right	324	0	1.00	1.00

West: PR-3 W							
	East	11	Thru	312	0	1.00	1.00
	North	10	Left	272	0	1.00	1.00

Unit Time for Volumes = 60 minutes
Peak Flow Period = 15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor

Table S.1 - Movement Phase and Timing Parameters
01 Int. PR-3 y PR-706
Pico PM Base
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 70 (Optimum Cycle Time)

Mov ID	Mov Typ	P H A S E M A T R I X First Green Fr	To	Op Pr	Second Green Fr	To	Op Pr	Lost Tim 1st Grn	2nd Grn	Req.Mov.Time 1st Grn	2nd Grn	Eff. Grn 1st Grn	2nd Grn
East: PR-3 E													
5	T	B	A					4		27.4		52	
6	R (Slp)	A	B		B	A	Y	4	5	31.5	22.5	10	51
North: PR-706 N													
7	L	*A	B					4		10.6		10	
9	R (Slp)	A	B		B	A	Y	4	9	21.6		10.0Min	10 47
West: PR-3 W													
10	L	*B	A	Y				9		42.6		47	
11	T	B	A					4		41.1		52	

Current Phase Sequence: Sequence 1
Input phase sequence: A B
Output phase sequence: A B

* Critical Movement/Green Period

Movement Types:
- Slp Slip Lane Movement
- Ped Pedestrian
- Dum Dummy

Under heading 'Op':
- Y If opposed turn

Table S.2 - Movement Capacity Parameters
01 Int. PR-3 y PR-706
Pico PM Base
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 70 (Optimum Cycle Time)

Mov ID	Dem Flow (veh /h)	HV (%)	Satn Flow 1st Grn	Satn Flow 2nd Grn	Flow Ratio 1st Grn	Flow Ratio 2nd Grn	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
East: PR-3 E											
5 T	460	0.0	1528		0.301		1135	0.90	122	100	0.405
6 R	64	0.0	49	207	0.353	0.226	158	0.90	122	100	0.406
North: PR-706 N											
7 L	72	0.0	846		0.085		121	0.90	51	100	0.596
9 R	324	0.0	1400	512	0.231	0.000	544	0.90	51	100	0.596
West: PR-3 W											
10 L	272	0.0	630		0.432		423	0.90	40	100	0.643*
11 T	312	0.0	654		0.477		486	0.90	40	100	0.642

Table S.3 - Intersection Parameters
01 Int. PR-3 y PR-706
Pico PM Base
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 70 (Optimum Cycle Time)

Crit Mov ID	App. and Turn	Green Period Fr	Green Period To	Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
7	N_L	A	B	4	0.085	0.095	10.6
10	W_L	B	A	9	0.432	0.480	42.6
			Total:	13	0.517	0.574	53.2

Cycle Time:

Minimum	Maximum	Practical	Chosen
20	150	31	70

(Program-determined Optimum Cycle Time)

Intersection Level of Service	=	A
Worst movement Level of Service	=	B
Average intersection delay (s/pers)	=	8.2
Largest average movement delay (s)	=	14.6
Largest cycle-average queue, mean (m)	=	7
Performance Index	=	25.41
Degree of saturation (highest)	=	0.643
Practical Spare Capacity (lowest)	=	40 %
Effective intersection capacity, (veh/h)	=	2339
Total vehicle flow (veh/h)	=	1504
Total person flow (pers/h)	=	2256
Total vehicle delay (veh-h/h)	=	3.42
Total person delay (pers-h/h)	=	5.13
Total effective vehicle stops (veh/h)	=	907
Total effective person stops (pers/h)	=	1360
Total vehicle travel (veh-km/h)	=	911.5
Total cost ($/h)	=	638.44
Total fuel (L/h)	=	93.8
Total CO2 (kg/h)	=	234.40

Table S.4 - Phase Information
01 Int. PR-3 y PR-706
Pico PM Base
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 70 (Optimum Cycle Time)

Phase	Change Time	Starting Intgrn	Green Start	Displayed Green	Green End	Terminating Intgrn	Phase Time	Phase Split
A	0	4	4	10	14	4	14	20%
B	14	4	18	52	70	4	56	80%

Current Phase Sequence: Sequence 1
Input phase sequence: A B
Output phase sequence: A B

Table S.5 - Movement Performance

Mov ID		Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue Cycle (vehs)	Longest Queue Aver. (m)	Perf. Index	Aver. Speed (km/h)
East: PR-3 E										
5	T	0.44	0.66	3.4	0.39	0.35	0.5	3	6.43	54.6
6	R	0.20	0.30	11.3	0.39	0.74	0.5	3	1.17	45.9
North: PR-706 N										
7	L	0.22	0.32	10.8	0.52	0.80	0.3	2	1.30	46.2
9	R	0.92	1.38	10.2	0.52	0.77	0.3	2	5.80	46.8
West: PR-3 W										
10	L	1.11	1.66	14.6	0.59	0.82	1.0	7	5.54	42.7

11 T	0.54	0.81	6.2	0.59	0.53	1.0	7	5.16	51.2

Table S.6 - Intersection Performance
01 Int. PR-3 y PR-706
Pico PM Base
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 70 (Optimum Cycle Time)

Total Flow (veh/h)	Deg. Satn x	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue (m)	Perf. Index	Aver. Speed (km/h)
East: PR-3 E									
524	0.406	0.64	0.96	4.4	0.39	0.40	3	7.60	53.4
North: PR-706 N									
396	0.596	1.13	1.70	10.3	0.52	0.77	2	7.11	46.7
West: PR-3 W									
584	0.643	1.65	2.47	10.1	0.59	0.67	7	10.70	46.9
ALL VEHICLES:									
1504	0.643	3.42	5.13	8.2	0.50	0.60	7	25.41	48.9
INTERSECTION (persons):									
2256	0.643		5.13	8.2	0.50	0.60		25.41	48.9

Queue values in this table are mean cycle-average queue (metres).

Table S.7 - Lane Performance
01 Int. PR-3 y PR-706
Pico PM Base
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 70 (Optimum Cycle Time)

Lane No.	Effective Green Times (sec) R1	G1	R2	G2	Dem Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue Cycle (vehs)	Queue Aver. (m)	Lane Length (m)
East: PR-3 E												
1 TR	4	1	13	52	524	1293	0.405	4.4	0.40	0.5	3.5	500.0
North: PR-706 N												
1 LR	7	10	9	44	396	665	0.596	10.3	0.77	0.3	1.8	500.0
West: PR-3 W												
1 LT	21	49	0	0	584	909	0.643	10.1	0.67	1.0	7.1	500.0

Table S.8 - Lane Flow and Capacity Information

01 Int. PR-3 y PR-706
Pico PM Base
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 70 (Optimum Cycle Time)

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Lane Width (m)	Saturation Flow Adj. Basic (tcu)	Aver 1st (veh)	Aver 2nd (veh)	End Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
East: PR-3 E												
1 TR	0	460	64	524	3.70	1990	501	1731	51	1293	0.405	100
North: PR-706 N												
1 LR	72	0	324	396	4.10	2030	1934	618	51	665	0.596	100
West: PR-3 W												
1 LT	272	312	0	584	4.30	2050	1298	0	80	909	0.643	100

Basic Saturation Flow in this table is adjusted for lane width, approach grade, parking manoeuvres and number of buses stopping. Saturation flow scale applies if specified.

Table S.10 - Movement Capacity and Performance Summary
01 Int. PR-3 y PR-706
Pico PM Base
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 70 (Optimum Cycle Time)

Mov ID	Mov Typ	Dem Flow (veh /h)	Total Cap. (veh /h)	Lane Util (%)	Deg. Satn x	Eff. Grn 1st Grn	Eff. Grn 2nd Grn	Aver. Delay (sec)	Eff. Stop Rate	Cycle Average Queue (veh)	Perf. Index
East: PR-3 E											
5 T		460	1135	100	0.405	52		3.4	0.35	0.5	6.43
6 R	(Slp)	64	158	100	0.406	10	51	11.3	0.74	0.5	1.17
North: PR-706 N											
7 L		72	121	100	0.596	10*		10.8	0.80	0.3	1.30
9 R	(Slp)	324	544	100	0.596	10	47	10.2	0.77	0.3	5.80
West: PR-3 W											
10 L		272	423	100	0.643*	47*		14.6	0.82	1.0	5.54
11 T		312	486	100	0.642	52		6.2	0.53	1.0	5.16

* Maximum degree of saturation, or critical green periods

Table S.14 - Summary of Input and Output Data
01 Int. PR-3 y PR-706
Pico PM Base
Intersection ID: 1

Fixed-Time Signals, Cycle Time = 70 (Optimum Cycle Time)

Lane No.	Demand Flow (veh/h) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
East: PR-3 E												
1 TR		460	64	524	0	1990	1	52	0.405	4.4	3	500
	0	460	64	524	0				0.405	4.4	3	
North: PR-706 N												
1 LR	72		324	396	0	2030	10	44	0.596	10.3	2	500
	72	0	324	396	0				0.596	10.3	2	
West: PR-3 W												
1 LT	272	312		584	0	2050	49		0.643	10.1	7	500
	272	312	0	584	0				0.643	10.1	7	

ALL VEHICLES	Total Flow	% HV	Cycle Time	Max X	Aver. Delay	Max Queue
	1504	0	70	0.643	8.2	7

Peak flow period = 15 minutes.

Queue values in this table are mean cycle-average queue (metres).

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

Table S.15 - Capacity and Level of Service
01 Int. PR-3 y PR-706
Pico PM Base
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 70 (Optimum Cycle Time)

Mov ID	Mov Typ	Green Time Ratio (g/C) 1st grn	2nd grn	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Queue Cycle (vehs)	Aver. (m)
East: PR-3 E										
5 T		0.743		460	1135	0.405	3.4	A	0.5	3
6 R	(Slp)	0.143	0.729	64	158	0.406	11.3	B	0.5	3
North: PR-706 N										
7 L		0.143*		72	121	0.596	10.8	B	0.3	2
9 R	(Slp)	0.143	0.671	324	544	0.596	10.2	B	0.3	2
West: PR-3 W										
10 L		0.671*		272	423	0.643*	14.6	B	1.0	7

11 T	0.743	312	486	0.642	6.2	A	1.0	7
ALL VEHICLES:		1504		0.643	8.2	A	1.0	7
INTERSECTION (persons):		2256			8.2		1.0	7

Level of Service calculations are based on
average control delay including geometric delay (HCM criteria),
independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the
SIDRA Output Guide or the Output section of the on-line help.

* Maximum v/c ratio, or critical green periods

Table S.21 - Optimum Cycle Time Results
01 Int. PR-3 y PR-706
Pico PM Base
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 70 (Optimum Cycle Time)

Performance Measure	Smallest Value	Cycle Time
Degree of Satn	0.633	120
Average Delay	8.2	70
Stop Rate	0.59	120
Max. Queue for Any Movement	1.0	70
Perf. Index	25.4	70
Cost	638.4	70

Performance Measure	Largest Value	Cycle Time
Eff. Inters. Cap.	2376	120
Prac. Spare Cap.	42	120

If an "optimum" cycle time solution is adopted for actuated signal purposes
ensure that vehicle-actuated settings reflect this solution in real life.
Consider using the "sensitivity analysis" facility to optimise maximum
green settings for actuated signals.

Table V.21 - Intersection Summary for Optimum Cycle Time
01 Int. PR-3 y PR-706
Pico PM Base
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 70 (Optimum Cycle Time)

Cycle Time (sec)	Eff. Int. Cap.	Intersn Deg. of Satn	Prac. Spare Cap.	Aver. Delay (sec)	Stop Rate	Longest Queue (veh)	Perf. Index	Cost Total $/h	Unsett

60	2266	0.664	36	8.4	0.63	1.1	25.8	643.8
70	2339	0.643	40	8.2	0.60	1.0	25.4	638.4
80	2339	0.643	40	8.7	0.60	1.1	25.8	643.5
90	2346	0.641	40	9.0	0.60	1.2	26.1	647.0
100	2343	0.642	40	9.7	0.60	1.3	26.6	654.4
110	2341	0.642	40	10.4	0.60	1.5	27.2	662.2
120	2376	0.633	42	10.4	0.59	1.5	27.1	661.4
130	2342	0.642	40	11.4	0.60	1.7	28.0	673.7
140	2338	0.643	40	12.2	0.60	1.8	28.7	682.9
150	2341	0.643	40	12.8	0.60	1.9	29.2	690.1

Site: 01_PR-3 y PR-706_BP
D:\Documents and Settings\Carlos M. Contreras\My Documents\My Projects\Salinas Development\Revision 2007\SalinasBase.aap
Processed Jan 13, 2007 10:07:52AM

M0276, TCG, Large Office
Produced by SIDRA Intersection 3.1.061208.34

www.sidrasolutions.com

Output Tables
Output Tables
01 Int. PR-3 y PR-706
Pico AM Futuro 2012

Run Information
Cycle Time = 60 (Optimum Cycle Time)

* Basic Parameters:
Intersection Type: Signalised - Fixed Time
Driving on the right-hand side of the road
Input data specified in Metric units
Model Defaults: Standard Right
Peak Flow Period (for performance): 15 minutes
Unit time (for volumes): 60 minutes.
Specified performance measure for "best" cycle time in variable run - Delay
Delay definition: Control delay
Geometric delay included
SIDRA Standard Delay model used
SIDRA Standard Queue model used
Level of Service based on: Delay (HCM method)
Queue definition: Cycle average queue, Average

* Iteration Data:
No. of Main (Timing-Capacity) Iterations = 4
Comparison of last two iterations:
Difference in intersection degree of satn = 0.0 %
Largest difference in eff. green times = 0 secs
(max. value for stopping = 0 secs)

* If an "optimum" cycle time solution is adopted for actuated signal purposes ensure that vehicle-actuated settings reflect this solution in real life. Consider using the "sensitivity analysis" facility to optimise maximum green settings for actuated signals.

* Opposed turn in movement 6 has high x.
Its capacity is mainly due to end departures. Consider increasing the number of end departures, and/or specifying this as an undetected movement, since it may be affecting the timing results adversely.

* Movement 10 has large x because of short lanes.
The degree of saturation of adjacent movement 11 is less than xp, hence this solution may be satisfactory.
See Table S.7 for queue length, delay etc.

Table B.1 - Movement Definitions and Flow Rates (Origin-Destination)
01 Int. PR-3 y PR-706
Pico AM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

From Approach	To Approach	Mov ID	Turn	Flow Rate LV	Flow Rate HV	Flow Scale	Peak Flow Factor
East: PR-3 E							
	North	6	Right	40	0	1.00	1.00
	West	5	Thru	324	0	1.00	1.00
North: PR-706 N							
	East	7	Left	44	0	1.00	1.00
	West	9	Right	407	0	1.00	1.00
West: PR-3 W							
	East	11	Thru	613	0	1.00	1.00
	North	10	Left	602	0	1.00	1.00

Unit Time for Volumes = 60 minutes
Peak Flow Period = 15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor

Table B.2A - Flow Rates (Separate Light and Heavy Vehicles)
01 Int. PR-3 y PR-706
Pico AM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Mov ID	Left		Through		Right	
	LV	HV	LV	HV	LV	HV
Demand flows in veh/hour as used by the program						
East: PR-3 E						
5 T	0	0	324	0	0	0
6 R	0	0	0	0	40	0
North: PR-706 N						
7 L	44	0	0	0	0	0
9 R	0	0	0	0	407	0
West: PR-3 W						
10 L	602	0	0	0	0	0
11 T	0	0	613	0	0	0

Unit Time for Volumes = 60 minutes
Peak Flow Period = 15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor

Table S.1 - Movement Phase and Timing Parameters
01 Int. PR-3 y PR-706
Pico AM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Ped Pedestrian

Mov ID	Dem Flow (veh /h)	HV (%)	Satn Flow 1st Grn	Satn Flow 2nd Grn	Flow Ratio 1st Grn	Flow Ratio 2nd Grn	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
East: PR-3 E											
5 T	324	0.0	1834		0.177		336	0.90	-7	100	0.964
6 R	40	0.0	18	103	0.000	0.388	42	0.90	-6	100	0.958
North: PR-706 N											
7 L	44	0.0	1214		0.036		121	0.90	148	100	0.362
9 R	407	0.0	1563	1099	0.260	0.000	1123	0.90	148	100	0.362
West: PR-3 W											
10 L	566	0.0	1096<		0.517		566	0.90	-10	100	1.000*
11 LT	649E	0.0	2045		0.317		1568	0.90	117	100	0.414

E "Excess" flow from the short lane of an adjacent movement added to normal flow

Opposed turn in movement 6 has high x.
Its capacity is mainly due to end departures. Consider increasing the number of end departures, and/or specifying this as an undetected movement, since it may be affecting the timing results adversely.

Movement 10 has large x because of short lanes.
The degree of saturation of adjacent movement 11 is less than xp, hence this solution may be satisfactory.
See Table S.7 for queue length, delay etc.

Table S.3 - Intersection Parameters
01 Int. PR-3 y PR-706
Pico AM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Crit Mov ID	App. and Turn	Green Period	Phases Fr	Phases To	Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
7	N_L		A	B	10	-	-	10.0Min
10	W_L		B	C	4	0.517	0.574	38.4
5	E_T		C	A	4	0.177	0.196	15.8
				Total:	18	0.693	0.770	64.2

\- Flow ratio not used for cycle time calculations and the adjusted lost time equals the required movement time (=Min or Max as shown in Table S.1)

Cycle Time:

Minimum	Maximum	Practical	Chosen
30	150	78	60

(Program-determined Optimum Cycle Time)

Intersection Level of Service	=	B
Worst movement Level of Service	=	E
Average intersection delay (s/pers)	=	19.7
Largest average movement delay (s)	=	60.3
Largest cycle-average queue, mean (m)	=	37
Performance Index	=	48.59
Degree of saturation (highest)	=	1.000
Practical Spare Capacity (lowest)	=	-10 %
Effective intersection capacity, (veh/h)	=	2031
Total vehicle flow (veh/h)	=	2030
Total person flow (pers/h)	=	3045
Total vehicle delay (veh-h/h)	=	11.12
Total person delay (pers-h/h)	=	16.68
Total effective vehicle stops (veh/h)	=	1489
Total effective person stops (pers/h)	=	2233
Total vehicle travel (veh-km/h)	=	1229.2
Total cost ($/h)	=	1053.44
Total fuel (L/h)	=	140.3
Total CO2 (kg/h)	=	350.73

Table S.4 - Phase Information
01 Int. PR-3 y PR-706
Pico AM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Phase	Change Time	Starting Intgrn	Green Start	Displayed Green	Green End	Terminating Intgrn	Phase Time	Phase Split
A	0	4	4	6	10	4	10	17%
B	10	4	14	31	45	4	35	58%
C	45	4	49	11	60	4	15	25%

Current Phase Sequence: Sequence 1
Input phase sequence: A B C
Output phase sequence: A B C

Table S.5 - Movement Performance

Mov ID		Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue Cycle (vehs)	Longest Queue Aver. (m)	Perf. Index	Aver. Speed (km/h)
East: PR-3 E										
5	T	4.72	7.08	52.4	1.00	1.22	5.3	37	14.90	24.6
6	R	0.67	1.00	60.3	1.00	1.22	5.3	37	1.93	22.7
North: PR-706 N										
7	L	0.17	0.25	13.8	0.49	0.82	0.7	5	0.88	43.4
9	R	1.50	2.25	13.2	0.49	0.79	0.7	5	8.03	44.0
West: PR-3 W										
10	L	3.60	5.40	22.9	0.99	0.87	2.3	16	14.30	36.7

11 LT	0.46	0.69	2.6	0.37	0.30	0.5	3	8.56	55.2

Table S.6 - Intersection Performance
01 Int. PR-3 y PR-706
Pico AM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Total Flow (veh/h)	Deg. Satn x	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue (m)	Perf. Index	Aver. Speed (km/h)
East: PR-3 E									
364	0.964	5.39	8.08	53.3	1.00	1.22	37	16.83	24.4
North: PR-706 N									
451	0.362	1.67	2.50	13.3	0.49	0.79	5	8.90	43.9
West: PR-3 W									
1215	1.000	4.06	6.10	12.0	0.66	0.57	16	22.86	44.7
ALL VEHICLES:									
2030	1.000	11.12	16.68	19.7	0.68	0.73	37	48.59	38.8
INTERSECTION (persons):									
3045	1.000		16.68	19.7	0.68	0.73		48.59	38.8

Queue values in this table are mean cycle-average queue (metres).

Table S.7 - Lane Performance
01 Int. PR-3 y PR-706
Pico AM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Lane No.	Effective Green Times (sec) R1	G1	R2	G2	Dem Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue Cycle (vehs)	Queue Aver. (m)	Lane Length (m)
East: PR-3 E												
1 TR	25	1	22	12	364	378	0.964	53.3	1.22	5.3	37.1	500.0
North: PR-706 N												
1 LR	4	37	16	3	451	1244	0.362	13.3	0.79	0.7	4.7	500.0
West: PR-3 W												
1 L	29	31	0	0	566	566	1.000	22.9r	0.87	2.3	16.0<	50.0T
2 LT	14	46	0	0	649	1568	0.414	2.6	0.57	0.5	3.2	500.0

< Short lane capacity is reached and there is excess flow

into an adjacent lane

r Delay, stops and queue length for this lane have been cut down to fit in the queuing space. The amount cut may not be accounted for fully in the adjacent lane performance statistics. You may wish to change the short lane to a full lane to investigate the extent of this effect.

T Short lane due to specification of Turn Slot

Table S.8 - Lane Flow and Capacity Information
01 Int. PR-3 y PR-706
Pico AM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Lane Width (m)	Saturation Flow Adj. Basic (tcu)	Aver 1st (veh)	Aver 2nd (veh)	End Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
East: PR-3 E												
1 TR	0	324	40	364	3.70	1990	444	1851	60	378	0.964	100
North: PR-706 N												
1 LR	44	0	407	451	4.10	2030	1921	1199	60	1244	0.362	100
West: PR-3 W												
1 L	566	0	0	566	3.30	1950	1096<	0	0	566	1.000	100
2 LT	36E	613	0	649	4.30	2050	2045	0	0	1568	0.414	100

E "Excess" flow from back of an adjacent short lane

< Reduced saturation flow due to a short lane effect

Basic Saturation Flow in this table is adjusted for lane width, approach grade, parking manoeuvres and number of buses stopping. Saturation flow scale applies if specified.

Table S.10 - Movement Capacity and Performance Summary
01 Int. PR-3 y PR-706
Pico AM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Mov ID	Mov Typ	Dem Flow (veh /h)	Total Cap. (veh /h)	Lane Util (%)	Deg. Satn x	Eff. Grn 1st Grn	Eff. Grn 2nd Grn	Aver. Delay (sec)	Eff. Stop Rate	Cycle Average Queue (veh)	Perf. Index
East: PR-3 E											
5 T		324	336	100	0.964	11*		52.4	1.22	5.3	14.90
6 R	(Slp)	40	42	100	0.958	19	21	60.3	1.22	5.3	1.93
North: PR-706 N											
7 L		44	121	100	0.362	6*		13.8	0.82	0.7	0.88
9 R	(Slp)	407	1123	100	0.362	41	3	13.2	0.79	0.7	8.03

West: PR-3 W										
10	L	566	566<	100	1.000*	31*	22.9	0.87	2.3	14.30
11	LT	649E	1568	100	0.414	46	2.6	0.30	0.5	8.56

E "Excess" flow from the short lane of an adjacent movement added to normal flow
< Reduced capacity due to a short lane effect
* Maximum degree of saturation, or critical green periods

Table S.14 - Summary of Input and Output Data
01 Int. PR-3 y PR-706
Pico AM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Lane No.	Demand Flow (veh/h) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
East: PR-3 E												
1 TR		324	40	364	0	1990	1	12	0.964	53.3	37	500
	0	324	40	364	0				0.964	53.3	37	
North: PR-706 N												
1 LR	44		407	451	0	2030	37	3	0.362	13.3	5	500
	44	0	407	451	0				0.362	13.3	5	
West: PR-3 W												
1 L	566			566	0	1949	31		1.000	22.9r	16	50
2 LT		613		649	0	2050	46		0.414	2.6	3	500
	566	613	0	1179	0				1.000	12.4	16	

ALL VEHICLES	Total Flow	% HV	Cycle Time	Max X	Aver. Delay	Max Queue
	2030	0	60	1.000	19.7	37

Peak flow period = 15 minutes.

Queue values in this table are mean cycle-average queue (metres).

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

r Delay, stops and queue length for this lane have been cut down to fit in the queuing space. The amount cut may not be accounted for fully in the adjacent lane performance statistics. You may wish to change the short lane to a full lane to investigate the extent of this effect.

Table S.15 - Capacity and Level of Service
01 Int. PR-3 y PR-706

Pico AM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Mov ID	Mov Typ	Green Ratio 1st grn	Green Ratio 2nd grn	Time (g/C)	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Queue Cycle (vehs)	Longest Queue Aver. (m)
East: PR-3 E											
5	T	0.183*			324	336	0.964	52.4	D	5.3	37
6	R (Slp)	0.317	0.350		40	42	0.958	60.3	E	5.3	37
North: PR-706 N											
7	L	0.100*			44	121	0.362	13.8	B	0.7	5
9	R (Slp)	0.683	0.050		407	1123	0.362	13.2	B	0.7	5
West: PR-3 W											
10	L	0.517*			566	566<	1.000*	22.9	C	2.3	16
11	LT	0.767			649E	1568	0.414	2.6	A	0.5	3
ALL VEHICLES:					2030		1.000	19.7	B	5.3	37
INTERSECTION (persons):					3045			19.7		5.3	37

Level of Service calculations are based on
average control delay including geometric delay (HCM criteria),
independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the
SIDRA Output Guide or the Output section of the on-line help.

< Reduced capacity due to a short lane effect
* Maximum v/c ratio, or critical green periods
" Movement Level of service has been determined using adjacent lane v/c ratio rather than short lane v/c ratio (v/c=1.0)
E "Excess" flow from the short lane of an adjacent movement added to normal flow

Table S.21 - Optimum Cycle Time Results
01 Int. PR-3 y PR-706
Pico AM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Performance Measure	Smallest Value	Cycle Time
Degree of Satn	0.999	120
Average Delay	19.7	60
Stop Rate	0.64	150
Max. Queue for Any Movement	5.3	60
Perf. Index	48.6	60
Cost	1053.4	60

Performance Measure	Largest Value	Cycle Time
Eff. Inters. Cap.	2031	120
Prac. Spare Cap.	-10	120

If an "optimum" cycle time solution is adopted for actuated signal purposes ensure that vehicle-actuated settings reflect this solution in real life. Consider using the "sensitivity analysis" facility to optimise maximum green settings for actuated signals.

Table D.3A - Lane Queues (veh)
01 Int. PR-3 y PR-706
Pico AM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Lane	Deg. Satn	Ovrfl. Queue	Average (veh)			Percentile (veh)					Queue Stor. Ratio
No.	x	No	Nc1	Nc2	Nc	70%	85%	90%	95%	98%	
East: PR-3 E											
1 TR	0.964	2.0	3.2	2.1	5.3	6.4	8.7	10.3	11.9	13.2	0.13
North: PR-706 N											
1 LR	0.362	0.0	0.7	0.0	0.7	0.9	1.3	1.6	2.4	2.8	0.05
West: PR-3 W											
1 L	1.000	6.1	2.3	0.0	2.3	2.8	4.0	5.0	6.2	7.1	1.00
2 LT	0.414	0.0	0.5	0.0	0.5	0.6	0.9	1.1	1.7	2.0	0.06

Values printed in this table are cycle-average queues (vehicles).

Table D.3B - Lane Queues (metres)
01 Int. PR-3 y PR-706
Pico AM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Lane	Deg. Satn	Ovrfl. Queue	Average (metres)			Percentile (metres)					Queue Stor.
No.	x	No	Nc1	Nc2	Nc	70%	85%	90%	95%	98%	Ratio
East: PR-3 E											
1 TR	0.964	14.2	22.6	14.5	37.1	45.0	61.1	71.8	83.1	92.1	0.13
North: PR-706 N											
1 LR	0.362	0.0	4.7	0.0	4.7	6.0	9.0	11.5	16.7	19.6	0.05
West: PR-3 W											
1 L	1.000	42.4	16.0	0.0	16.0	19.8	28.1	34.7	43.7	50.0	1.00
2 LT	0.414	0.0	3.2	0.0	3.2	4.1	6.2	8.0	11.9	14.1	0.06

Values printed in this table are cycle-average queues (metres).

Table V.21 - Intersection Summary for Optimum Cycle Time
01 Int. PR-3 y PR-706
Pico AM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Cycle Time (sec)	Eff. Int. Cap.	Intersn Deg. of Satn	Prac. Spare Cap.	Aver. Delay (sec)	Stop Rate	Longest Queue (veh)	Perf. Index	Cost Total $/h	Unsett
60	2031	1.000	-10	19.7	0.73	5.3	48.6	1053.4	
70	2030	1.000	-10	20.4	0.71	5.6	49.2	1062.6	
80	2029	1.001	-10	21.7	0.70	5.9	50.5	1080.3	
90	2031	1.000	-10	23.0	0.68	6.2	51.9	1099.8	
100	2028	1.001	-10	26.8	0.69	7.9	56.3	1158.9	
110	2029	1.000	-10	28.4	0.68	8.2	57.9	1181.8	
120	2031	0.999	-10	29.8	0.67	8.4	59.5	1203.8	*
130	2030	1.000	-10	31.6	0.66	8.7	61.5	1230.4	*
140	2030	1.000	-10	33.5	0.65	9.0	63.6	1259.5	*
150	2030	1.000	-10	35.3	0.64	9.3	65.5	1286.3	*

* UNSETTLED RESULTS - Solution for this case has some uncertainty.
Refer to the HELP system or the User Guide for further information.

Site: 01_PR-3 y PR-706_FA1
D:\Documents and Settings\Carlos M. Contreras\My Documents\My Projects\Salinas Development\Revision 2007\Salinas2012.aap
Processed Jan 10, 2007 12:26:23PM

M0276, TCG, Large Office
Produced by SIDRA Intersection 3.1.061208.34

www.sidrasolutions.com

Output Tables
Output Tables
01 Int. PR-3 y PR-706
Pico AM Futuro 2017

Run Information
Cycle Time = 60 (Optimum Cycle Time)

* Basic Parameters:
Intersection Type: Signalised - Fixed Time
Driving on the right-hand side of the road
Input data specified in Metric units
Model Defaults: Standard Right
Peak Flow Period (for performance): 15 minutes
Unit time (for volumes): 60 minutes.
Specified performance measure for "best" cycle time in variable run - Delay
Delay definition: Control delay
Geometric delay included
SIDRA Standard Delay model used
SIDRA Standard Queue model used
Level of Service based on: Delay (HCM method)
Queue definition: Cycle average queue, Average

* Iteration Data:
No. of Main (Timing-Capacity) Iterations = 4
Comparison of last two iterations:
Difference in intersection degree of satn = 0.0 %
Largest difference in eff. green times = 0 secs
(max. value for stopping = 0 secs)

* If an "optimum" cycle time solution is adopted for actuated signal purposes ensure that vehicle-actuated settings reflect this solution in real life. Consider using the "sensitivity analysis" facility to optimise maximum green settings for actuated signals.

* Opposed turn in movement 6 has high x.
Its capacity is mainly due to end departures. Consider increasing the number of end departures, and/or specifying this as an undetected movement, since it may be affecting the timing results adversely.

* Movement 10 has large x because of short lanes.
The degree of saturation of adjacent movement 11 is less than xp, hence this solution may be satisfactory.
See Table S.7 for queue length, delay etc.

Table B.1 - Movement Definitions and Flow Rates (Origin-Destination)
01 Int. PR-3 y PR-706
Pico AM Futuro 2017
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

From Approach	To Approach	Mov ID	Turn	Flow Rate LV	Flow Rate HV	Flow Scale	Peak Flow Factor
East: PR-3 E							
	North	6	Right	43	0	1.00	1.00
	West	5	Thru	346	0	1.00	1.00
North: PR-706 N							
	East	7	Left	47	0	1.00	1.00
	West	9	Right	434	0	1.00	1.00
West: PR-3 W							
	East	11	Thru	651	0	1.00	1.00
	North	10	Left	636	0	1.00	1.00

Unit Time for Volumes = 60 minutes
Peak Flow Period = 15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor

Table S.1 - Movement Phase and Timing Parameters
01 Int. PR-3 y PR-706
Pico AM Futuro 2017
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Mov ID	Mov Typ	P H A S E M A T R I X First Green Fr	First Green To	First Green Op Pr	Second Green Fr	Second Green To	Second Green Op Pr	Lost Tim 1st Grn	Lost Tim 2nd Grn	Req.Mov.Time 1st Grn	Req.Mov.Time 2nd Grn	Eff. Grn 1st Grn	Eff. Grn 2nd Grn
East: PR-3 E													
5	T	*C	A					4		16.6		12	
6	R (Slp)	B	C	Y	C	B		16	4	10.0Min	30.5	18	22
North: PR-706 N													
7	L	*A	B					4		10.0Min		6	
9	R (Slp)	A	C		C	A	Y	4	13	22.2		10.0Min	40
West: PR-3 W													
10	L	*B	C					4		37.3		30	

```
   11 LT       B     A                                    4        28.0
46
 ---------------------------------------------------------------------------
----------
 ---------------------------------------------------------------------------
----------
   Current Phase Sequence: Sequence 1
   Input phase sequence: A B C
   Output phase sequence: A B C
 ---------------------------------------------------------------------------
----------
   *  Critical Movement/Green Period

 Movement Types:                                Under heading 'Op':
   Slp  Slip Lane Movement                        Y   If opposed turn
   Ped  Pedestrian
   Dum  Dummy
```

Table S.2 - Movement Capacity Parameters
01 Int. PR-3 y PR-706
Pico AM Futuro 2017
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Mov ID	Dem Flow (veh /h)	HV (%)	Satn Flow 1st Grn	Satn Flow 2nd Grn	Flow Ratio 1st Grn	Flow Ratio 2nd Grn	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
East: PR-3 E											
5 T	346	0.0	1827		0.189		365	0.90	-5	100	0.947
6 R	43	0.0	19	108	0.000	0.398	45	0.90	-5	100	0.949
North: PR-706 N											
7 L	47	0.0	1211		0.039		121	0.90	132	100	0.388
9 R	434	0.0	1594	1098	0.272	0.000	1118	0.90	132	100	0.388
West: PR-3 W											
10 L	552	0.0	1105<		0.500		553	0.90	-10	100	1.000*
11 LT	735E	0.0	2039		0.360		1563	0.90	92	100	0.470

E "Excess" flow from the short lane of an adjacent movement added to normal flow

Opposed turn in movement 6 has high x.
Its capacity is mainly due to end departures. Consider increasing the number of end departures, and/or specifying this as an undetected movement, since it may be affecting the timing results adversely.

Movement 10 has large x because of short lanes.
The degree of saturation of adjacent movement 11 is less than xp, hence this solution may be satisfactory.

See Table S.7 for queue length, delay etc.

Table S.3 - Intersection Parameters
01 Int. PR-3 y PR-706
Pico AM Futuro 2017
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Crit Mov ID	App. and Turn	Green Period	Phases Fr	Phases To	Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
7	N_L		A	B	10	-	-	10.0Min
10	W_L		B	C	4	0.500	0.555	37.3
5	E_T		C	A	4	0.189	0.210	16.6
				Total:	18	0.689	0.766	64.0

- Flow ratio not used for cycle time calculations and the adjusted lost time equals the required movement time (=Min or Max as shown in Table S.1)

Cycle Time:

Minimum	Maximum	Practical	Chosen
30	150	77	60

(Program-determined Optimum Cycle Time)

Intersection Level of Service	=	B
Worst movement Level of Service	=	E
Average intersection delay (s/pers)	=	18.9
Largest average movement delay (s)	=	56.6
Largest cycle-average queue, mean (m)	=	37
Performance Index	=	50.65
Degree of saturation (highest)	=	1.000
Practical Spare Capacity (lowest)	=	-10 %
Effective intersection capacity, (veh/h)	=	2157
Total vehicle flow (veh/h)	=	2157
Total person flow (pers/h)	=	3236
Total vehicle delay (veh-h/h)	=	11.31
Total person delay (pers-h/h)	=	16.97
Total effective vehicle stops (veh/h)	=	1565
Total effective person stops (pers/h)	=	2347
Total vehicle travel (veh-km/h)	=	1306.4
Total cost ($/h)	=	1105.47
Total fuel (L/h)	=	148.2
Total CO2 (kg/h)	=	370.49

Table S.4 - Phase Information
01 Int. PR-3 y PR-706
Pico AM Futuro 2017
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Phase	Change Time	Starting Intgrn	Green Start	Displayed Green	Green End	Terminating Intgrn	Phase Time	Phase Split
A	0	4	4	6	10	4	10	17%
B	10	4	14	30	44	4	34	57%
C	44	4	48	12	60	4	16	27%

Current Phase Sequence: Sequence 1
Input phase sequence: A B C
Output phase sequence: A B C

Table S.5 - Movement Performance

Mov ID		Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Cycle (vehs)	Queue Aver. (m)	Perf. Index	Aver. Speed (km/h)
East: PR-3 E										
5	T	4.69	7.03	48.8	1.00	1.19	5.3	37	15.17	25.6
6	R	0.68	1.01	56.6	1.00	1.19	5.3	37	1.98	23.5
North: PR-706 N										
7	L	0.18	0.27	14.0	0.50	0.83	0.7	5	0.94	43.2
9	R	1.62	2.43	13.4	0.50	0.80	0.7	5	8.62	43.9
West: PR-3 W										
10	L	3.59	5.39	23.4	0.98	0.87	2.3	16	14.10	36.4
11	LT	0.56	0.84	2.7	0.39	0.32	0.6	4	9.84	54.9

Table S.6 - Intersection Performance
01 Int. PR-3 y PR-706
Pico AM Futuro 2017
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Total Flow (veh/h)	Deg. Satn x	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue (m)	Perf. Index	Aver. Speed (km/h)
East: PR-3 E									
389	0.949	5.36	8.04	49.6	1.00	1.19	37	17.15	25.4
North: PR-706 N									
481	0.388	1.80	2.70	13.5	0.50	0.80	5	9.56	43.8
West: PR-3 W									
1287	1.000	4.15	6.23	11.6	0.65	0.56	16	23.95	45.1
ALL VEHICLES:									
2157	1.000	11.31	16.97	18.9	0.68	0.73	37	50.65	39.3
INTERSECTION (persons):									
3236	1.000		16.97	18.9	0.68	0.73		50.65	39.3

Queue values in this table are mean cycle-average queue (metres).

Table S.7 - Lane Performance
01 Int. PR-3 y PR-706
Pico AM Futuro 2017
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Lane No.	Effective Green Times (sec) R1	G1	R2	G2	Dem Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue Cycle (vehs)	Queue Aver. (m)	Lane Length (m)
East: PR-3 E												
1 TR	25	1	21	13	389	411	0.947	49.6	1.19	5.3	36.9	500.0
North: PR-706 N												
1 LR	4	37	16	3	481	1239	0.388	13.5	0.80	0.7	5.2	500.0
West: PR-3 W												
1 L	30	30	0	0	552	552	1.000	23.4r	0.87	2.3	16.1<	50.0T
2 LT	14	46	0	0	735	1563	0.470	2.7	0.57	0.6	3.9	500.0

< Short lane capacity is reached and there is excess flow into an adjacent lane
r Delay, stops and queue length for this lane have been cut down to fit in the queuing space. The amount cut may not be accounted for fully in the adjacent lane performance statistics. You may wish to change the short lane to a full lane to investigate the extent of this effect.
T Short lane due to specification of Turn Slot

Table S.8 - Lane Flow and Capacity Information
01 Int. PR-3 y PR-706
Pico AM Futuro 2017
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Lane Width (m)	Saturation Flow Adj. Basic (tcu)	Aver 1st (veh)	Aver 2nd (veh)	End Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
East: PR-3 E												
1 TR	0	346	43	389	3.70	1990	447	1861	60	411	0.947	100
North: PR-706 N												
1 LR	47	0	434	481	4.10	2030	1912	1199	60	1239	0.388	100
West: PR-3 W												
1 L	552	0	0	552	3.30	1950	1105<	0	0	552	1.000	100
2 LT	84E	651	0	735	4.30	2050	2039	0	0	1563	0.470	100

E "Excess" flow from back of an adjacent short lane
< Reduced saturation flow due to a short lane effect

Basic Saturation Flow in this table is adjusted for lane width, approach grade, parking manoeuvres and number of buses stopping. Saturation flow scale applies if specified.

Table S.10 - Movement Capacity and Performance Summary
01 Int. PR-3 y PR-706
Pico AM Futuro 2017
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Mov ID	Mov Typ	Dem Flow (veh /h)	Total Cap. (veh /h)	Lane Util (%)	Deg. Satn x	Eff. Grn 1st Grn	Eff. Grn 2nd Grn	Aver. Delay (sec)	Eff. Stop Rate	Cycle Average Queue (veh)	Perf. Index
East: PR-3 E											
5	T	346	365	100	0.947	12*		48.8	1.19	5.3	15.17
6	R (Slp)	43	45	100	0.949	18	22	56.6	1.19	5.3	1.98
North: PR-706 N											
7	L	47	121	100	0.388	6*		14.0	0.83	0.7	0.94
9	R (Slp)	434	1118	100	0.388	40	3	13.4	0.80	0.7	8.62
West: PR-3 W											
10	L	552	553<	100	1.000*	30*		23.4	0.87	2.3	14.10
11	LT	735E	1563	100	0.470	46		2.7	0.32	0.6	9.84

E "Excess" flow from the short lane of an adjacent movement added to normal flow
< Reduced capacity due to a short lane effect
* Maximum degree of saturation, or critical green periods

Table S.14 - Summary of Input and Output Data
01 Int. PR-3 y PR-706
Pico AM Futuro 2017
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Lane No.	Demand Flow (veh/h) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
East: PR-3 E												
1 TR		346	43	389	0	1990	1	13	0.947	49.6	37	500
	0	346	43	389	0				0.947	49.6	37	
North: PR-706 N												
1 LR	47		434	481	0	2030	37	3	0.388	13.5	5	500

	47	0	434	481	0			0.388	13.5	5	
West: PR-3 W											
1 L	552			552	0	1949	30	1.000	23.4r	16	50
2 LT		651		735	0	2050	46	0.470	2.7	4	500
	552	651	0	1203	0			1.000	12.4	16	

ALL VEHICLES	Total Flow	% HV	Cycle Time	Max X	Aver. Delay	Max Queue
	2157	0	60	1.000	18.9	37

Peak flow period = 15 minutes.

Queue values in this table are mean cycle-average queue (metres).

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

r Delay, stops and queue length for this lane have been cut down to fit in the queuing space. The amount cut may not be accounted for fully in the adjacent lane performance statistics. You may wish to change the short lane to a full lane to investigate the extent of this effect.

Table S.15 - Capacity and Level of Service
01 Int. PR-3 y PR-706
Pico AM Futuro 2017
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Mov ID	Mov Typ	Green Ratio 1st grn	Green Ratio 2nd grn	Time (g/C)	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Queue Cycle (vehs)	Longest Queue Aver. (m)
East: PR-3 E											
5	T	0.200*			346	365	0.947	48.8	D	5.3	37
6	R (Slp)	0.300	0.367		43	45	0.949	56.6	E	5.3	37
North: PR-706 N											
7	L	0.100*			47	121	0.388	14.0	B	0.7	5
9	R (Slp)	0.667	0.050		434	1118	0.388	13.4	B	0.7	5
West: PR-3 W											
10	L	0.500*			552	553<	1.000*	23.4	C	2.3	16
11	LT	0.767			735E	1563	0.470	2.7	A	0.6	4
ALL VEHICLES:					2157		1.000	18.9	B	5.3	37
INTERSECTION (persons):					3236			18.9		5.3	37

Level of Service calculations are based on
average control delay including geometric delay (HCM criteria),

independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the SIDRA Output Guide or the Output section of the on-line help.

< Reduced capacity due to a short lane effect

* Maximum v/c ratio, or critical green periods

" Movement Level of service has been determined using adjacent lane v/c ratio rather than short lane v/c ratio (v/c=1.0)

E "Excess" flow from the short lane of an adjacent movement added to normal flow

Table V.21 - Intersection Summary for Optimum Cycle Time
01 Int. PR-3 y PR-706
Pico AM Futuro 2017
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Cycle Time (sec)	Eff. Int. Cap.	Intersn Deg. of Satn	Prac. Spare Cap.	Aver. Delay (sec)	Stop Rate	Longest Queue (veh)	Perf. Index	Cost Total $/h	Unsett
60	2157	1.000	-10	18.9	0.73	5.3	50.7	1105.5	
70	2158	1.000	-10	20.1	0.71	5.8	52.0	1124.4	
80	2157	1.000	-10	21.7	0.69	6.3	53.8	1148.9	
90	2156	1.001	-10	23.2	0.68	6.8	55.4	1171.4	
100	2156	1.000	-10	25.0	0.67	7.4	57.6	1200.9	
110	2158	0.999	-10	26.8	0.66	7.9	59.7	1229.8	
120	2156	1.001	-10	28.6	0.66	8.4	61.8	1258.7	
130	2155	1.001	-10	30.7	0.65	8.9	64.2	1291.5	*
140	2159	0.999	-10	32.9	0.64	9.3	66.9	1328.2	*
150	2157	1.000	-10	33.3	0.63	9.0	67.2	1332.8	*

* UNSETTLED RESULTS - Solution for this case has some uncertainty.
Refer to the HELP system or the User Guide for further information.

Site: 01_PR-3 y PR-706_FA2
D:\Documents and Settings\Carlos M. Contreras\My Documents\My Projects\Salinas Development\Revision 2007\Salinas2017.aap
Processed Jan 12, 2007 03:41:34PM

M0276, TCG, Large Office
Produced by SIDRA Intersection 3.1.061208.34

www.sidrasolutions.com

Output Tables
Output Tables
01 Int. PR-3 y PR-706
Pico PM Futuro 2012

Run Information
Cycle Time = 60 (Optimum Cycle Time)

* Basic Parameters:
Intersection Type: Signalised - Fixed Time
Driving on the right-hand side of the road
Input data specified in Metric units
Model Defaults: Standard Right
Peak Flow Period (for performance): 15 minutes
Unit time (for volumes): 60 minutes.
Specified performance measure for "best" cycle time in variable run - Delay
Delay definition: Control delay
Geometric delay included
SIDRA Standard Delay model used
SIDRA Standard Queue model used
Level of Service based on: Delay (HCM method)
Queue definition: Cycle average queue, Average

* Iteration Data:
No. of Main (Timing-Capacity) Iterations = 5
Comparison of last two iterations:
Difference in intersection degree of satn = 0.0 %
Largest difference in eff. green times = 0 secs
(max. value for stopping = 0 secs)

* If an "optimum" cycle time solution is adopted for actuated signal purposes ensure that vehicle-actuated settings reflect this solution in real life. Consider using the "sensitivity analysis" facility to optimise maximum green settings for actuated signals.

Table B.1 - Movement Definitions and Flow Rates (Origin-Destination)
01 Int. PR-3 y PR-706
Pico PM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

From Approach	To Approach	Mov ID	Turn	Flow Rate LV	Flow Rate HV	Flow Scale	Peak Flow Factor
East: PR-3 E							
	North	6	Right	70	0	1.00	1.00
	West	5	Thru	610	0	1.00	1.00
North: PR-706 N							
	East	7	Left	79	0	1.00	1.00
	West	9	Right	512	0	1.00	1.00

West: PR-3 W						
East	11	Thru	404	0	1.00	1.00
North	10	Left	391	0	1.00	1.00

Unit Time for Volumes = 60 minutes
Peak Flow Period = 15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor

Table B.2A - Flow Rates (Separate Light and Heavy Vehicles)
01 Int. PR-3 y PR-706
Pico PM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Mov ID	Left		Through		Right	
	LV	HV	LV	HV	LV	HV
Demand flows in veh/hour as used by the program						
East: PR-3 E						
5 T	0	0	610	0	0	0
6 R	0	0	0	0	70	0
North: PR-706 N						
7 L	79	0	0	0	0	0
9 R	0	0	0	0	512	0
West: PR-3 W						
10 L	391	0	0	0	0	0
11 T	0	0	404	0	0	0

Unit Time for Volumes = 60 minutes
Peak Flow Period = 15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor

Table S.1 - Movement Phase and Timing Parameters
01 Int. PR-3 y PR-706
Pico PM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Mov ID	Mov Typ	PHASE MATRIX First Green			PHASE MATRIX Second Green			Lost Tim 1st Grn	Lost Tim 2nd Grn	Req.Mov.Time 1st Grn	Req.Mov.Time 2nd Grn	Eff. Grn 1st Grn	Eff. Grn 2nd Grn
		Fr	To	Op Pr	Fr	To	Op Pr						

```
 ---------------------------------------------------------------------------
----------
 East: PR-3 E
    5 T       *C     A                                    4        26.5
23
    6 R  (Slp) B     C      Y      C     B             14    4   10.0Min  38.8
9   33
 ---------------------------------------------------------------------------
----------
 North: PR-706 N
    7 L       *A     B                                    4        10.0Min
6
    9 R  (Slp) A     C             C     A      Y       4   20   26.1
10.0Min  29    7
 ---------------------------------------------------------------------------
----------
 West: PR-3 W
   10 L       *B     C                                    4        23.0
19
   11 T        B     A                                    4        20.0Min
46
 ---------------------------------------------------------------------------
----------
 ---------------------------------------------------------------------------
----------
   Current Phase Sequence: Sequence 1
   Input phase sequence: A B C
   Output phase sequence: A B C
 ---------------------------------------------------------------------------
----------
   *  Critical Movement/Green Period

 Movement Types:                                Under heading 'Op':
   Slp  Slip Lane Movement                        Y   If opposed turn
   Ped  Pedestrian
   Dum  Dummy
```

Table S.2 - Movement Capacity Parameters
01 Int. PR-3 y PR-706
Pico PM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Mov ID	Dem Flow (veh /h)	HV (%)	Satn Flow 1st Grn	Satn Flow 2nd Grn	Flow Ratio 1st Grn	Flow Ratio 2nd Grn	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
East: PR-3 E											
5 T	610	0.0	1808		0.337		693	0.90	2	100	0.880
6 R	70	0.0	39	134	0.000	0.522	80	0.90	2	100	0.880

North: PR-706 N											
7	L	79	0.0	1272		0.062		127	0.90	45	100	0.621
9	R	512	0.0	1545	664	0.331	0.000	824	0.90	45	100	0.621
West: PR-3 W											
10	L	391	0.0	1369<		0.286		434	0.90	0	100	0.902*
11	T	404	0.0	2050		0.197		1572	0.90	250	100	0.257

Table S.3 - Intersection Parameters
01 Int. PR-3 y PR-706
Pico PM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Crit Mov ID	App. and Turn	Green Period	Phases Fr	Phases To	Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
7	N_L		A	B	10	-	-	10.0Min
10	W_L		B	C	4	0.286	0.317	23.0
5	E_T		C	A	4	0.337	0.375	26.5
				Total:	18	0.623	0.692	59.5

- Flow ratio not used for cycle time calculations and the adjusted lost time equals the required movement time (=Min or Max as shown in Table S.1)

Cycle Time:

Minimum	Maximum	Practical	Chosen
30	150	58	60

(Program-determined Optimum Cycle Time)

Intersection Level of Service	=	C
Worst movement Level of Service	=	D
Average intersection delay (s/pers)	=	23.9
Largest average movement delay (s)	=	41.1
Largest cycle-average queue, mean (m)	=	44
Performance Index	=	55.77
Degree of saturation (highest)	=	0.902
Practical Spare Capacity (lowest)	=	0 %
Effective intersection capacity, (veh/h)	=	2291
Total vehicle flow (veh/h)	=	2066
Total person flow (pers/h)	=	3099
Total vehicle delay (veh-h/h)	=	13.72
Total person delay (pers-h/h)	=	20.59
Total effective vehicle stops (veh/h)	=	1768
Total effective person stops (pers/h)	=	2651
Total vehicle travel (veh-km/h)	=	1252.3
Total cost ($/h)	=	1146.99
Total fuel (L/h)	=	150.5
Total CO2 (kg/h)	=	376.33

Table S.4 - Phase Information
01 Int. PR-3 y PR-706
Pico PM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Phase	Change Time	Starting Intgrn	Green Start	Displayed Green	Green End	Terminating Intgrn	Phase Time	Phase Split
A	0	4	4	6	10	4	10	17%
B	10	4	14	19	33	4	23	38%
C	33	4	37	23	60	4	27	45%

Current Phase Sequence: Sequence 1
Input phase sequence: A B C
Output phase sequence: A B C

Table S.5 - Movement Performance

Mov ID		Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Cycle (vehs)	Queue Aver. (m)	Perf. Index	Aver. Speed (km/h)
East: PR-3 E										
5	T	5.63	8.45	33.2	0.99	1.10	6.3	44	21.16	31.4
6	R	0.80	1.20	41.1	0.99	1.11	6.3	44	2.59	28.3
North: PR-706 N										
7	L	0.46	0.69	21.0	0.78	0.94	2.1	14	1.94	37.9
9	R	2.91	4.36	20.4	0.78	0.92	2.1	14	12.52	38.5
West: PR-3 W										
10	L	3.68	5.52	33.9	0.92	0.95	2.8	19	12.42	30.9
11	T	0.24	0.37	2.2	0.31	0.25	0.2	2	5.14	55.9

Table S.6 - Intersection Performance
01 Int. PR-3 y PR-706
Pico PM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Total Flow (veh/h)	Deg. Satn x	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue (m)	Perf. Index	Aver. Speed (km/h)
East: PR-3 E									
680	0.880	6.43	9.64	34.0	0.99	1.10	44	23.75	31.0
North: PR-706 N									
591	0.621	3.37	5.05	20.5	0.78	0.92	14	14.46	38.4
West: PR-3 W									

795	0.902	3.93	5.89	17.8	0.61	0.59	19	17.56	40.1
ALL VEHICLES:									
2066	0.902	13.72	20.59	23.9	0.79	0.86	44	55.77	36.1
INTERSECTION (persons):									
3099	0.902		20.59	23.9	0.79	0.86		55.77	36.1

Queue values in this table are mean cycle-average queue (metres).

Table S.7 - Lane Performance
01 Int. PR-3 y PR-706
Pico PM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Lane No.	Effective Green Times (sec) R1	G1	R2	G2	Dem Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue Cycle (vehs)	Queue Aver. (m)	Lane Length (m)
East: PR-3 E												
1 TR	23	1	12	24	680	773	0.880	34.0	1.10	6.3	43.9	500.0
North: PR-706 N												
1 LR	4	27	22	7	591	952	0.621	20.5	0.92	2.1	14.5	500.0
West: PR-3 W												
1 L	41	19	0	0	391	433	0.902	33.9r	0.95	2.8	19.4	50.0T
2 T	14	46	0	0	404	1572	0.257	2.2	0.25	0.2	1.7	500.0

r Delay, stops and queue length for this lane have been cut down to fit in the queuing space. The amount cut may not be accounted for fully in the adjacent lane performance statistics. You may wish to change the short lane to a full lane to investigate the extent of this effect.
T Short lane due to specification of Turn Slot

Table S.8 - Lane Flow and Capacity Information
01 Int. PR-3 y PR-706
Pico PM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Lane Width (m)	Saturation Flow Adj. Basic (tcu)	Aver 1st (veh)	Aver 2nd (veh)	End Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
East: PR-3 E												
1 TR	0	610	70	680	3.70	1990	408	1915	60	773	0.880	100
North: PR-706 N												
1 LR	79	0	512	591	4.10	2030	1921	746	60	952	0.621	100

West: PR-3 W													
1	L	391	0	0	391	3.30	1950	1369<	0	0	433	0.902	100
2	T	0	404	0	404	4.30	2050	2050	0	0	1572	0.257	100

< Reduced saturation flow due to a short lane effect

Basic Saturation Flow in this table is adjusted for lane width, approach grade, parking manoeuvres and number of buses stopping. Saturation flow scale applies if specified.

Table S.10 - Movement Capacity and Performance Summary
01 Int. PR-3 y PR-706
Pico PM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Mov ID	Mov Typ	Dem Flow (veh /h)	Total Cap. (veh /h)	Lane Util (%)	Deg. Satn x	Eff. Grn 1st Grn	Eff. Grn 2nd Grn	Aver. Delay (sec)	Eff. Stop Rate	Cycle Average Queue (veh)	Perf. Index
East: PR-3 E											
5	T	610	693	100	0.880	23*		33.2	1.10	6.3	21.16
6	R (Slp)	70	80	100	0.880	9	33	41.1	1.11	6.3	2.59
North: PR-706 N											
7	L	79	127	100	0.621	6*		21.0	0.94	2.1	1.94
9	R (Slp)	512	824	100	0.621	29	7	20.4	0.92	2.1	12.52
West: PR-3 W											
10	L	391	434<	100	0.902*	19*		33.9	0.95	2.8	12.42
11	T	404	1572	100	0.257	46		2.2	0.25	0.2	5.14

< Reduced capacity due to a short lane effect
* Maximum degree of saturation, or critical green periods

Table S.14 - Summary of Input and Output Data
01 Int. PR-3 y PR-706
Pico PM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Lane No.	Demand Flow (veh/h) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
East: PR-3 E												
1 TR	610	70	680	0	1990	1	24	0.880	34.0	44	500	
	0	610	70	680	0				0.880	34.0	44	
North: PR-706 N												

1 LR	79		512	591	0	2030	27	7	0.621	20.5	14	500
	79	0	512	591	0				0.621	20.5	14	
West: PR-3 W												
1 L	391			391	0	1949	19		0.902	33.9r	19	50
2 T		404		404	0	2050	46		0.257	2.2	2	500
	391	404	0	795	0				0.902	17.8	19	

ALL VEHICLES	Total Flow	% HV	Cycle Time	Max X	Aver. Delay	Max Queue
	2066	0	60	0.902	23.9	44

Peak flow period = 15 minutes.

Queue values in this table are mean cycle-average queue (metres).

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

r Delay, stops and queue length for this lane have been cut down to fit in the queuing space. The amount cut may not be accounted for fully in the adjacent lane performance statistics. You may wish to change the short lane to a full lane to investigate the extent of this effect.

Table S.15 - Capacity and Level of Service
01 Int. PR-3 y PR-706
Pico PM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Mov ID	Mov Typ	Green Ratio 1st grn	Green Ratio 2nd grn	Time (g/C)	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Queue Cycle (vehs)	Longest Queue Aver. (m)
East: PR-3 E											
5 T		0.383*			610	693	0.880	33.2	C	6.3	44
6 R	(Slp)	0.150	0.550		70	80	0.880	41.1	D	6.3	44
North: PR-706 N											
7 L		0.100*			79	127	0.621	21.0	C	2.1	14
9 R	(Slp)	0.483	0.117		512	824	0.621	20.4	C	2.1	14
West: PR-3 W											
10 L		0.317*			391	434<	0.902*	33.9	C	2.8	19
11 T		0.767			404	1572	0.257	2.2	A	0.2	2
ALL VEHICLES:					2066		0.902	23.9	C	6.3	44
INTERSECTION (persons):					3099			23.9		6.3	44

Level of Service calculations are based on

average control delay including geometric delay (HCM criteria),
independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the
SIDRA Output Guide or the Output section of the on-line help.

< Reduced capacity due to a short lane effect

* Maximum v/c ratio, or critical green periods

" Movement Level of service has been determined using adjacent lane v/c ratio rather than short lane v/c ratio (v/c=1.0)

Table S.21 - Optimum Cycle Time Results
01 Int. PR-3 y PR-706
Pico PM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Performance Measure	Smallest Value	Cycle Time
Degree of Satn	0.902	60
Average Delay	23.9	60
Stop Rate	0.81	140
Max. Queue for Any Movement	6.3	60
Perf. Index	55.8	60
Cost	1147.0	60

Performance Measure	Largest Value	Cycle Time
Eff. Inters. Cap.	2291	60
Prac. Spare Cap.	0	60

If an "optimum" cycle time solution is adopted for actuated signal purposes ensure that vehicle-actuated settings reflect this solution in real life. Consider using the "sensitivity analysis" facility to optimise maximum green settings for actuated signals.

Table D.3A - Lane Queues (veh)
01 Int. PR-3 y PR-706
Pico PM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Lane No.	Deg. Satn x	Ovrfl. Queue No	Average (veh) Nc1	Nc2	Nc	Percentile (veh) 70%	85%	90%	95%	98%	Queue Stor. Ratio

East: PR-3 E										
1 TR	0.880	1.9	4.5	1.8	6.3	7.6	10.2	11.9	13.7	15.1
0.20										
North: PR-706 N										
1 LR	0.621	0.0	2.1	0.0	2.1	2.6	3.7	4.5	5.8	6.7
0.09										
West: PR-3 W										
1 L	0.902	1.5	2.1	0.6	2.8	3.4	4.8	5.9	7.2*	8.2*
1.00										
2 T	0.257	0.0	0.2	0.0	0.2	0.3	0.5	0.6	0.9	1.1
0.03										

Values printed in this table are cycle-average queues (vehicles).
* Queue length exceeds short lane length due to specification of a percentile queue in the Tools-Options (Model tab). For calculation of this statistic, you may specify the lane with full length.

Table D.3B - Lane Queues (metres)
01 Int. PR-3 y PR-706
Pico PM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

	Deg.	Ovrfl.	Average (metres)			Percentile (metres)				
Lane	Satn	Queue								Queue Stor.
No.	x	No	Nc1	Nc2	Nc	70%	85%	90%	95%	98% Ratio
East: PR-3 E										
1 TR	0.880	13.3	31.2	12.7	43.9	53.1	71.7	83.4	96.1	106.0
0.20										
North: PR-706 N										
1 LR	0.621	0.0	14.5	0.0	14.5	18.0	25.7	31.8	40.7	46.6
0.09										
West: PR-3 W										
1 L	0.902	10.8	15.0	4.4	19.4	23.9	33.6	41.1	50.4*	57.2*
1.00										
2 T	0.257	0.0	1.7	0.0	1.7	2.2	3.3	4.3	6.6	7.8
0.03										

Values printed in this table are cycle-average queues (metres).
* Queue length exceeds short lane length due to specification of a percentile queue in the Tools-Options (Model tab). For calculation of this statistic, you may specify the lane with full length.

Table V.21 - Intersection Summary for Optimum Cycle Time
01 Int. PR-3 y PR-706
Pico PM Futuro 2012
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (Optimum Cycle Time)

Cycle Time (sec)	Eff. Int. Cap.	Intersn Deg. of Satn	Prac. Spare Cap.	Aver. Delay (sec)	Stop Rate	Longest Queue (veh)	Perf. Index	Cost Total $/h	Unsett
60	2291	0.902	0	23.9	0.86	6.3	55.8	1147.0	
70	2192	0.942	-5	26.8	0.85	7.7	59.0	1192.1	
80	2066	1.000	-10	28.5	0.84	8.1	60.8	1217.3	*
90	2067	1.000	-10	30.1	0.83	8.4	62.7	1242.1	*
100	2067	1.000	-10	31.8	0.82	8.8	64.6	1267.9	*
110	2067	1.000	-10	33.8	0.81	9.1	66.9	1299.1	*
120	2066	1.000	-10	37.4	0.82	10.4	71.0	1355.6	*
130	2066	1.000	-10	39.4	0.81	10.8	73.4	1387.6	*
140	2065	1.000	-10	41.3	0.81	11.2	75.5	1416.5	*
150	2064	1.001	-10	45.0	0.81	12.3	79.8	1475.3	*

* UNSETTLED RESULTS - Solution for this case has some uncertainty.
Refer to the HELP system or the User Guide for further information.

Site: 01_PR-3 y PR-706_FP1
D:\Documents and Settings\Carlos M. Contreras\My Documents\My Projects\Salinas Development\Revision 2007\Salinas2012.aap
Processed Jan 10, 2007 12:33:50PM

M0276, TCG, Large Office
Produced by SIDRA Intersection 3.1.061208.34

www.sidrasolutions.com

Output Tables
Output Tables
01 Int. PR-3 y PR-706
Pico PM Futuro 2017

Run Information
Cycle Time = 60 (User-given Cycle Time)

* Basic Parameters:
Intersection Type: Signalised - Fixed Time
Driving on the right-hand side of the road
Input data specified in Metric units
Model Defaults: Standard Right
Peak Flow Period (for performance): 15 minutes
Unit time (for volumes): 60 minutes.
Delay definition: Control delay
Geometric delay included
SIDRA Standard Delay model used
SIDRA Standard Queue model used
Level of Service based on: Delay (HCM method)
Queue definition: Cycle average queue, Average

* Iteration Data:
No. of Main (Timing-Capacity) Iterations = 6
Comparison of last two iterations:
Difference in intersection degree of satn = 0.0 %
Largest difference in eff. green times = 0 secs
(max. value for stopping = 1 secs)

Table B.1 - Movement Definitions and Flow Rates (Origin-Destination)
01 Int. PR-3 y PR-706
Pico PM Futuro 2017
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (User-given Cycle Time)

From Approach	To Approach	Mov ID	Turn	Flow Rate LV	Flow Rate HV	Flow Scale	Peak Flow Factor
East: PR-3 E							
	North	6	Right	76	0	1.00	1.00
	West	5	Thru	647	0	1.00	1.00
North: PR-706 N							
	East	7	Left	85	0	1.00	1.00
	West	9	Right	539	0	1.00	1.00
West: PR-3 W							
	East	11	Thru	430	0	1.00	1.00
	North	10	Left	413	0	1.00	1.00

Unit Time for Volumes = 60 minutes
Peak Flow Period = 15 minutes

Flow Rates include effects of Flow Scale and Peak Flow Factor

Table S.1 - Movement Phase and Timing Parameters
01 Int. PR-3 y PR-706
Pico PM Futuro 2017
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (User-given Cycle Time)

Mov ID	Mov Typ	PHASE MATRIX First Green Fr	To	Op Pr	Second Green Fr	To	Op Pr	Lost Tim 1st Grn	2nd Grn	Req.Mov.Time 1st Grn	2nd Grn	Eff. Grn 1st Grn	2nd Grn
East: PR-3 E													
5	T	*C	A					4		27.9		23	
6	R (Slp)	B	C	Y	C	B		15	4	10.0Min	41.0	8	33
North: PR-706 N													
7	L	*A	B					4		10.0Min		6	
9	R (Slp)	A	C		C	A	Y	4	22	27.4		10.0Min	29
West: PR-3 W													
10	L	*B	C					4		24.1		19	
11	T	B	A					4		20.0Min		46	

Current Phase Sequence: Sequence 1
Input phase sequence: A B C
Output phase sequence: A B C

* Critical Movement/Green Period

Movement Types:
Slp Slip Lane Movement
Ped Pedestrian
Dum Dummy

Under heading 'Op':
Y If opposed turn

Table S.2 - Movement Capacity Parameters
01 Int. PR-3 y PR-706
Pico PM Futuro 2017
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (User-given Cycle Time)

Mov ID	Dem Flow (veh /h)	HV (%)	Satn Flow 1st Grn	Satn Flow 2nd Grn	Flow Ratio 1st Grn	Flow Ratio 2nd Grn	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
East: PR-3 E											
5 T	647	0.0	1804		0.359		692	0.90	-4	100	0.936
6 R	76	0.0	45	137	0.000	0.555	81	0.90	-4	100	0.934
North: PR-706 N											
7 L	85	0.0	1273		0.067		127	0.90	35	100	0.668
9 R	539	0.0	1536	783	0.351	0.000	808	0.90	35	100	0.667
West: PR-3 W											
10 L	413	0.0	1368<		0.302		433	0.90	-6	100	0.953*
11 T	430	0.0	2050		0.210		1572	0.90	229	100	0.274

Table S.3 - Intersection Parameters
01 Int. PR-3 y PR-706
Pico PM Futuro 2017
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (User-given Cycle Time)

Crit Mov ID	App. and Turn	Green Period Fr	Green Period To	Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
7	N_L	A	B	10	-	-	10.0Min
10	W_L	B	C	4	0.302	0.335	24.1
5	E_T	C	A	4	0.359	0.398	27.9
			Total:	18	0.661	0.734	62.0

- Flow ratio not used for cycle time calculations and the adjusted lost time equals the required movement time (=Min or Max as shown in Table S.1)

Cycle Time:

Minimum	Maximum	Practical	Chosen
30	150	68	60

(Cycle time specified by the user)

Intersection Level of Service = C

Worst movement Level of Service	=	D
Average intersection delay (s/pers)	=	26.8
Largest average movement delay (s)	=	50.2
Largest cycle-average queue, mean (m)	=	59
Performance Index	=	62.96
Degree of saturation (highest)	=	0.953
Practical Spare Capacity (lowest)	=	-6 %
Effective intersection capacity, (veh/h)	=	2297
Total vehicle flow (veh/h)	=	2190
Total person flow (pers/h)	=	3285
Total vehicle delay (veh-h/h)	=	16.29
Total person delay (pers-h/h)	=	24.43
Total effective vehicle stops (veh/h)	=	1939
Total effective person stops (pers/h)	=	2909
Total vehicle travel (veh-km/h)	=	1327.4
Total cost ($/h)	=	1266.34
Total fuel (L/h)	=	162.8
Total CO2 (kg/h)	=	407.11

Table S.4 - Phase Information
01 Int. PR-3 y PR-706
Pico PM Futuro 2017
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (User-given Cycle Time)

Phase	Change Time	Starting Intgrn	Green Start	Displayed Green	Green End	Terminating Intgrn	Phase Time	Phase Split
A	0	4	4	6	10	4	10	17%
B	10	4	14	19	33	4	23	38%
C	33	4	37	23	60	4	27	45%

Current Phase Sequence: Sequence 1
Input phase sequence: A B C
Output phase sequence: A B C

Table S.5 - Movement Performance

Mov ID		Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue Cycle (vehs)	Longest Queue Aver. (m)	Perf. Index	Aver. Speed (km/h)
East: PR-3 E										
5	T	7.60	11.41	42.3	1.00	1.22	8.5	59	26.12	27.7
6	R	1.06	1.59	50.2	1.00	1.22	8.5	59	3.24	25.3
North: PR-706 N										
7	L	0.52	0.79	22.2	0.81	0.94	2.4	17	2.15	37.1
9	R	3.24	4.86	21.6	0.81	0.93	2.4	17	13.56	37.7
West: PR-3 W										
10	L	3.60	5.39	31.3	0.94	0.89	2.6	18	12.41	32.1
11	T	0.26	0.40	2.2	0.32	0.26	0.3	2	5.49	55.8

Table S.6 - Intersection Performance
01 Int. PR-3 y PR-706
Pico PM Futuro 2017
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (User-given Cycle Time)

Total Flow (veh/h)	Deg. Satn x	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue (m)	Perf. Index	Aver. Speed (km/h)
East: PR-3 E									
723	0.936	8.66	13.00	43.1	1.00	1.22	59	29.36	27.5
North: PR-706 N									
624	0.668	3.76	5.65	21.7	0.81	0.93	17	15.71	37.6
West: PR-3 W									
843	0.953	3.86	5.79	16.5	0.62	0.57	18	17.89	41.0
ALL VEHICLES:									
2190	0.953	16.29	24.43	26.8	0.80	0.89	59	62.96	34.5
INTERSECTION (persons):									
3285	0.953		24.43	26.8	0.80	0.89		62.96	34.5

Queue values in this table are mean cycle-average queue (metres).

Table S.7 - Lane Performance
01 Int. PR-3 y PR-706
Pico PM Futuro 2017
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (User-given Cycle Time)

Lane No.	Effective Green Times (sec) R1	G1	R2	G2	Dem Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue Cycle (vehs)	Queue Aver. (m)	Lane Length (m)
East: PR-3 E												
1 TR	24	1	11	24	723	773	0.935	43.1	1.22	8.5	59.5	500.0
North: PR-706 N												
1 LR	4	27	24	5	624	935	0.667	21.7	0.93	2.4	16.7	500.0
West: PR-3 W												
1 L	41	19	0	0	413	433	0.953	31.3r	0.89	2.6	18.4	50.0T
2 T	14	46	0	0	430	1572	0.274	2.2	0.26	0.3	1.8	500.0

r Delay, stops and queue length for this lane have been cut down to fit in the queuing space. The amount cut may not be accounted for fully in the adjacent lane performance statistics. You may wish to change the short lane to a full lane to investigate the extent of this effect.

T Short lane due to specification of Turn Slot

Table S.8 - Lane Flow and Capacity Information
01 Int. PR-3 y PR-706
Pico PM Futuro 2017
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (User-given Cycle Time)

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Lane Width (m)	Saturation Flow Adj. Basic (tcu)	Aver 1st (veh)	Aver 2nd (veh)	End Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
East: PR-3 E												
1 TR	0	647	76	723	3.70	1990	415	1915	60	773	0.935	100
North: PR-706 N												
1 LR	85	0	539	624	4.10	2030	1914	881	60	935	0.667	100
West: PR-3 W												
1 L	413	0	0	413	3.30	1950	1368<	0	0	433	0.953	100
2 T	0	430	0	430	4.30	2050	2050	0	0	1572	0.274	100

< Reduced saturation flow due to a short lane effect

Basic Saturation Flow in this table is adjusted for lane width, approach grade, parking manoeuvres and number of buses stopping. Saturation flow scale applies if specified.

Table S.10 - Movement Capacity and Performance Summary
01 Int. PR-3 y PR-706
Pico PM Futuro 2017
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (User-given Cycle Time)

Mov ID	Mov Typ	Dem Flow (veh /h)	Total Cap. (veh /h)	Lane Util (%)	Deg. Satn x	Eff. Grn 1st Grn	Eff. Grn 2nd Grn	Aver. Delay (sec)	Eff. Stop Rate	Cycle Average Queue (veh)	Perf. Index
East: PR-3 E											
5 T		647	692	100	0.936	23*		42.3	1.22	8.5	26.12
6 R	(Slp)	76	81	100	0.934	8	33	50.2	1.22	8.5	3.24
North: PR-706 N											
7 L		85	127	100	0.668	6*		22.2	0.94	2.4	2.15
9 R	(Slp)	539	808	100	0.667	29	5	21.6	0.93	2.4	13.56
West: PR-3 W											
10 L		413	433<	100	0.953*	19*		31.3	0.89	2.6	12.41
11 T		430	1572	100	0.274	46		2.2	0.26	0.3	5.49

< Reduced capacity due to a short lane effect

* Maximum degree of saturation, or critical green periods

Table S.14 - Summary of Input and Output Data
01 Int. PR-3 y PR-706
Pico PM Futuro 2017
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (User-given Cycle Time)

Lane No.	Demand Flow (veh/h) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
East: PR-3 E												
1 TR		647	76	723	0	1990	1	24	0.935	43.1	59	500
	0	647	76	723	0				0.935	43.1	59	
North: PR-706 N												
1 LR	85		539	624	0	2030	27	5	0.667	21.7	17	500
	85	0	539	624	0				0.667	21.7	17	
West: PR-3 W												
1 L	413			413	0	1949	19		0.953	31.3r	18	50
2 T		430		430	0	2050	46		0.274	2.2	2	500
	413	430	0	843	0				0.953	16.5	18	

ALL VEHICLES	Total Flow	% HV	Cycle Time	Max X	Aver. Delay	Max Queue
	2190	0	60	0.953	26.8	59

Peak flow period = 15 minutes.

Queue values in this table are mean cycle-average queue (metres).

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

r Delay, stops and queue length for this lane have been cut down to fit in the queuing space. The amount cut may not be accounted for fully in the adjacent lane performance statistics. You may wish to change the short lane to a full lane to investigate the extent of this effect.

Table S.15 - Capacity and Level of Service
01 Int. PR-3 y PR-706
Pico PM Futuro 2017
Intersection ID: 1
Fixed-Time Signals, Cycle Time = 60 (User-given Cycle Time)

Mov ID	Mov Typ	Green Time Ratio (g/C)	Total Flow (veh	Total Cap. (veh	Deg. of Satn	Aver. Delay	LOS	Longest Queue Cycle (vehs)	Aver. (m)

		1st grn	2nd grn	/h)	/h)	(v/c)	(sec)			
East: PR-3 E										
5	T	0.383*		647	692	0.936	42.3	D	8.5	59
6	R (Slp)	0.133	0.550	76	81	0.934	50.2	D	8.5	59
North: PR-706 N										
7	L	0.100*		85	127	0.668	22.2	C	2.4	17
9	R (Slp)	0.483	0.083	539	808	0.667	21.6	C	2.4	17
West: PR-3 W										
10	L	0.317*		413	433<	0.953*	31.3	C	2.6	18
11	T	0.767		430	1572	0.274	2.2	A	0.3	2
ALL VEHICLES:				2190		0.953	26.8	C	8.5	59
INTERSECTION (persons):				3285			26.8		8.5	59

Level of Service calculations are based on
average control delay including geometric delay (HCM criteria),
independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the
SIDRA Output Guide or the Output section of the on-line help.

< Reduced capacity due to a short lane effect

* Maximum v/c ratio, or critical green periods

" Movement Level of service has been determined using adjacent lane v/c ratio rather than short lane v/c ratio (v/c=1.0)

Site: 01_PR-3 y PR-706_FP2
D:\Documents and Settings\Carlos M. Contreras\My Documents\My Projects\Salinas Development\Revision 2007\Salinas2017.aap
Processed Jan 12, 2007 03:52:23PM

M0276, TCG, Large Office
Produced by SIDRA Intersection 3.1.061208.34

www.sidrasolutions.com

Output Tables
Output Tables
02 Int. PR-3 y Acceso Proyecto
Pico AM Base

Run Information
* Basic Parameters:
Intersection Type: Unsignalised - Two-Way Stop Control
Driving on the right-hand side of the road
Input data specified in Metric units
Model Defaults: Standard Right
Peak Flow Period (for performance): 15 minutes
Unit time (for volumes): 60 minutes.
Delay definition: Control delay
Geometric delay included
SIDRA Standard Delay model used
SIDRA Standard Queue model used
Level of Service based on: Delay (HCM method)
Queue definition: Cycle average queue, Average

Table B.1 - Movement Definitions and Flow Rates (Origin-Destination)
02 Int. PR-3 y Acceso Proyecto
Pico AM Base
Intersection ID: 2
Stop Sign Controlled Intersection

From Approach	To Approach	Mov ID	Turn	Flow Rate LV	Flow Rate HV	Flow Scale	Peak Flow Factor
South: Acceso Sur							
	East	3	Right	12	0	1.00	1.00
	North	2	Thru	1	0	1.00	1.00
	West	1	Left	40	0	1.00	1.00
East: PR-3 E							
	South	4	Left	40	0	1.00	1.00
	North	6	Right	4	0	1.00	1.00
	West	5	Thru	428	0	1.00	1.00
North: Acceso Residencial N							
	South	8	Thru	1	0	1.00	1.00
	East	7	Left	68	0	1.00	1.00
	West	9	Right	68	0	1.00	1.00
West: PR-3 W							
	South	12	Right	92	0	1.00	1.00
	East	11	Thru	864	0	1.00	1.00
	North	10	Left	20	0	1.00	1.00

Unit Time for Volumes = 60 minutes
Peak Flow Period = 15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor

Table S.2 - Movement Capacity Parameters
02 Int. PR-3 y Acceso Proyecto
Pico AM Base
Intersection ID: 2
Stop Sign Controlled Intersection

Mov ID	Demand Flow (veh/h)	HV (%)	Opposing Movement Flow (veh/h)	HV (%)	Adjust. Flow (pcu/h)	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
South: Acceso Sur										
1 L	40	0.0	1447+	0.0	1447	217	0.80	334	100	0.184
2 T	1	0.0	1342+	0.0	1342	5	0.80	300	100	0.200
3 R	12	0.0	910+	0.0	910	65	0.80	333	100	0.185
East: PR-3 E										
4 L	40	0.0	956	0.0	956	120	0.80	140	100	0.333
5 T	428	0.0	0			1289	0.80	141	100	0.332
6 R	4	0.0	0			12	0.80	140	100	0.333
North: Acceso Residencial N										
7 L	68	0.0	1327+	0.0	1327	231	0.80	172	100	0.294
8 T	1	0.0	1386+	0.0	1386	3	0.80	140	100	0.333
9 R	68	0.0	430+	0.0	430	231	0.80	172	100	0.294
West: PR-3 W										
10 L	20	0.0	432	0.0	432	39	0.80	56	100	0.513
11 T	864	0.0	0			1678	0.80	55	100	0.515*
12 R	92	0.0	0			179	0.80	56	100	0.514

\+ Percentage of exiting flow included in total opposing flow

Table S.3 - Intersection Parameters
02 Int. PR-3 y Acceso Proyecto
Pico AM Base
Intersection ID: 2
Stop Sign Controlled Intersection

Intersection Level of Service	=	NA
Worst movement Level of Service	=	C
Average intersection delay (s/pers)	=	10.7
Largest average movement delay (s)	=	23.5
Largest cycle-average queue, mean (m)	=	14
Performance Index	=	26.83
Degree of saturation (highest)	=	0.515
Practical Spare Capacity (lowest)	=	55 %
Effective intersection capacity, (veh/h)	=	3181
Total vehicle flow (veh/h)	=	1638
Total person flow (pers/h)	=	2457
Total vehicle delay (veh-h/h)	=	4.88

Total person delay (pers-h/h)	=	7.33
Total effective vehicle stops (veh/h)	=	256
Total effective person stops (pers/h)	=	384
Total vehicle travel (veh-km/h)	=	992.5
Total cost ($/h)	=	756.84
Total fuel (L/h)	=	114.2
Total CO2 (kg/h)	=	285.57

NA Not Applicable - Intersection Level of Service is not calculated at two-way stop control or give-way/yield controlled intersections. See Table S.15 or Movement Displays for individual movement LOS values.

Table S.5 - Movement Performance

Mov ID		Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue Cycle (vehs)	Longest Queue Aver. (m)	Perf. Index	Aver. Speed (km/h)
South: Acceso Sur										
1	L	0.26	0.39	23.1	0.83	1.01	0.2	1	1.02	37.5
2	T	0.01	0.01	22.9	0.83	1.01	0.2	1	0.03	37.8
3	R	0.08	0.12	23.5	0.83	0.99	0.2	1	0.31	37.7
East: PR-3 E										
4	L	0.26	0.39	23.4	1.00	1.09	2.0	14	1.07	36.4
5	T	1.78	2.67	15.0	1.00	0.00	2.0	14	7.88	42.5
6	R	0.03	0.04	23.1	1.00	0.00	2.0	14	0.08	36.6
North: Acceso Residencial N										
7	L	0.35	0.53	18.6	0.66	1.03	0.3	2	1.58	40.5
8	T	0.01	0.01	18.4	0.66	1.03	0.3	2	0.02	40.8
9	R	0.36	0.53	18.8	0.66	0.90	0.3	2	1.54	40.5
West: PR-3 W										
10	L	0.08	0.12	14.0	0.91	1.07	1.5	11	0.43	43.2
11	T	1.34	2.02	5.6	0.91	0.00	1.5	11	11.42	49.5
12	R	0.34	0.52	13.5	0.91	0.06	1.5	11	1.45	43.9

Table S.6 - Intersection Performance
02 Int. PR-3 y Acceso Proyecto
Pico AM Base
Intersection ID: 2
Stop Sign Controlled Intersection

Total Flow (veh/h)	Deg. Satn x	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue (m)	Perf. Index	Aver. Speed (km/h)
South: Acceso Sur									
53	0.200	0.34	0.51	23.2	0.83	1.00	1	1.36	37.6
East: PR-3 E									
472	0.333	2.06	3.10	15.7	1.00	0.09	14	9.03	41.9

North: Acceso Residencial N									
137	0.333	0.71	1.07	18.7	0.66	0.97	2	3.13	40.5
West: PR-3 W									
976	0.515	1.77	2.65	6.5	0.91	0.03	11	13.30	48.7
ALL VEHICLES:									
1638	0.515	4.88	7.33	10.7	0.91	0.16	14	26.83	45.4
INTERSECTION (persons):									
2457	0.515		7.33	10.7	0.91	0.16		26.83	45.4

Queue values in this table are mean cycle-average queue (metres).

Table S.7 - Lane Performance
02 Int. PR-3 y Acceso Proyecto
Pico AM Base
Intersection ID: 2
Stop Sign Controlled Intersection

Lane No.	Dem Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue Cycle Aver. (vehs)	(m)	Lane Length (m)
South: Acceso Sur								
1 LTR	53	288	0.184	23.2	1.00	0.2	1.3	500.0
East: PR-3 E								
1 LTR	472	1421	0.332	15.7	0.09	2.0	13.7	500.0
North: Acceso Residencial N								
1 LTR	137	465	0.295	18.7	0.97	0.3	2.2	500.0
West: PR-3 W								
1 LTR	976	1896	0.515	6.5	0.03	1.5	10.6	500.0

Table S.8 - Lane Flow and Capacity Information
02 Int. PR-3 y Acceso Proyecto
Pico AM Base
Intersection ID: 2
Stop Sign Controlled Intersection

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Min Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
South: Acceso Sur								
1 LTR	40	1	12	53	53	288	0.184	100

East: PR-3 E								
1 LTR	40	428	4	472	472	1421	0.332	100
North: Acceso Residencial N								
1 LTR	68	1	68	137	120	465	0.295	100
West: PR-3 W								
1 LTR	20	864	92	976	976	1896	0.515	100

The capacity value for priority and continuous movements is obtained by adjusting the basic saturation flow for heavy vehicle and turning vehicle effects. Saturation flow scale applies if specified.

Table S.10 - Movement Capacity and Performance Summary
02 Int. PR-3 y Acceso Proyecto
Pico AM Base
Intersection ID: 2
Stop Sign Controlled Intersection

Mov ID	Mov Typ	Dem Flow (veh /h)	Total Cap. (veh /h)	Lane Util (%)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Cycle Average Queue (veh)	Perf. Index
South: Acceso Sur									
1 L	(Slp)	40	217	100	0.184	23.1	1.01	0.2	1.02
2 T		1	5	100	0.200	22.9	1.01	0.2	0.03
3 R	(Slp)	12	65	100	0.185	23.5	0.99	0.2	0.31
East: PR-3 E									
4 L		40	120	100	0.333	23.4	1.09	2.0	1.07
5 T		428	1289	100	0.332	15.0	0.00	2.0	7.88
6 R		4	12	100	0.333	23.1	0.00	2.0	0.08
North: Acceso Residencial N									
7 L		68	231	100	0.294	18.6	1.03	0.3	1.58
8 T		1	3	100	0.333	18.4	1.03	0.3	0.02
9 R		68	231	100	0.294	18.8	0.90	0.3	1.54
West: PR-3 W									
10 L	(Slp)	20	39	100	0.513	14.0	1.07	1.5	0.43
11 T		864	1678	100	0.515*	5.6	0.00	1.5	11.42
12 R	(Slp)	92	179	100	0.514	13.5	0.06	1.5	1.45

* Maximum degree of saturation

Table S.14 - Summary of Input and Output Data
02 Int. PR-3 y Acceso Proyecto
Pico AM Base
Intersection ID: 2
Stop Sign Controlled Intersection

Lane No.	Demand Flow (veh/h) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
South: Acceso Sur												
1 LTR	40	1	12	53	0				0.184	23.2	1	500
	40	1	12	53	0				0.184	23.2	1	
East: PR-3 E												
1 LTR	40	428	4	472	0				0.332	15.7	14	500
	40	428	4	472	0				0.332	15.7	14	
North: Acceso Residencial N												
1 LTR	68	1	68	137	0				0.295	18.7	2	500
	68	1	68	137	0				0.295	18.7	2	
West: PR-3 W												
1 LTR	20	864	92	976	0				0.515	6.5	11	500
	20	864	92	976	0				0.515	6.5	11	

ALL VEHICLES	Total Flow	% HV	Max X	Aver. Delay	Max Queue
	1638	0	0.515	10.7	14

Peak flow period = 15 minutes.

Queue values in this table are mean cycle-average queue (metres).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Table S.15 - Capacity and Level of Service
02 Int. PR-3 y Acceso Proyecto
Pico AM Base
Intersection ID: 2
Stop Sign Controlled Intersection

Mov ID	Mov Typ	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Queue Cycle (vehs)	Aver. (m)
South: Acceso Sur								
1 L	(Slp)	40	217	0.184	23.1	C	0.2	1
2 T		1	5	0.200	22.9	C	0.2	1
3 R	(Slp)	12	65	0.185	23.5	C	0.2	1
East: PR-3 E								
4 L		40	120	0.333	23.4	C	2.0	14
5 T		428	1289	0.332	15.0	B	2.0	14

6	R	4	12	0.333	23.1	C	2.0	14
North: Acceso Residencial N								
7	L	68	231	0.294	18.6	C	0.3	2
8	T	1	3	0.333	18.4	C	0.3	2
9	R	68	231	0.294	18.8	C	0.3	2
West: PR-3 W								
10	L (Slp)	20	39	0.513	14.0	B	1.5	11
11	T	864	1678	0.515*	5.6	A	1.5	11
12	R (Slp)	92	179	0.514	13.5	B	1.5	11
ALL VEHICLES:		1638		0.515	10.7	NA	2.0	14

Level of Service calculations are based on
average control delay including geometric delay (HCM criteria),
independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the
SIDRA Output Guide or the Output section of the on-line help.

NA Not Applicable - Intersection Level of Service is not calculated at two-way stop control or give-way/yield controlled intersections.

* Maximum v/c ratio, or critical green periods

" Movement Level of service has been determined using adjacent lane v/c ratio rather than short lane v/c ratio (v/c=1.0)

Site: 02_PR-3 y Acceso Proyecto_BA
D:\Documents and Settings\Carlos M. Contreras\My Documents\My Projects\Salinas Development\Revision 2007\SalinasBase.aap
Processed Jan 13, 2007 10:07:52AM

M0276, TCG, Large Office
Produced by SIDRA Intersection 3.1.061208.34

www.sidrasolutions.com

Output Tables
Output Tables
02 Int. PR-3 y Acceso Proyecto
Pico PM Base

Run Information
* Basic Parameters:
Intersection Type: Unsignalised - Two-Way Stop Control
Driving on the right-hand side of the road
Input data specified in Metric units
Model Defaults: Standard Right
Peak Flow Period (for performance): 15 minutes
Unit time (for volumes): 60 minutes.
Delay definition: Control delay
Geometric delay included
SIDRA Standard Delay model used
SIDRA Standard Queue model used
Level of Service based on: Delay (HCM method)
Queue definition: Cycle average queue, Average

Table B.1 - Movement Definitions and Flow Rates (Origin-Destination)
02 Int. PR-3 y Acceso Proyecto
Pico PM Base
Intersection ID: 2
Stop Sign Controlled Intersection

From Approach	To Approach	Mov ID	Turn	Flow Rate LV	Flow Rate HV	Flow Scale	Peak Flow Factor
South: Acceso Sur							
	East	3	Right	12	0	1.00	1.00
	North	2	Thru	4	0	1.00	1.00
	West	1	Left	36	0	1.00	1.00
East: PR-3 E							
	South	4	Left	12	0	1.00	1.00
	North	6	Right	52	0	1.00	1.00
	West	5	Thru	748	0	1.00	1.00
North: Acceso Residencial N							
	South	8	Thru	1	0	1.00	1.00
	East	7	Left	28	0	1.00	1.00
	West	9	Right	16	0	1.00	1.00
West: PR-3 W							
	South	12	Right	16	0	1.00	1.00
	East	11	Thru	516	0	1.00	1.00
	North	10	Left	52	0	1.00	1.00

Unit Time for Volumes = 60 minutes
Peak Flow Period = 15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor

Table S.2 - Movement Capacity Parameters
02 Int. PR-3 y Acceso Proyecto
Pico PM Base
Intersection ID: 2
Stop Sign Controlled Intersection

Mov ID	Demand Flow (veh/h)	HV (%)	Opposing Movement Flow (veh/h)	HV (%)	Adjust. Flow (pcu/h)	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
South: Acceso Sur										
1 L	36	0.0	1301+	0.0	1301	257	0.80	471	100	0.140
2 T	4	0.0	1324+	0.0	1324	29	0.80	480	100	0.138
3 R	12	0.0	524+	0.0	524	86	0.80	473	100	0.140
East: PR-3 E										
4 L	12	0.0	532	0.0	532	28	0.80	87	100	0.429*
5 T	748	0.0	0			1752	0.80	87	100	0.427
6 R	52	0.0	0			122	0.80	88	100	0.426
North: Acceso Residencial N										
7 L	28	0.0	1358+	0.0	1358	221	0.80	531	100	0.127
8 T	1	0.0	1306+	0.0	1306	8	0.80	540	100	0.125
9 R	16	0.0	774+	0.0	774	126	0.80	530	100	0.127
West: PR-3 W										
10 L	52	0.0	800	0.0	800	138	0.80	112	100	0.377
11 T	516	0.0	0			1371	0.80	113	100	0.376
12 R	16	0.0	0			42	0.80	110	100	0.381

\+ Percentage of exiting flow included in total opposing flow

Table S.3 - Intersection Parameters
02 Int. PR-3 y Acceso Proyecto
Pico PM Base
Intersection ID: 2
Stop Sign Controlled Intersection

Intersection Level of Service	=	NA
Worst movement Level of Service	=	C
Average intersection delay (s/pers)	=	9.5
Largest average movement delay (s)	=	20.2
Largest cycle-average queue, mean (m)	=	12
Performance Index	=	23.27
Degree of saturation (highest)	=	0.429
Practical Spare Capacity (lowest)	=	87 %
Effective intersection capacity, (veh/h)	=	3484
Total vehicle flow (veh/h)	=	1493
Total person flow (pers/h)	=	2240
Total vehicle delay (veh-h/h)	=	3.92

Total person delay (pers-h/h)	=	5.89
Total effective vehicle stops (veh/h)	=	168
Total effective person stops (pers/h)	=	252
Total vehicle travel (veh-km/h)	=	904.6
Total cost ($/h)	=	671.84
Total fuel (L/h)	=	103.0
Total CO2 (kg/h)	=	257.51

NA Not Applicable - Intersection Level of Service is not calculated at two-way stop control or give-way/yield controlled intersections. See Table S.15 or Movement Displays for individual movement LOS values.

Table S.5 - Movement Performance

Mov ID		Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue Cycle (vehs)	Longest Queue Aver. (m)	Perf. Index	Aver. Speed (km/h)
South: Acceso Sur										
1	L	0.20	0.29	19.6	0.74	1.00	0.1	1	0.85	39.8
2	T	0.02	0.03	19.4	0.74	1.00	0.1	1	0.09	40.1
3	R	0.07	0.10	20.0	0.74	0.83	0.1	1	0.27	40.0
East: PR-3 E										
4	L	0.05	0.07	14.4	0.88	1.07	1.3	9	0.26	42.9
5	T	1.23	1.85	5.9	0.88	0.00	1.3	9	10.03	49.7
6	R	0.20	0.31	14.1	0.88	0.08	1.3	9	0.84	43.2
North: Acceso Residencial N										
7	L	0.16	0.23	20.0	0.77	1.00	0.1	1	0.67	39.6
8	T	0.01	0.01	19.8	0.77	1.00	0.1	1	0.02	39.9
9	R	0.09	0.13	20.2	0.77	0.92	0.1	1	0.38	39.7
West: PR-3 W										
10	L	0.28	0.42	19.2	1.00	1.11	1.7	12	1.27	39.1
11	T	1.54	2.32	10.8	1.00	0.00	1.7	12	8.30	46.3
12	R	0.08	0.12	18.6	1.00	0.00	1.7	12	0.29	39.8

Table S.6 - Intersection Performance
02 Int. PR-3 y Acceso Proyecto
Pico PM Base
Intersection ID: 2
Stop Sign Controlled Intersection

Total Flow (veh/h)	Deg. Satn x	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue (m)	Perf. Index	Aver. Speed (km/h)
South: Acceso Sur									
52	0.140	0.28	0.43	19.7	0.74	0.96	1	1.22	39.9
East: PR-3 E									
812	0.429	1.48	2.23	6.6	0.88	0.02	9	11.12	49.1

North: Acceso Residencial N									
45	0.127	0.25	0.38	20.1	0.77	0.97	1	1.06	39.6
West: PR-3 W									
584	0.381	1.90	2.86	11.7	1.00	0.10	12	9.87	45.4
ALL VEHICLES:									
1493	0.429	3.92	5.89	9.5	0.92	0.11	12	23.27	46.9
INTERSECTION (persons):									
2240	0.429		5.89	9.5	0.92	0.11		23.27	46.9

Queue values in this table are mean cycle-average queue (metres).

Table S.7 - Lane Performance
02 Int. PR-3 y Acceso Proyecto
Pico PM Base
Intersection ID: 2
Stop Sign Controlled Intersection

Lane No.	Dem Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue Cycle (vehs)	Queue Aver. (m)	Lane Length (m)
South: Acceso Sur								
1 LTR	52	371	0.140	19.7	0.96	0.1	0.9	500.0
East: PR-3 E								
1 LTR	812	1902	0.427	6.6	0.02	1.3	9.4	500.0
North: Acceso Residencial N								
1 LTR	45	356	0.127	20.1	0.97	0.1	0.8	500.0
West: PR-3 W								
1 LTR	584	1551	0.376	11.7	0.10	1.7	12.2	500.0

Table S.8 - Lane Flow and Capacity Information
02 Int. PR-3 y Acceso Proyecto
Pico PM Base
Intersection ID: 2
Stop Sign Controlled Intersection

Lane No.	Dem Flow (veh/h)				Min Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
	Lef	Thru	Rig	Tot				
South: Acceso Sur								
1 LTR	36	4	12	52	52	371	0.140	100

East: PR-3 E								
1 LTR	12	748	52	812	812	1902	0.427	100
North: Acceso Residencial N								
1 LTR	28	1	16	45	45	356	0.127	100
West: PR-3 W								
1 LTR	52	516	16	584	584	1551	0.376	100

The capacity value for priority and continuous movements is obtained by adjusting the basic saturation flow for heavy vehicle and turning vehicle effects. Saturation flow scale applies if specified.

Table S.10 - Movement Capacity and Performance Summary
02 Int. PR-3 y Acceso Proyecto
Pico PM Base
Intersection ID: 2
Stop Sign Controlled Intersection

Mov ID	Mov Typ	Dem Flow (veh /h)	Total Cap. (veh /h)	Lane Util (%)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Cycle Average Queue (veh)	Perf. Index
South: Acceso Sur									
1 L	(Slp)	36	257	100	0.140	19.6	1.00	0.1	0.85
2 T		4	29	100	0.138	19.4	1.00	0.1	0.09
3 R	(Slp)	12	86	100	0.140	20.0	0.83	0.1	0.27
East: PR-3 E									
4 L		12	28	100	0.429*	14.4	1.07	1.3	0.26
5 T		748	1752	100	0.427	5.9	0.00	1.3	10.03
6 R		52	122	100	0.426	14.1	0.08	1.3	0.84
North: Acceso Residencial N									
7 L		28	221	100	0.127	20.0	1.00	0.1	0.67
8 T		1	8	100	0.125	19.8	1.00	0.1	0.02
9 R		16	126	100	0.127	20.2	0.92	0.1	0.38
West: PR-3 W									
10 L	(Slp)	52	138	100	0.377	19.2	1.11	1.7	1.27
11 T		516	1371	100	0.376	10.8	0.00	1.7	8.30
12 R	(Slp)	16	42	100	0.381	18.6	0.00	1.7	0.29

* Maximum degree of saturation

Table S.14 - Summary of Input and Output Data
02 Int. PR-3 y Acceso Proyecto
Pico PM Base
Intersection ID: 2
Stop Sign Controlled Intersection

Lane No.	Demand Flow (veh/h) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
South: Acceso Sur												
1 LTR	36	4	12	52	0				0.140	19.7	1	500
	36	4	12	52	0				0.140	19.7	1	
East: PR-3 E												
1 LTR	12	748	52	812	0				0.427	6.6	9	500
	12	748	52	812	0				0.427	6.6	9	
North: Acceso Residencial N												
1 LTR	28	1	16	45	0				0.127	20.1	1	500
	28	1	16	45	0				0.127	20.1	1	
West: PR-3 W												
1 LTR	52	516	16	584	0				0.376	11.7	12	500
	52	516	16	584	0				0.376	11.7	12	

ALL VEHICLES	Total Flow	% HV	Max X	Aver. Delay	Max Queue
	1493	0	0.429	9.5	12

Peak flow period = 15 minutes.

Queue values in this table are mean cycle-average queue (metres).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Table S.15 - Capacity and Level of Service
02 Int. PR-3 y Acceso Proyecto
Pico PM Base
Intersection ID: 2
Stop Sign Controlled Intersection

Mov ID	Mov Typ	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Queue Cycle (vehs)	Aver. (m)
South: Acceso Sur								
1 L	(Slp)	36	257	0.140	19.6	C	0.1	1
2 T		4	29	0.138	19.4	C	0.1	1
3 R	(Slp)	12	86	0.140	20.0	C	0.1	1
East: PR-3 E								
4 L		12	28	0.429*	14.4	B	1.3	9
5 T		748	1752	0.427	5.9	A	1.3	9

6	R	52	122	0.426	14.1	B	1.3	9
North: Acceso Residencial N								
7	L	28	221	0.127	20.0	C	0.1	1
8	T	1	8	0.125	19.8	C	0.1	1
9	R	16	126	0.127	20.2	C	0.1	1
West: PR-3 W								
10	L (Slp)	52	138	0.377	19.2	C	1.7	12
11	T	516	1371	0.376	10.8	B	1.7	12
12	R (Slp)	16	42	0.381	18.6	C	1.7	12
ALL VEHICLES:		1493		0.429	9.5	NA	1.7	12

Level of Service calculations are based on
average control delay including geometric delay (HCM criteria),
independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the
SIDRA Output Guide or the Output section of the on-line help.

NA Not Applicable - Intersection Level of Service is not calculated at two-way stop control or give-way/yield controlled intersections.

* Maximum v/c ratio, or critical green periods

" Movement Level of service has been determined using adjacent lane v/c ratio rather than short lane v/c ratio (v/c=1.0)

Site: 02_PR-3 y Acceso Proyecto_BP
D:\Documents and Settings\Carlos M. Contreras\My Documents\My Projects\Salinas Development\Revision 2007\SalinasBase.aap
Processed Jan 13, 2007 10:07:53AM

M0276, TCG, Large Office
Produced by SIDRA Intersection 3.1.061208.34

www.sidrasolutions.com

Output Tables
Output Tables
02 Int. PR-3 y Acceso Proyecto
Pico AM Futuro

Run Information
* Basic Parameters:
Intersection Type: Unsignalised - Two-Way Stop Control
Driving on the right-hand side of the road
Input data specified in Metric units
Model Defaults: Standard Right
Peak Flow Period (for performance): 15 minutes
Unit time (for volumes): 60 minutes.
Delay definition: Control delay
Geometric delay included
SIDRA Standard Delay model used
SIDRA Standard Queue model used
Level of Service based on: Delay (HCM method)
Queue definition: Cycle average queue, Average

Table B.1 - Movement Definitions and Flow Rates (Origin-Destination)
02 Int. PR-3 y Acceso Proyecto
Pico AM Futuro
Intersection ID: 2
Stop Sign Controlled Intersection

From Approach	To Approach	Mov ID	Turn	Flow Rate LV	Flow Rate HV	Flow Scale	Peak Flow Factor
South: Acceso Sur							
	East	3	Right	13	0	1.00	1.00
	North	2	Thru	1	0	1.00	1.00
	West	1	Left	44	0	1.00	1.00
East: PR-3 E							
	South	4	Left	44	0	1.00	1.00
	North	6	Right	90	0	1.00	1.00
	West	5	Thru	470	0	1.00	1.00
North: Acceso Residencial N							
	South	8	Thru	1	0	1.00	1.00
	East	7	Left	332	0	1.00	1.00
	West	9	Right	332	0	1.00	1.00
West: PR-3 W							
	South	12	Right	101	0	1.00	1.00
	East	11	Thru	950	0	1.00	1.00
	North	10	Left	108	0	1.00	1.00

Unit Time for Volumes = 60 minutes
Peak Flow Period = 15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor

Table B.2A - Flow Rates (Separate Light and Heavy Vehicles)
02 Int. PR-3 y Acceso Proyecto
Pico AM Futuro
Intersection ID: 2
Stop Sign Controlled Intersection

Mov ID		Left		Through		Right	
		LV	HV	LV	HV	LV	HV
Demand flows in veh/hour as used by the program							
South: Acceso Sur							
1	L	44	0	0	0	0	0
2	T	0	0	1	0	0	0
3	R	0	0	0	0	13	0
East: PR-3 E							
4	L	44	0	0	0	0	0
5	T	0	0	470	0	0	0
6	R	0	0	0	0	90	0
North: Acceso Residencial N							
7	L	332	0	0	0	0	0
8	T	0	0	1	0	0	0
9	R	0	0	0	0	332	0
West: PR-3 W							
10	L	108	0	0	0	0	0
11	T	0	0	950	0	0	0
12	R	0	0	0	0	101	0

Unit Time for Volumes = 60 minutes
Peak Flow Period = 15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor

Table S.2 - Movement Capacity Parameters
02 Int. PR-3 y Acceso Proyecto
Pico AM Futuro
Intersection ID: 2
Stop Sign Controlled Intersection

Mov ID		Demand Flow (veh/h)	HV (%)	Opposing Movement Flow (veh/h)	HV (%)	Adjust. Flow (pcu/h)	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
South: Acceso Sur											
1	L	44	0.0	1955+	0.0	1955	105	0.80	91	100	0.419
2	T	1	0.0	1713+	0.0	1713	2	0.80	60	100	0.500
3	R	13	0.0	1001+	0.0	1001	31	0.80	91	100	0.419

East: PR-3 E											
4	L	44	0.0	1051	0.0	1051	198	0.80	260	100	0.222
5	T	470	0.0	0			2120	0.80	261	100	0.222
6	R	90	0.0	0			406	0.80	261	100	0.222
North: Acceso Residencial N											
7	L	332	0.0	1631+	0.0	1631	324	0.80	-22	100	1.025*
8	T	1	0.0	1718+	0.0	1718	1	0.80	-20	100	1.000
9	R	332	0.0	515+	0.0	515	324	0.80	-22	100	1.025*
West: PR-3 W											
10	L	108	0.0	560	0.0	560	803	0.80	495	100	0.134
11	T	950	0.0	0			1754	0.80	48	100	0.542
12	R	101	0.0	0			186	0.80	47	100	0.543

\+ Percentage of exiting flow included in total opposing flow

Table S.3 - Intersection Parameters
02 Int. PR-3 y Acceso Proyecto
Pico AM Futuro
Intersection ID: 2
Stop Sign Controlled Intersection

Intersection Level of Service	=	NA
Worst movement Level of Service	=	F
Average intersection delay (s/pers)	=	23.9
Largest average movement delay (s)	=	83.3
Largest cycle-average queue, mean (m)	=	53
Performance Index	=	64.42
Degree of saturation (highest)	=	1.025
Practical Spare Capacity (lowest)	=	-22 %
Effective intersection capacity, (veh/h)	=	2426
Total vehicle flow (veh/h)	=	2486
Total person flow (pers/h)	=	3729
Total vehicle delay (veh-h/h)	=	16.48
Total person delay (pers-h/h)	=	24.71
Total effective vehicle stops (veh/h)	=	1676
Total effective person stops (pers/h)	=	2513
Total vehicle travel (veh-km/h)	=	1505.1
Total cost ($/h)	=	1329.74
Total fuel (L/h)	=	159.3
Total CO2 (kg/h)	=	398.19

NA Not Applicable - Intersection Level of Service is not calculated at two-way stop control or give-way/yield controlled intersections. See Table S.15 or Movement Displays for individual movement LOS values.

Table S.5 - Movement Performance

Mov ID	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Cycle Aver. (vehs)	Queue (m)	Perf. Index	Aver. Speed (km/h)

South: Acceso Sur									
1	L	0.55	0.83	45.4	0.94	1.05	0.6	4	1.68	27.2
2	T	0.01	0.02	45.6	0.94	1.05	0.6	4	0.04	27.3
3	R	0.16	0.25	45.5	0.94	1.06	0.6	4	0.50	27.3
East: PR-3 E										
4	L	0.29	0.44	24.0	1.00	1.03	0.8	5	1.18	36.0
5	T	0.57	0.86	4.4	0.28	0.00	0.8	5	5.90	53.5
6	R	0.20	0.31	8.2	0.00	0.67	0.0	0	1.44	49.0
North: Acceso Residencial N										
7	L	7.68	11.52	83.3	1.00	1.78	7.5	53	21.00	18.5
8	T	0.02	0.03	69.6	1.00	1.92	7.5	53	0.06	21.0
9	R	6.41	9.61	69.5	1.00	2.31	7.5	53	19.43	21.0
West: PR-3 W										
10	L	0.33	0.50	11.1	0.53	0.79	0.1	1	1.98	45.9
11	T	0.00	0.00	0.0	0.00	0.00	0.0	0	9.60	60.0
12	R	0.23	0.34	8.2	0.00	0.67	0.0	0	1.62	49.0

Table S.6 - Intersection Performance
02 Int. PR-3 y Acceso Proyecto
Pico AM Futuro
Intersection ID: 2
Stop Sign Controlled Intersection

Total Flow (veh/h)	Deg. Satn x	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue (m)	Perf. Index	Aver. Speed (km/h)
South: Acceso Sur									
58	0.500	0.73	1.10	45.4	0.94	1.05	4	2.21	27.2
East: PR-3 E									
604	0.222	1.07	1.61	6.4	0.29	0.17	5	8.52	51.0
North: Acceso Residencial N									
665	1.025	14.11	21.17	76.4	1.00	2.04	53	40.49	19.7
West: PR-3 W									
1159	0.543	0.56	0.84	1.7	0.05	0.13	1	13.21	57.2
ALL VEHICLES:									
2486	1.025	16.48	24.71	23.9	0.38	0.67	53	64.42	36.6
INTERSECTION (persons):									
3729	1.025		24.71	23.9	0.38	0.67		64.42	36.6

Queue values in this table are mean cycle-average queue (metres).

Table S.7 - Lane Performance
02 Int. PR-3 y Acceso Proyecto
Pico AM Futuro

Intersection ID: 2
Stop Sign Controlled Intersection

Lane No.	Dem Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue Cycle (vehs)	Queue Aver. (m)	Lane Length (m)
South: Acceso Sur								
1 LTR	58	138	0.421	45.4	1.05	0.6	3.9	500.0
East: PR-3 E								
1 LT	176	795	0.222	17.7	0.26	0.8	5.3	500.0
2 TR	428	1930	0.222	1.7	0.14	0.0	0.0	500.0
North: Acceso Residencial N								
1 L	206	201	1.024	91.8	1.68	4.6	32.5	500.0
2 LTR	459	448	1.024	69.5	2.20	7.5	52.5	500.0
West: PR-3 W								
1 L	108	803	0.134	11.1	0.79	0.1	0.6	50.0T
2 TR	1051	1941	0.542	0.8	0.06	0.0	0.0	500.0

T Short lane due to specification of Turn Slot

Table S.8 - Lane Flow and Capacity Information
02 Int. PR-3 y Acceso Proyecto
Pico AM Futuro
Intersection ID: 2
Stop Sign Controlled Intersection

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Min Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
South: Acceso Sur								
1 LTR	44	1	13	58	58	138	0.421	100
East: PR-3 E								
1 LT	44	132	0	176	176	795	0.222	100
2 TR	0	338	90	428	428	1930	0.222	100
North: Acceso Residencial N								
1 L	206	0	0	206	120	201	1.024	100
2 LTR	126	1	332	459	120	448	1.024	100
West: PR-3 W								
1 L	108	0	0	108	108	803	0.134	100
2 TR	0	950	101	1051	1051	1941	0.542	100

The capacity value for priority and continuous movements is obtained by adjusting the basic saturation flow for heavy vehicle and turning vehicle

effects. Saturation flow scale applies if specified.

Table S.10 - Movement Capacity and Performance Summary
02 Int. PR-3 y Acceso Proyecto
Pico AM Futuro
Intersection ID: 2
Stop Sign Controlled Intersection

Mov ID	Mov Typ	Dem Flow (veh /h)	Total Cap. (veh /h)	Lane Util (%)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Cycle Average Queue (veh)	Perf. Index
South: Acceso Sur									
1	L	44	105	100	0.419	45.4	1.05	0.6	1.68
2	T	1	2	100	0.500	45.6	1.05	0.6	0.04
3	R	13	31	100	0.419	45.5	1.06	0.6	0.50
East: PR-3 E									
4	L	44	198	100	0.222	24.0	1.03	0.8	1.18
5	T	470	2120	100	0.222	4.4	0.00	0.8	5.90
6	R	90	406	100	0.222	8.2	0.67	0.0	1.44
North: Acceso Residencial N									
7	L	332	324	100	1.025*	83.3	1.78	7.5	21.00
8	T	1	1	100	1.000	69.6	1.92	7.5	0.06
9	R	332	324	100	1.025*	69.5	2.31	7.5	19.43
West: PR-3 W									
10	L	108	803	100	0.134	11.1	0.79	0.1	1.98
11	T	950	1754	100	0.542	0.0	0.00	0.0	9.60
12	R	101	186	100	0.543	8.2	0.67	0.0	1.62

* Maximum degree of saturation

Table S.14 - Summary of Input and Output Data
02 Int. PR-3 y Acceso Proyecto
Pico AM Futuro
Intersection ID: 2
Stop Sign Controlled Intersection

Lane No.	Demand Flow (veh/h) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
South: Acceso Sur												
1 LTR	44	1	13	58	0				0.421	45.4	4	500
	44	1	13	58	0				0.421	45.4	4	
East: PR-3 E												
1 LT	44	132		176	0				0.222	17.7	5	500

2 TR	338	90	428	0		0.222	1.7	0	500
	44	470	90	604	0		0.222	6.4	5	
North: Acceso Residencial N									
1 L	206			206	0		1.024	91.8	32	500
2 LTR	126	1	332	459	0		1.024	69.5	53	500
	332	1	332	665	0		1.024	76.4	53	
West: PR-3 W									
1 L	108			108	0		0.134	11.1	1	50
2 TR	950	101	1051	0		0.542	0.8	0	500
	108	950	101	1159	0		0.542	1.7	1	

ALL VEHICLES	Total Flow	% HV	Max X	Aver. Delay	Max Queue
	2486	0	1.025	23.9	53

Peak flow period = 15 minutes.

Queue values in this table are mean cycle-average queue (metres).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Table S.15 - Capacity and Level of Service
02 Int. PR-3 y Acceso Proyecto
Pico AM Futuro
Intersection ID: 2
Stop Sign Controlled Intersection

Mov ID	Mov Typ	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Queue Cycle (vehs)	Aver. (m)
South: Acceso Sur								
1	L	44	105	0.419	45.4	E	0.6	4
2	T	1	2	0.500	45.6	E	0.6	4
3	R	13	31	0.419	45.5	E	0.6	4
East: PR-3 E								
4	L	44	198	0.222	24.0	C	0.8	5
5	T	470	2120	0.222	4.4	A	0.8	5
6	R	90	406	0.222	8.2	A	0.0	0
North: Acceso Residencial N								
7	L	332	324	1.025*	83.3	F	7.5	53
8	T	1	1	1.000	69.6	F	7.5	53
9	R	332	324	1.025*	69.5	F	7.5	53
West: PR-3 W								
10	L	108	803	0.134	11.1	B	0.1	1

11	T	950	1754	0.542	0.0	A	0.0	0
12	R	101	186	0.543	8.2	A	0.0	0
ALL VEHICLES:		2486		1.025	23.9	NA	7.5	53

Level of Service calculations are based on
average control delay including geometric delay (HCM criteria),
independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the
SIDRA Output Guide or the Output section of the on-line help.

NA Not Applicable - Intersection Level of Service is not calculated at two-way stop control or give-way/yield controlled intersections.

* Maximum v/c ratio, or critical green periods
" Movement Level of service has been determined using adjacent lane v/c ratio rather than short lane v/c ratio (v/c=1.0)

Table D.3A - Lane Queues (veh)
02 Int. PR-3 y Acceso Proyecto
Pico AM Futuro
Intersection ID: 2
Stop Sign Controlled Intersection

Lane No.	Deg. Satn x	Ovrfl. Queue No	Average (veh) Nc1	Nc2	Nc	Percentile (veh) 70%	85%	90%	95%	98%	Queue Stor. Ratio
South: Acceso Sur											
1 LTR	0.421	0.1	0.4	0.1	0.6	0.7	1.1	1.4	1.8	2.3	0.01
East: PR-3 E											
1 LT	0.222	0.1	0.7	0.0	0.8	0.9	1.5	1.9	2.4	3.1	0.01
2 TR	0.222	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
North: Acceso Residencial N											
1 L	1.024	2.9	1.2	3.4	4.6	5.4	8.5	10.8	13.4	17.4	0.06
2 LTR	1.024	5.4	1.7	5.8	7.5	8.5	13.2	16.8	20.8	26.9	0.12
West: PR-3 W											
1 L	0.134	0.0	0.1	0.0	0.1	0.1	0.2	0.2	0.3	0.4	0.03

2 TR	0.542	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.00										

Values printed in this table are cycle-average queues (vehicles).

Table D.3B - Lane Queues (metres)
02 Int. PR-3 y Acceso Proyecto
Pico AM Futuro
Intersection ID: 2
Stop Sign Controlled Intersection

	Deg.	Ovrfl.	Average (metres)			Percentile (metres)				Queue
Lane	Satn	Queue								Stor.
No.	x	No	Nc1	Nc2	Nc	70%	85%	90%	95%	98% Ratio
South: Acceso Sur										
1 LTR	0.421	1.0	3.1	0.8	3.9	4.7	7.7	10.0	12.4	16.2 0.01
East: PR-3 E										
1 LT	0.222	0.5	5.2	0.1	5.3	6.4	10.5	13.6	16.8	22.0 0.01
2 TR	0.222	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 0.00
North: Acceso Residencial N										
1 L	1.024	20.6	8.7	23.8	32.5	37.5	59.2	75.9	93.9	122.1 0.06
2 LTR	1.024	37.5	12.2	40.4	52.5	59.8	92.3	117.4	145.7	188.6 0.12
West: PR-3 W										
1 L	0.134	0.0	0.6	0.0	0.6	0.7	1.2	1.6	2.0	2.6 0.03
2 TR	0.542	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 0.00

Values printed in this table are cycle-average queues (metres).

Site: 02_PR-3 y Acceso Proyecto_FA1
D:\Documents and Settings\Carlos M. Contreras\My Documents\My Projects\Salinas Development\Revision 2007\Salinas2012.aap
Processed Jan 12, 2007 09:25:52AM

M0276, TCG, Large Office
Produced by SIDRA Intersection 3.1.061208.34

www.sidrasolutions.com

Output Tables
Output Tables
02 Int. PR-3 y Acceso Proyecto
Pico AM Futuro 2017

Run Information
* Basic Parameters:
Intersection Type: Unsignalised - Two-Way Stop Control
Driving on the right-hand side of the road
Input data specified in Metric units
Model Defaults: Standard Right
Peak Flow Period (for performance): 15 minutes
Unit time (for volumes): 60 minutes.
Delay definition: Control delay
Geometric delay included
SIDRA Standard Delay model used
SIDRA Standard Queue model used
Level of Service based on: Delay (HCM method)
Queue definition: Cycle average queue, Average

Table B.1 - Movement Definitions and Flow Rates (Origin-Destination)
02 Int. PR-3 y Acceso Proyecto
Pico AM Futuro 2017
Intersection ID: 2
Stop Sign Controlled Intersection

From Approach	To Approach	Mov ID	Turn	Flow Rate LV	Flow Rate HV	Flow Scale	Peak Flow Factor
South: Acceso Sur							
	East	3	Right	14	0	1.00	1.00
	North	2	Thru	1	0	1.00	1.00
	West	1	Left	47	0	1.00	1.00
East: PR-3 E							
	South	4	Left	47	0	1.00	1.00
	North	6	Right	91	0	1.00	1.00
	West	5	Thru	506	0	1.00	1.00
North: Acceso Residencial N							
	South	8	Thru	1	0	1.00	1.00
	East	7	Left	337	0	1.00	1.00
	West	9	Right	337	0	1.00	1.00
West: PR-3 W							
	South	12	Right	109	0	1.00	1.00
	East	11	Thru	1021	0	1.00	1.00
	North	10	Left	110	0	1.00	1.00

Unit Time for Volumes = 60 minutes
Peak Flow Period = 15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor

Table S.2 - Movement Capacity Parameters
02 Int. PR-3 y Acceso Proyecto
Pico AM Futuro 2017
Intersection ID: 2
Stop Sign Controlled Intersection

Mov ID	Demand Flow (veh/h)	HV (%)	Opposing Movement Flow (veh/h)	HV (%)	Adjust. Flow (pcu/h)	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
South: Acceso Sur										
1 L	47	0.0	2077+	0.0	2077	84	0.80	43	100	0.560
2 T	1	0.0	1830+	0.0	1830	2	0.80	60	100	0.500
3 R	14	0.0	1076+	0.0	1076	25	0.80	43	100	0.560
East: PR-3 E										
4 L	47	0.0	1130	0.0	1130	183	0.80	211	100	0.257
5 T	506	0.0	0			1970	0.80	211	100	0.257
6 R	91	0.0	0			354	0.80	211	100	0.257
North: Acceso Residencial N										
7 L	337	0.0	1745+	0.0	1745	277	0.80	-34	100	1.217*
8 T	1	0.0	1838+	0.0	1838	1	0.80	-20	100	1.000
9 R	337	0.0	551+	0.0	551	277	0.80	-34	100	1.217*
West: PR-3 W										
10 L	110	0.0	597	0.0	597	768	0.80	459	100	0.143
11 T	1021	0.0	0			1753	0.80	37	100	0.582
12 R	109	0.0	0			187	0.80	37	100	0.583

\+ Percentage of exiting flow included in total opposing flow

Table S.3 - Intersection Parameters
02 Int. PR-3 y Acceso Proyecto
Pico AM Futuro 2017
Intersection ID: 2
Stop Sign Controlled Intersection

Intersection Level of Service	=	NA
Worst movement Level of Service	=	F
Average intersection delay (s/pers)	=	42.1
Largest average movement delay (s)	=	155.4
Largest cycle-average queue, mean (m)	=	120
Performance Index	=	97.03
Degree of saturation (highest)	=	1.217
Practical Spare Capacity (lowest)	=	-34 %
Effective intersection capacity, (veh/h)	=	2154
Total vehicle flow (veh/h)	=	2621
Total person flow (pers/h)	=	3932
Total vehicle delay (veh-h/h)	=	30.64

Total person delay (pers-h/h)	=	45.96
Total effective vehicle stops (veh/h)	=	2213
Total effective person stops (pers/h)	=	3319
Total vehicle travel (veh-km/h)	=	1586.9
Total cost ($/h)	=	1773.46
Total fuel (L/h)	=	186.3
Total CO2 (kg/h)	=	465.69

NA Not Applicable - Intersection Level of Service is not calculated at two-way stop control or give-way/yield controlled intersections. See Table S.15 or Movement Displays for individual movement LOS values.

Table S.5 - Movement Performance

Mov ID	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Cycle (vehs)	Queue Aver. (m)	Perf. Index	Aver. Speed (km/h)
South: Acceso Sur									
1 L	0.79	1.18	60.4	0.96	1.08	0.9	6	2.19	22.9
2 T	0.02	0.03	60.7	0.96	1.08	0.9	6	0.05	22.9
3 R	0.24	0.35	60.5	0.96	1.08	0.9	6	0.65	23.0
East: PR-3 E									
4 L	0.37	0.56	28.7	1.00	1.04	0.8	6	1.38	33.4
5 T	0.57	0.85	4.0	0.20	0.00	0.8	6	6.25	54.0
6 R	0.21	0.31	8.2	0.00	0.67	0.0	0	1.46	49.0
North: Acceso Residencial N									
7 L	14.55	21.83	155.4	1.00	2.26	17.1	120	35.73	11.5
8 T	0.04	0.06	141.8	1.00	2.57	17.1	120	0.10	12.4
9 R	13.26	19.90	141.7	1.00	3.30	17.1	120	35.09	12.4
West: PR-3 W									
10 L	0.35	0.52	11.4	0.55	0.81	0.1	1	2.05	45.7
11 T	0.00	0.00	0.0	0.00	0.00	0.0	0	10.32	60.0
12 R	0.25	0.37	8.2	0.00	0.67	0.0	0	1.75	49.0

Table S.6 - Intersection Performance

02 Int. PR-3 y Acceso Proyecto
Pico AM Futuro 2017
Intersection ID: 2
Stop Sign Controlled Intersection

Total Flow (veh/h)	Deg. Satn x	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue (m)	Perf. Index	Aver. Speed (km/h)
South: Acceso Sur									
62	0.560	1.04	1.56	60.5	0.96	1.08	6	2.89	22.9
East: PR-3 E									
644	0.257	1.15	1.72	6.4	0.23	0.17	6	9.09	51.0

North: Acceso Residencial N									
675	1.217	27.85	41.78	148.6	1.00	2.78	120	70.92	11.9
West: PR-3 W									
1240	0.583	0.60	0.89	1.7	0.05	0.13	1	14.12	57.3
ALL VEHICLES:									
2621	1.217	30.64	45.96	42.1	0.36	0.84	120	97.03	28.0
INTERSECTION (persons):									
3932	1.217		45.96	42.1	0.36	0.84		97.03	28.0

Queue values in this table are mean cycle-average queue (metres).

Table S.7 - Lane Performance
02 Int. PR-3 y Acceso Proyecto
Pico AM Futuro 2017
Intersection ID: 2
Stop Sign Controlled Intersection

Lane No.	Dem Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue Cycle Aver. (vehs)	Queue Cycle Aver. (m)	Lane Length (m)
South: Acceso Sur								
1 LTR	62	111	0.557	60.5	1.08	0.9	6.0	500.0
East: PR-3 E								
1 LT	148	576	0.257	22.9	0.33	0.8	5.8	500.0
2 TR	496	1932	0.257	1.5	0.12	0.0	0.0	500.0
North: Acceso Residencial N								
1 L	204	168	1.216	164.4	2.04	8.7	60.9	500.0
2 LTR	471	387	1.216	141.7	3.10	17.1	120.0	500.0
West: PR-3 W								
1 L	110	768	0.143	11.4	0.81	0.1	0.7	50.0T
2 TR	1130	1941	0.582	0.8	0.06	0.0	0.0	500.0

T Short lane due to specification of Turn Slot

Table S.8 - Lane Flow and Capacity Information
02 Int. PR-3 y Acceso Proyecto
Pico AM Futuro 2017
Intersection ID: 2
Stop Sign Controlled Intersection

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Min Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %

South: Acceso Sur								
1 LTR	47	1	14	62	62	111	0.557	100
East: PR-3 E								
1 LT	47	101	0	148	148	576	0.257	100
2 TR	0	405	91	496	496	1932	0.257	100
North: Acceso Residencial N								
1 L	204	0	0	204	120	168	1.216	100
2 LTR	133	1	337	471	120	387	1.216	100
West: PR-3 W								
1 L	110	0	0	110	110	768	0.143	100
2 TR	0	1021	109	1130	1130	1941	0.582	100

The capacity value for priority and continuous movements is obtained by adjusting the basic saturation flow for heavy vehicle and turning vehicle effects. Saturation flow scale applies if specified.

Table S.10 - Movement Capacity and Performance Summary
02 Int. PR-3 y Acceso Proyecto
Pico AM Futuro 2017
Intersection ID: 2
Stop Sign Controlled Intersection

Mov ID	Mov Typ	Dem Flow (veh /h)	Total Cap. (veh /h)	Lane Util (%)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Cycle Average Queue (veh)	Perf. Index
South: Acceso Sur									
1	L	47	84	100	0.560	60.4	1.08	0.9	2.19
2	T	1	2	100	0.500	60.7	1.08	0.9	0.05
3	R	14	25	100	0.560	60.5	1.08	0.9	0.65
East: PR-3 E									
4	L	47	183	100	0.257	28.7	1.04	0.8	1.38
5	T	506	1970	100	0.257	4.0	0.00	0.8	6.25
6	R	91	354	100	0.257	8.2	0.67	0.0	1.46
North: Acceso Residencial N									
7	L	337	277	100	1.217*	155.4	2.26	17.1	35.73
8	T	1	1	100	1.000	141.8	2.57	17.1	0.10
9	R	337	277	100	1.217*	141.7	3.30	17.1	35.09
West: PR-3 W									
10	L	110	768	100	0.143	11.4	0.81	0.1	2.05
11	T	1021	1753	100	0.582	0.0	0.00	0.0	10.32
12	R	109	187	100	0.583	8.2	0.67	0.0	1.75

* Maximum degree of saturation

Table S.14 - Summary of Input and Output Data
02 Int. PR-3 y Acceso Proyecto
Pico AM Futuro 2017
Intersection ID: 2
Stop Sign Controlled Intersection

Lane No.	Demand Flow (veh/h) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
South: Acceso Sur												
1 LTR	47	1	14	62	0				0.557	60.5	6	500
	47	1	14	62	0				0.557	60.5	6	
East: PR-3 E												
1 LT	47	101		148	0				0.257	22.9	6	500
2 TR		405	91	496	0				0.257	1.5	0	500
	47	506	91	644	0				0.257	6.4	6	
North: Acceso Residencial N												
1 L	204			204	0				1.216	164.4	61	500
2 LTR	133	1	337	471	0				1.216	141.7	120	500
	337	1	337	675	0				1.216	148.6	120	
West: PR-3 W												
1 L	110			110	0				0.143	11.4	1	50
2 TR		1021	109	1130	0				0.582	0.8	0	500
	110	1021	109	1240	0				0.582	1.7	1	

ALL VEHICLES	Total Flow	% HV	Max X	Aver. Delay	Max Queue
	2621	0	1.217	42.1	120

Peak flow period = 15 minutes.

Queue values in this table are mean cycle-average queue (metres).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Table S.15 - Capacity and Level of Service
02 Int. PR-3 y Acceso Proyecto
Pico AM Futuro 2017
Intersection ID: 2
Stop Sign Controlled Intersection

Mov ID	Mov Typ	Total Flow (veh	Total Cap. (veh	Deg. of Satn	Aver. Delay	LOS	Longest Queue Cycle (vehs)	Aver. (m)

	/h)	/h)	(v/c)	(sec)			
South: Acceso Sur							
1 L	47	84	0.560	60.4	F	0.9	6
2 T	1	2	0.500	60.7	F	0.9	6
3 R	14	25	0.560	60.5	F	0.9	6
East: PR-3 E							
4 L	47	183	0.257	28.7	D	0.8	6
5 T	506	1970	0.257	4.0	A	0.8	6
6 R	91	354	0.257	8.2	A	0.0	0
North: Acceso Residencial N							
7 L	337	277	1.217*	155.4	F	17.1	120
8 T	1	1	1.000	141.8	F	17.1	120
9 R	337	277	1.217*	141.7	F	17.1	120
West: PR-3 W							
10 L	110	768	0.143	11.4	B	0.1	1
11 T	1021	1753	0.582	0.0	A	0.0	0
12 R	109	187	0.583	8.2	A	0.0	0
ALL VEHICLES:	2621		1.217	42.1	NA	17.1	120

Level of Service calculations are based on
average control delay including geometric delay (HCM criteria),
independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the
SIDRA Output Guide or the Output section of the on-line help.

NA Not Applicable - Intersection Level of Service is not calculated at two-way stop control or give-way/yield controlled intersections.

* Maximum v/c ratio, or critical green periods

" Movement Level of service has been determined using adjacent lane v/c ratio rather than short lane v/c ratio (v/c=1.0)

Site: 02_PR-3 y Acceso Proyecto_FA2
D:\Documents and Settings\Carlos M. Contreras\My Documents\My Projects\Salinas Development\Revision 2007\Salinas2017.aap
Processed Jan 12, 2007 04:00:26PM

M0276, TCG, Large Office
Produced by SIDRA Intersection 3.1.061208.34

www.sidrasolutions.com

Output Tables
Output Tables
02 Int. PR-3 y Acceso Proyecto
Pico PM Futuro 2012

Run Information
* Basic Parameters:
Intersection Type: Unsignalised - Two-Way Stop Control
Driving on the right-hand side of the road
Input data specified in Metric units
Model Defaults: Standard Right
Peak Flow Period (for performance): 15 minutes
Unit time (for volumes): 60 minutes.
Delay definition: Control delay
Geometric delay included
SIDRA Standard Delay model used
SIDRA Standard Queue model used
Level of Service based on: Delay (HCM method)
Queue definition: Cycle average queue, Average

Table B.1 - Movement Definitions and Flow Rates (Origin-Destination)
02 Int. PR-3 y Acceso Proyecto
Pico PM Futuro 2012
Intersection ID: 2
Stop Sign Controlled Intersection

From Approach	To Approach	Mov ID	Turn	Flow Rate LV	Flow Rate HV	Flow Scale	Peak Flow Factor
South: Acceso Sur							
	East	3	Right	13	0	1.00	1.00
	North	2	Thru	4	0	1.00	1.00
	West	1	Left	40	0	1.00	1.00
East: PR-3 E							
	South	4	Left	13	0	1.00	1.00
	North	6	Right	317	0	1.00	1.00
	West	5	Thru	822	0	1.00	1.00
North: Acceso Residencial N							
	South	8	Thru	1	0	1.00	1.00
	East	7	Left	184	0	1.00	1.00
	West	9	Right	171	0	1.00	1.00
West: PR-3 W							
	South	12	Right	18	0	1.00	1.00
	East	11	Thru	567	0	1.00	1.00
	North	10	Left	317	0	1.00	1.00

Unit Time for Volumes = 60 minutes
Peak Flow Period = 15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor

Table B.2A - Flow Rates (Separate Light and Heavy Vehicles)
02 Int. PR-3 y Acceso Proyecto
Pico PM Futuro 2012
Intersection ID: 2
Stop Sign Controlled Intersection

Mov ID		Left		Through		Right	
		LV	HV	LV	HV	LV	HV
Demand flows in veh/hour as used by the program							
South: Acceso Sur							
1	L	40	0	0	0	0	0
2	T	0	0	4	0	0	0
3	R	0	0	0	0	13	0
East: PR-3 E							
4	L	13	0	0	0	0	0
5	T	0	0	822	0	0	0
6	R	0	0	0	0	317	0
North: Acceso Residencial N							
7	L	184	0	0	0	0	0
8	T	0	0	1	0	0	0
9	R	0	0	0	0	171	0
West: PR-3 W							
10	L	317	0	0	0	0	0
11	T	0	0	567	0	0	0
12	R	0	0	0	0	18	0

Unit Time for Volumes = 60 minutes
Peak Flow Period = 15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor

Table S.2 - Movement Capacity Parameters
02 Int. PR-3 y Acceso Proyecto
Pico PM Futuro 2012
Intersection ID: 2
Stop Sign Controlled Intersection

Mov ID		Demand Flow (veh/h)	HV (%)	Opposing Movement Flow (veh/h)	HV (%)	Adjust. Flow (pcu/h)	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
South: Acceso Sur											
1	L	40	0.0	1900+	0.0	1900	109	0.80	118	100	0.367
2	T	4	0.0	2045+	0.0	2045	11	0.80	120	100	0.364
3	R	13	0.0	576+	0.0	576	35	0.80	115	100	0.371

East: PR-3 E										
4	L	13	0.0	585	0.0	585	43	0.80	165	100	0.302
5	T	822	0.0	0			2695	0.80	162	100	0.305
6	R	317	0.0	0			1039	0.80	162	100	0.305
North: Acceso Residencial N										
7	L	184	0.0	1895+	0.0	1895	205	0.80	-11	100	0.898
8	T	1	0.0	1896+	0.0	1896	1	0.80	-20	100	1.000*
9	R	171	0.0	980+	0.0	980	191	0.80	-11	100	0.895
West: PR-3 W										
10	L	317	0.0	1139	0.0	1139	356	0.80	-10	100	0.890
11	T	567	0.0	0			1887	0.80	166	100	0.300
12	R	18	0.0	0			60	0.80	167	100	0.300

\+ Percentage of exiting flow included in total opposing flow

Table S.3 - Intersection Parameters
02 Int. PR-3 y Acceso Proyecto
Pico PM Futuro 2012
Intersection ID: 2
Stop Sign Controlled Intersection

Intersection Level of Service	=	NA
Worst movement Level of Service	=	F
Average intersection delay (s/pers)	=	17.9
Largest average movement delay (s)	=	75.8
Largest cycle-average queue, mean (m)	=	21
Performance Index	=	53.90
Degree of saturation (highest)	=	1.000
Practical Spare Capacity (lowest)	=	-20 %
Effective intersection capacity, (veh/h)	=	2467
Total vehicle flow (veh/h)	=	2467
Total person flow (pers/h)	=	3701
Total vehicle delay (veh-h/h)	=	12.28
Total person delay (pers-h/h)	=	18.42
Total effective vehicle stops (veh/h)	=	1290
Total effective person stops (pers/h)	=	1935
Total vehicle travel (veh-km/h)	=	1493.8
Total cost ($/h)	=	1224.12
Total fuel (L/h)	=	158.2
Total CO2 (kg/h)	=	395.50

NA Not Applicable - Intersection Level of Service is not calculated at two-way stop control or give-way/yield controlled intersections. See Table S.15 or Movement Displays for individual movement LOS values.

Table S.5 - Movement Performance

Mov ID	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue Cycle (vehs)	Longest Queue Aver. (m)	Perf. Index	Aver. Speed (km/h)

South: Acceso Sur										
1	L	0.44	0.67	40.0	0.91	1.04	0.5	3	1.41	29.2
2	T	0.04	0.07	40.3	0.91	1.04	0.5	3	0.14	29.2
3	R	0.14	0.22	40.1	0.91	0.89	0.5	3	0.45	29.2
East: PR-3 E										
4	L	0.05	0.07	13.6	0.78	0.97	0.8	6	0.27	43.6
5	T	0.80	1.20	3.5	0.53	0.00	0.8	6	9.91	53.3
6	R	0.72	1.08	8.2	0.00	0.67	0.0	0	5.09	49.0
North: Acceso Residencial N										
7	L	3.88	5.81	75.8	0.97	1.36	2.9	21	10.45	19.8
8	T	0.02	0.02	55.0	0.95	1.45	2.9	21	0.05	24.4
9	R	2.61	3.91	54.8	0.95	1.54	2.9	21	7.89	24.4
West: PR-3 W										
10	L	3.54	5.31	40.2	0.96	1.52	2.8	20	12.23	28.5
11	T	0.00	0.00	0.0	0.00	0.00	0.0	0	5.73	60.0
12	R	0.04	0.06	8.2	0.00	0.67	0.0	0	0.29	49.0

Table S.6 - Intersection Performance
02 Int. PR-3 y Acceso Proyecto
Pico PM Futuro 2012
Intersection ID: 2
Stop Sign Controlled Intersection

Total Flow (veh/h)	Deg. Satn x	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue (m)	Perf. Index	Aver. Speed (km/h)
South: Acceso Sur									
57	0.371	0.63	0.95	40.1	0.91	1.01	3	1.99	29.2
East: PR-3 E									
1152	0.305	1.57	2.35	4.9	0.39	0.19	6	15.26	51.9
North: Acceso Residencial N									
356	1.000	6.50	9.74	65.7	0.96	1.45	21	18.39	21.8
West: PR-3 W									
902	0.890	3.58	5.37	14.3	0.34	0.55	20	18.25	43.1
ALL VEHICLES:									
2467	1.000	12.28	18.42	17.9	0.46	0.52	21	53.90	40.2
INTERSECTION (persons):									
3701	1.000		18.42	17.9	0.46	0.52		53.90	40.2

Queue values in this table are mean cycle-average queue (metres).

Table S.7 - Lane Performance
02 Int. PR-3 y Acceso Proyecto
Pico PM Futuro 2012

Intersection ID: 2
Stop Sign Controlled Intersection

Lane No.	Dem Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue Cycle (vehs)	Queue Aver. (m)	Lane Length (m)
South: Acceso Sur								
1 LTR	57	155	0.367	40.1	1.01	0.5	3.3	500.0
East: PR-3 E								
1 LT	573	1878	0.305	5.3	0.02	0.8	5.7	500.0
2 TR	579	1898	0.305	4.5	0.37	0.0	0.0	500.0
North: Acceso Residencial N								
1 L	117	130	0.898	87.8	1.30	2.5	17.6	500.0
2 LTR	239	266	0.898	54.8	1.52	2.9	20.5	500.0
West: PR-3 W								
1 L	317	356	0.890	40.2	1.52	2.8	19.8	50.0T
2 TR	585	1947	0.300	0.3	0.02	0.0	0.0	500.0

T Short lane due to specification of Turn Slot

Table S.8 - Lane Flow and Capacity Information
02 Int. PR-3 y Acceso Proyecto
Pico PM Futuro 2012
Intersection ID: 2
Stop Sign Controlled Intersection

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Min Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
South: Acceso Sur								
1 LTR	40	4	13	57	57	155	0.367	100
East: PR-3 E								
1 LT	13	560	0	573	573	1878	0.305	100
2 TR	0	262	317	579	579	1898	0.305	100
North: Acceso Residencial N								
1 L	117	0	0	117	117	130	0.898	100
2 LTR	67	1	171	239	120	266	0.898	100
West: PR-3 W								
1 L	317	0	0	317	120	356	0.890	100
2 TR	0	567	18	585	585	1947	0.300	100

The capacity value for priority and continuous movements is obtained by adjusting the basic saturation flow for heavy vehicle and turning vehicle

effects. Saturation flow scale applies if specified.

Table S.10 - Movement Capacity and Performance Summary
02 Int. PR-3 y Acceso Proyecto
Pico PM Futuro 2012
Intersection ID: 2
Stop Sign Controlled Intersection

Mov ID	Mov Typ	Dem Flow (veh /h)	Total Cap. (veh /h)	Lane Util (%)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Cycle Average Queue (veh)	Perf. Index
South: Acceso Sur									
1	L	40	109	100	0.367	40.0	1.04	0.5	1.41
2	T	4	11	100	0.364	40.3	1.04	0.5	0.14
3	R	13	35	100	0.371	40.1	0.89	0.5	0.45
East: PR-3 E									
4	L	13	43	100	0.302	13.6	0.97	0.8	0.27
5	T	822	2695	100	0.305	3.5	0.00	0.8	9.91
6	R	317	1039	100	0.305	8.2	0.67	0.0	5.09
North: Acceso Residencial N									
7	L	184	205	100	0.898	75.8	1.36	2.9	10.45
8	T	1	1	100	1.000*	55.0	1.45	2.9	0.05
9	R	171	191	100	0.895	54.8	1.54	2.9	7.89
West: PR-3 W									
10	L	317	356	100	0.890	40.2	1.52	2.8	12.23
11	T	567	1887	100	0.300	0.0	0.00	0.0	5.73
12	R	18	60	100	0.300	8.2	0.67	0.0	0.29

* Maximum degree of saturation

Table S.14 - Summary of Input and Output Data
02 Int. PR-3 y Acceso Proyecto
Pico PM Futuro 2012
Intersection ID: 2
Stop Sign Controlled Intersection

Lane No.	Demand Flow (veh/h) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
South: Acceso Sur												
1 LTR	40	4	13	57	0				0.367	40.1	3	500
	40	4	13	57	0				0.367	40.1	3	
East: PR-3 E												
1 LT	13	560		573	0				0.305	5.3	6	500

2 TR	262	317	579	0		0.305	4.5	0	500
	13	822	317	1152	0		0.305	4.9	6	
North: Acceso Residencial N									
1 L	117			117	0		0.898	87.8	18	500
2 LTR	67	1	171	239	0		0.898	54.8	21	500
	184	1	171	356	0		0.898	65.7	21	
West: PR-3 W									
1 L	317			317	0		0.890	40.2	20	50
2 TR		567	18	585	0		0.300	0.3	0	500
	317	567	18	902	0		0.890	14.3	20	

ALL VEHICLES	Total Flow	% HV	Max X	Aver. Delay	Max Queue
	2467	0	1.000	17.9	21

Peak flow period = 15 minutes.

Queue values in this table are mean cycle-average queue (metres).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Table S.15 - Capacity and Level of Service
02 Int. PR-3 y Acceso Proyecto
Pico PM Futuro 2012
Intersection ID: 2
Stop Sign Controlled Intersection

Mov ID	Mov Typ	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Queue Cycle Aver. (vehs)	(m)
South: Acceso Sur								
1	L	40	109	0.367	40.0	E	0.5	3
2	T	4	11	0.364	40.3	E	0.5	3
3	R	13	35	0.371	40.1	E	0.5	3
East: PR-3 E								
4	L	13	43	0.302	13.6	B	0.8	6
5	T	822	2695	0.305	3.5	A	0.8	6
6	R	317	1039	0.305	8.2	A	0.0	0
North: Acceso Residencial N								
7	L	184	205	0.898	75.8	F	2.9	21
8	T	1	1	1.000*	55.0	F	2.9	21
9	R	171	191	0.895	54.8	F	2.9	21
West: PR-3 W								
10	L	317	356	0.890	40.2	E	2.8	20

11	T	567	1887	0.300	0.0	A	0.0	0
12	R	18	60	0.300	8.2	A	0.0	0
ALL VEHICLES:		2467		1.000	17.9	NA	2.9	21

Level of Service calculations are based on
average control delay including geometric delay (HCM criteria),
independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the
SIDRA Output Guide or the Output section of the on-line help.

NA Not Applicable - Intersection Level of Service is not calculated at two-way stop control or give-way/yield controlled intersections.

* Maximum v/c ratio, or critical green periods
" Movement Level of service has been determined using adjacent lane v/c ratio rather than short lane v/c ratio (v/c=1.0)

Table D.3A - Lane Queues (veh)
02 Int. PR-3 y Acceso Proyecto
Pico PM Futuro 2012
Intersection ID: 2
Stop Sign Controlled Intersection

Lane No.	Deg. Satn x	Ovrfl. Queue No	Average (veh) Nc1	Nc2	Nc	Percentile (veh) 70%	85%	90%	95%	98%	Queue Stor. Ratio
South: Acceso Sur											
1 LTR	0.367	0.1	0.4	0.1	0.5	0.6	0.9	1.2	1.5	1.9	0.01
East: PR-3 E											
1 LT	0.305	0.1	0.8	0.0	0.8	1.0	1.6	2.1	2.6	3.4	0.02
2 TR	0.305	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00
North: Acceso Residencial N											
1 L	0.898	1.2	1.0	1.5	2.5	2.9	4.7	6.1	7.6	9.9	0.03
2 LTR	0.898	1.7	1.1	1.9	2.9	3.4	5.5	7.1	8.8	11.4	0.04
West: PR-3 W											
1 L	0.890	1.7	1.1	1.7	2.8	3.3	5.3	6.8	8.4*	11.0*	0.45

2 TR	0.300	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.00										

Values printed in this table are cycle-average queues (vehicles).
* Queue length exceeds short lane length due to specification of a percentile queue in the Tools-Options (Model tab). For calculation of this statistic, you may specify the lane with full length.

Table D.3B - Lane Queues (metres)
02 Int. PR-3 y Acceso Proyecto
Pico PM Futuro 2012
Intersection ID: 2
Stop Sign Controlled Intersection

	Deg.	Ovrfl.	Average (metres)			Percentile (metres)				Queue
Lane	Satn	Queue								Stor.
No.	x	No	Nc1	Nc2	Nc	70%	85%	90%	95%	98% Ratio
South: Acceso Sur										
1 LTR	0.367	0.7	2.7	0.6	3.3	3.9	6.5	8.4	10.3	13.5 0.01
East: PR-3 E										
1 LT	0.305	0.6	5.5	0.2	5.7	6.8	11.2	14.6	17.9	23.5 0.02
2 TR	0.305	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 0.00
North: Acceso Residencial N										
1 L	0.898	8.5	7.1	10.5	17.6	20.6	33.2	42.8	52.9	69.0 0.03
2 LTR	0.898	12.0	7.5	13.1	20.5	24.0	38.5	49.6	61.3	79.9 0.04
West: PR-3 W										
1 L	0.890	11.9	7.8	12.0	19.8	23.1	37.2	47.9	59.1*	77.1* 0.45
2 TR	0.300	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0 0.00

Values printed in this table are cycle-average queues (metres).
* Queue length exceeds short lane length due to specification of a percentile queue in the Tools-Options (Model tab). For calculation

of this statistic, you may specify the lane with full length.

Site: 02_PR-3 y Acceso Proyecto_FP1
D:\Documents and Settings\Carlos M. Contreras\My Documents\My Projects\Salinas Development\Revision 2007\Salinas2012.aap
Processed Jan 12, 2007 10:10:43AM

M0276, TCG, Large Office
Produced by SIDRA Intersection 3.1.061208.34

www.sidrasolutions.com

Output Tables
Output Tables
02 Int. PR-3 y Acceso Proyecto
Pico PM Futuro 2017

Run Information
* Basic Parameters:
Intersection Type: Unsignalised - Two-Way Stop Control
Driving on the right-hand side of the road
Input data specified in Metric units
Model Defaults: Standard Right
Peak Flow Period (for performance): 15 minutes
Unit time (for volumes): 60 minutes.
Delay definition: Control delay
Geometric delay included
SIDRA Standard Delay model used
SIDRA Standard Queue model used
Level of Service based on: Delay (HCM method)
Queue definition: Cycle average queue, Average

Table B.1 - Movement Definitions and Flow Rates (Origin-Destination)
02 Int. PR-3 y Acceso Proyecto
Pico PM Futuro 2017
Intersection ID: 2
Stop Sign Controlled Intersection

From Approach	To Approach	Mov ID	Turn	Flow Rate LV	Flow Rate HV	Flow Scale	Peak Flow Factor
South: Acceso Sur							
	East	3	Right	14	0	1.00	1.00
	North	2	Thru	5	0	1.00	1.00
	West	1	Left	43	0	1.00	1.00
East: PR-3 E							
	South	4	Left	14	0	1.00	1.00
	North	6	Right	321	0	1.00	1.00
	West	5	Thru	884	0	1.00	1.00
North: Acceso Residencial N							
	South	8	Thru	1	0	1.00	1.00
	East	7	Left	186	0	1.00	1.00
	West	9	Right	172	0	1.00	1.00
West: PR-3 W							
	South	12	Right	19	0	1.00	1.00
	East	11	Thru	610	0	1.00	1.00
	North	10	Left	321	0	1.00	1.00

Unit Time for Volumes = 60 minutes
Peak Flow Period = 15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor

Table S.2 - Movement Capacity Parameters
02 Int. PR-3 y Acceso Proyecto
Pico PM Futuro 2017
Intersection ID: 2
Stop Sign Controlled Intersection

Mov ID	Demand Flow (veh/h)	HV (%)	Opposing Movement Flow (veh/h)	HV (%)	Adjust. Flow (pcu/h)	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
South: Acceso Sur										
1 L	43	0.0	2011+	0.0	2011	88	0.80	64	100	0.489
2 T	5	0.0	2160+	0.0	2160	10	0.80	60	100	0.500
3 R	14	0.0	620+	0.0	620	29	0.80	66	100	0.483
East: PR-3 E										
4 L	14	0.0	629	0.0	629	43	0.80	146	100	0.326
5 T	884	0.0	0			2733	0.80	147	100	0.323
6 R	321	0.0	0			993	0.80	147	100	0.323
North: Acceso Residencial N										
7 L	186	0.0	2008+	0.0	2008	182	0.80	-22	100	1.022*
8 T	1	0.0	2008+	0.0	2008	1	0.80	-20	100	1.000
9 R	172	0.0	1045+	0.0	1045	169	0.80	-21	100	1.018
West: PR-3 W										
10 L	321	0.0	1205	0.0	1205	319	0.80	-20	100	1.006
11 T	610	0.0	0			1888	0.80	148	100	0.323
12 R	19	0.0	0			59	0.80	148	100	0.322

\+ Percentage of exiting flow included in total opposing flow

Table S.3 - Intersection Parameters
02 Int. PR-3 y Acceso Proyecto
Pico PM Futuro 2017
Intersection ID: 2
Stop Sign Controlled Intersection

Intersection Level of Service	=	NA
Worst movement Level of Service	=	F
Average intersection delay (s/pers)	=	25.7
Largest average movement delay (s)	=	111.7
Largest cycle-average queue, mean (m)	=	36
Performance Index	=	68.72
Degree of saturation (highest)	=	1.022
Practical Spare Capacity (lowest)	=	-22 %
Effective intersection capacity, (veh/h)	=	2534
Total vehicle flow (veh/h)	=	2590
Total person flow (pers/h)	=	3885
Total vehicle delay (veh-h/h)	=	18.51

Total person delay (pers-h/h)	=	27.77
Total effective vehicle stops (veh/h)	=	1500
Total effective person stops (pers/h)	=	2251
Total vehicle travel (veh-km/h)	=	1568.3
Total cost ($/h)	=	1439.48
Total fuel (L/h)	=	174.0
Total CO2 (kg/h)	=	434.98

NA Not Applicable - Intersection Level of Service is not calculated at two-way stop control or give-way/yield controlled intersections. See Table S.15 or Movement Displays for individual movement LOS values.

Table S.5 - Movement Performance

Mov ID		Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue Cycle (vehs)	Longest Queue Aver. (m)	Perf. Index	Aver. Speed (km/h)
South: Acceso Sur										
1	L	0.62	0.92	51.6	0.93	1.07	0.7	5	1.79	25.3
2	T	0.07	0.11	51.8	0.93	1.06	0.7	5	0.21	25.3
3	R	0.20	0.30	51.6	0.93	0.95	0.7	5	0.57	25.3
East: PR-3 E										
4	L	0.06	0.08	14.6	0.82	1.00	1.0	7	0.30	42.7
5	T	1.00	1.50	4.1	0.55	0.00	1.0	7	10.94	53.1
6	R	0.73	1.09	8.2	0.00	0.67	0.0	0	5.15	49.0
North: Acceso Residencial N										
7	L	5.77	8.66	111.7	1.00	1.52	5.1	36	14.44	14.9
8	T	0.02	0.04	88.4	1.00	1.70	5.1	36	0.07	17.8
9	R	4.22	6.33	88.3	1.00	1.84	5.1	36	11.42	17.8
West: PR-3 W										
10	L	5.78	8.67	64.8	1.00	1.85	5.1	35	17.37	21.5
11	T	0.00	0.00	0.0	0.00	0.00	0.0	0	6.17	60.0
12	R	0.04	0.06	8.2	0.00	0.67	0.0	0	0.30	49.0

Table S.6 - Intersection Performance
02 Int. PR-3 y Acceso Proyecto
Pico PM Futuro 2017
Intersection ID: 2
Stop Sign Controlled Intersection

Total Flow (veh/h)	Deg. Satn x	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue (m)	Perf. Index	Aver. Speed (km/h)
South: Acceso Sur									
62	0.500	0.89	1.33	51.6	0.93	1.04	5	2.58	25.3
East: PR-3 E									
1219	0.326	1.79	2.68	5.3	0.41	0.19	7	16.39	51.8

North: Acceso Residencial N									
359	1.022	10.01	15.02	100.4	1.00	1.67	36	25.92	16.2
West: PR-3 W									
950	1.006	5.82	8.73	22.1	0.34	0.64	35	23.84	37.3
ALL VEHICLES:									
2590	1.022	18.51	27.77	25.7	0.48	0.58	36	68.72	35.2
INTERSECTION (persons):									
3885	1.022		27.77	25.7	0.48	0.58		68.72	35.2

Queue values in this table are mean cycle-average queue (metres).

Table S.7 - Lane Performance
02 Int. PR-3 y Acceso Proyecto
Pico PM Futuro 2017
Intersection ID: 2
Stop Sign Controlled Intersection

Lane No.	Dem Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue Cycle Aver. (vehs)	(m)	Lane Length (m)
South: Acceso Sur								
1 LTR	62	127	0.487	51.6	1.04	0.7	4.9	500.0
East: PR-3 E								
1 LT	604	1869	0.323	6.3	0.02	1.0	7.2	500.0
2 TR	615	1900	0.323	4.3	0.35	0.0	0.0	500.0
North: Acceso Residencial N								
1 L	122	120	1.020	123.8	1.43	3.8	26.9	500.0
2 LTR	237	232	1.020	88.3	1.80	5.1	35.7	500.0
West: PR-3 W								
1 L	321	319	1.006	64.8	1.85	5.1	35.4	50.0T
2 TR	629	1947	0.323	0.2	0.02	0.0	0.0	500.0

T Short lane due to specification of Turn Slot

Table S.8 - Lane Flow and Capacity Information
02 Int. PR-3 y Acceso Proyecto
Pico PM Futuro 2017
Intersection ID: 2
Stop Sign Controlled Intersection

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Min Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %

South: Acceso Sur								
1 LTR	43	5	14	62	62	127	0.487	100
East: PR-3 E								
1 LT	14	590	0	604	604	1869	0.323	100
2 TR	0	294	321	615	615	1900	0.323	100
North: Acceso Residencial N								
1 L	122	0	0	122	120	120	1.020	100
2 LTR	64	1	172	237	120	232	1.020	100
West: PR-3 W								
1 L	321	0	0	321	120	319	1.006	100
2 TR	0	610	19	629	629	1947	0.323	100

The capacity value for priority and continuous movements is obtained by adjusting the basic saturation flow for heavy vehicle and turning vehicle effects. Saturation flow scale applies if specified.

Table S.10 - Movement Capacity and Performance Summary
02 Int. PR-3 y Acceso Proyecto
Pico PM Futuro 2017
Intersection ID: 2
Stop Sign Controlled Intersection

Mov ID	Mov Typ	Dem Flow (veh /h)	Total Cap. (veh /h)	Lane Util (%)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Cycle Average Queue (veh)	Perf. Index
South: Acceso Sur									
1	L	43	88	100	0.489	51.6	1.07	0.7	1.79
2	T	5	10	100	0.500	51.8	1.06	0.7	0.21
3	R	14	29	100	0.483	51.6	0.95	0.7	0.57
East: PR-3 E									
4	L	14	43	100	0.326	14.6	1.00	1.0	0.30
5	T	884	2733	100	0.323	4.1	0.00	1.0	10.94
6	R	321	993	100	0.323	8.2	0.67	0.0	5.15
North: Acceso Residencial N									
7	L	186	182	100	1.022*	111.7	1.52	5.1	14.44
8	T	1	1	100	1.000	88.4	1.70	5.1	0.07
9	R	172	169	100	1.018	88.3	1.84	5.1	11.42
West: PR-3 W									
10	L	321	319	100	1.006	64.8	1.85	5.1	17.37
11	T	610	1888	100	0.323	0.0	0.00	0.0	6.17
12	R	19	59	100	0.322	8.2	0.67	0.0	0.30

* Maximum degree of saturation

Table S.14 - Summary of Input and Output Data
02 Int. PR-3 y Acceso Proyecto
Pico PM Futuro 2017
Intersection ID: 2
Stop Sign Controlled Intersection

Lane No.	Demand Flow (veh/h) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
South: Acceso Sur												
1 LTR	43	5	14	62	0				0.487	51.6	5	500
	43	5	14	62	0				0.487	51.6	5	
East: PR-3 E												
1 LT	14	590		604	0				0.323	6.3	7	500
2 TR		294	321	615	0				0.323	4.3	0	500
	14	884	321	1219	0				0.323	5.3	7	
North: Acceso Residencial N												
1 L	122			122	0				1.020	123.8	27	500
2 LTR	64	1	172	237	0				1.020	88.3	36	500
	186	1	172	359	0				1.020	100.4	36	
West: PR-3 W												
1 L	321			321	0				1.006	64.8	35	50
2 TR		610	19	629	0				0.323	0.2	0	500
	321	610	19	950	0				1.006	22.1	35	

ALL VEHICLES	Total Flow	% HV	Max X	Aver. Delay	Max Queue
	2590	0	1.022	25.7	36

Peak flow period = 15 minutes.

Queue values in this table are mean cycle-average queue (metres).

Note: Basic Saturation Flows are not adjusted at roundabouts or sign-controlled intersections and apply only to continuous lanes.

Table S.15 - Capacity and Level of Service
02 Int. PR-3 y Acceso Proyecto
Pico PM Futuro 2017
Intersection ID: 2
Stop Sign Controlled Intersection

Mov ID	Mov Typ	Total Flow (veh	Total Cap. (veh	Deg. of Satn	Aver. Delay	LOS	Longest Queue Cycle (vehs)	Aver. (m)

	/h)	/h)	(v/c)	(sec)			
South: Acceso Sur							
1 L	43	88	0.489	51.6	F	0.7	5
2 T	5	10	0.500	51.8	F	0.7	5
3 R	14	29	0.483	51.6	F	0.7	5
East: PR-3 E							
4 L	14	43	0.326	14.6	B	1.0	7
5 T	884	2733	0.323	4.1	A	1.0	7
6 R	321	993	0.323	8.2	A	0.0	0
North: Acceso Residencial N							
7 L	186	182	1.022*	111.7	F	5.1	36
8 T	1	1	1.000	88.4	F	5.1	36
9 R	172	169	1.018	88.3	F	5.1	36
West: PR-3 W							
10 L	321	319	1.006	64.8	F	5.1	35
11 T	610	1888	0.323	0.0	A	0.0	0
12 R	19	59	0.322	8.2	A	0.0	0
ALL VEHICLES:	2590		1.022	25.7	NA	5.1	36

Level of Service calculations are based on
average control delay including geometric delay (HCM criteria),
independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the
SIDRA Output Guide or the Output section of the on-line help.

NA Not Applicable - Intersection Level of Service is not calculated at two-way stop control or give-way/yield controlled intersections.

* Maximum v/c ratio, or critical green periods

" Movement Level of service has been determined using adjacent lane v/c ratio rather than short lane v/c ratio (v/c=1.0)

Site: 02_PR-3 y Acceso Proyecto_FP2
D:\Documents and Settings\Carlos M. Contreras\My Documents\My Projects\Salinas Development\Revision 2007\Salinas2017.aap
Processed Jan 12, 2007 04:07:45PM

M0276, TCG, Large Office
Produced by SIDRA Intersection 3.1.061208.34

www.sidrasolutions.com

Output Tables
Output Tables
03 Int PR-3 y PR-180
Pico AM Base

Run Information
Cycle Time = 72 (Sum of User-given Phase Times)

* Basic Parameters:
Intersection Type: Signalised - Fixed Time
Driving on the right-hand side of the road
Input data specified in Metric units
Model Defaults: Standard Right
Peak Flow Period (for performance): 15 minutes
Unit time (for volumes): 60 minutes.
Delay definition: Control delay
Geometric delay included
SIDRA Standard Delay model used
SIDRA Standard Queue model used
Level of Service based on: Delay (HCM method)
Queue definition: Cycle average queue, Average

* Iteration Data:
No. of Main (Timing-Capacity) Iterations = 1
Comparison of last two iterations:
Difference in intersection degree of satn = 0.0 %
Largest difference in eff. green times = 0 secs
(max. value for stopping = 0 secs)

* Movement 7 has large x because of short lanes.
The degree of saturation of adjacent movement 8 is less than xp,
hence this solution may be satisfactory.
See Table S.7 for queue length, delay etc.

Table B.1 - Movement Definitions and Flow Rates (Origin-Destination)
03 Int PR-3 y PR-180
Pico AM Base
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 72 (Sum of User-given Phase Times)

From Approach	To Approach	Mov ID	Turn	Flow Rate LV	Flow Rate HV	Flow Scale	Peak Flow Factor
South: PR-180 S							
	East	3	Right	196	0	1.00	1.00
	North	2	Thru	60	0	1.00	1.00
	West	1	Left	1	0	1.00	1.00
East: PR-3 E							
	South	4	Left	48	0	1.00	1.00
	North	6	Right	240	0	1.00	1.00
	West	5	Thru	352	0	1.00	1.00

North: PR-180 N							
	South	8	Thru	76	0	1.00	1.00
	East	7	Left	320	0	1.00	1.00
	West	9	Right	112	0	1.00	1.00
West: PR-3 W							
	South	12	Right	1	0	1.00	1.00
	East	11	Thru	900	0	1.00	1.00
	North	10	Left	312	0	1.00	1.00

Unit Time for Volumes = 60 minutes
Peak Flow Period = 15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor

Table S.1 - Movement Phase and Timing Parameters
03 Int PR-3 y PR-180
Pico AM Base
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 72 (Sum of User-given Phase Times)

Mov ID	Mov Typ	P H A S E M A T R I X First Green Fr	To	Op Pr	Second Green Fr	To	Op Pr	Lost Tim 1st Grn	2nd Grn	Req.Mov.Time 1st Grn	2nd Grn	Eff. Grn 1st Grn	2nd Grn
South: PR-180 S													
1	L	C	D					4		10.0Min		8	
2	T	*D	A					4		10.0Min		10	
3	R (Slp)	B	D	Y	D	B		10	4	20.0Min	20.0Min	34	24
East: PR-3 E													
4	L	A	B					4		10.0Min		10	
5	T	B	C					4		29.0		28	
6	R	*B	C					4		29.0		28	
North: PR-180 N													
7	L	*C	D					4		12.9		8	

```
    8 LT        D      A                                    4         10.0Min
10
    9 R  (Slp) B       D       Y       D      B             15     4   20.0Min
20.0Min  29    24
 ------------------------------------------------------------------------------
----------
 West: PR-3 W
   10 L        *A      B                                    4         15.1
10
   11 LT        B      C                                    4         21.1
28
   12 R  (Slp) B       D               D      B       Y     4     4   20.0Min
20.0Min  40    24
 ------------------------------------------------------------------------------
----------
 ------------------------------------------------------------------------------
----------
   Current Phase Sequence: Sequence 1
   Input phase sequence: A B C D
   Output phase sequence: A B C D
 ------------------------------------------------------------------------------
----------
   *  Critical Movement/Green Period

 Movement Types:                                  Under heading 'Op':
   Slp  Slip Lane Movement                          Y   If opposed turn
   Ped  Pedestrian
   Dum  Dummy
```

Table S.2 - Movement Capacity Parameters
03 Int PR-3 y PR-180
Pico AM Base
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 72 (Sum of User-given Phase Times)

Mov ID	Dem Flow (veh /h)	HV (%)	Satn Flow 1st Grn	Satn Flow 2nd Grn	Flow Ratio 1st Grn	Flow Ratio 2nd Grn	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
South: PR-180 S											
1 L	1	0.0	1671<		0.001		186	0.90	****	100	0.005
2 T	60	0.0	827		0.073		115	0.90	72	100	0.522
3 R	196	0.0	155	906	0.000	0.216	375	0.90	72	100	0.522
East: PR-3 E											
4 L	48	0.0	1295<		0.037		180	0.90	237	100	0.267
5 T	352	0.0	1125		0.313		438	0.90	12	100	0.805
6 R	240	0.0	767		0.313		298	0.90	12	100	0.805
North: PR-180 N											
7 L	99	0.0	893<		0.111		99	0.90	-10	100	1.000*

8	LT	297E	0.0	7309		0.041		1015	0.90	208	100	0.292
9	R	112	0.0	604	419	0.062	0.177	383	0.90	208	100	0.292
West: PR-3 W												
10	L	258	0.0	1857		0.139		258	0.90	-10	100	1.000*
11	LT	954E	0.0	4452		0.214		1731	0.90	63	100	0.551
12	R	1	0.0	0	4	0.200	0.200	2	0.90	70	100	0.529

E "Excess" flow from the short lane of an adjacent movement added to normal flow

Movement 7 has large x because of short lanes.
The degree of saturation of adjacent movement 8 is less than xp, hence this solution may be satisfactory.
See Table S.7 for queue length, delay etc.

Table S.3 - Intersection Parameters
03 Int PR-3 y PR-180
Pico AM Base
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 72 (Sum of User-given Phase Times)

Crit Mov ID	App. and Turn	Green Period	Phases Fr	Phases To	Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
10	W_L		A	B	4	0.139	0.154	15.1
6	E_R		B	C	4	0.313	0.348	29.0
7	N_L		C	D	4	0.111	0.123	12.9
2	S_T		D	A	10	-	-	10.0Min
				Total:	22	0.563	0.625	67.0

\- Flow ratio not used for cycle time calculations and the adjusted lost time equals the required movement time (=Min or Max as shown in Table S.1)

Cycle Time:

Minimum	Maximum	Practical	Chosen
40	150	59	72

(Phase times user specified, cycle time = sum of phase times)

Intersection Level of Service	=	B
Worst movement Level of Service	=	D
Average intersection delay (s/pers)	=	16.5
Largest average movement delay (s)	=	48.4
Largest cycle-average queue, mean (m)	=	29
Performance Index	=	52.60
Degree of saturation (highest)	=	1.000
Practical Spare Capacity (lowest)	=	-10 %
Effective intersection capacity, (veh/h)	=	2618
Total vehicle flow (veh/h)	=	2618
Total person flow (pers/h)	=	3927
Total vehicle delay (veh-h/h)	=	11.99
Total person delay (pers-h/h)	=	17.98

Total effective vehicle stops (veh/h)	=	1275
Total effective person stops (pers/h)	=	1913
Total vehicle travel (veh-km/h)	=	1420.6
Total cost ($/h)	=	1188.66
Total fuel (L/h)	=	154.7
Total CO2 (kg/h)	=	386.85

Table S.4 - Phase Information
03 Int PR-3 y PR-180
Pico AM Base
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 72 (Sum of User-given Phase Times)

Phase	Change Time	Starting Intgrn	Green Start	Displayed Green	Green End	Terminating Intgrn	Phase Time	Phase Split
A	0	4	4	10	14	4	14	19%
B	14	4	18	28	46	4	32	44%
C	46	4	50	8	58	4	12	17%
D	58	4	62	10	72	4	14	19%

(Phase times specified by the user)
Current Phase Sequence: Sequence 1
Input phase sequence: A B C D
Output phase sequence: A B C D

Table S.5 - Movement Performance

Mov ID	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue Cycle (vehs)	Longest Queue Aver. (m)	Perf. Index	Aver. Speed (km/h)
South: PR-180 S									
1 L	0.01	0.02	39.2	0.91	0.60	0.0	0	0.03	28.8
2 T	0.29	0.43	17.2	0.91	0.85	1.2	9	1.46	40.7
3 R	1.37	2.05	25.1	0.91	0.91	1.2	9	5.28	35.6
East: PR-3 E									
4 L	0.52	0.78	38.9	0.92	0.74	0.4	3	1.61	29.0
5 T	2.46	3.68	25.1	0.95	0.93	4.1	29	10.28	35.5
6 R	2.22	3.33	33.3	0.95	0.96	4.1	29	7.59	31.3
North: PR-180 N									
7 L	1.18	1.77	42.7	0.98	0.76	1.0	7	3.55	27.5
8 LT	0.05	0.07	0.6	0.09	0.07	0.3	2	0.98	55.3
9 R	0.32	0.48	10.2	0.36	0.71	0.3	2	1.97	46.7
West: PR-3 W									
10 L	3.47	5.20	48.4	1.00	0.89	2.9	20	10.21	25.7
11 LT	0.12	0.18	0.4	0.22	0.05	0.1	1	9.61	56.9
12 R	0.00	0.00	8.3	0.24	0.67	0.1	1	0.02	48.2

Table S.6 - Intersection Performance
03 Int PR-3 y PR-180
Pico AM Base
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 72 (Sum of User-given Phase Times)

Total Flow (veh/h)	Deg. Satn x	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue (m)	Perf. Index	Aver. Speed (km/h)
South: PR-180 S									
257	0.522	1.66	2.50	23.3	0.91	0.89	9	6.78	36.6
East: PR-3 E									
640	0.805	5.19	7.79	29.2	0.95	0.92	29	19.48	33.3
North: PR-180 N									
508	1.000	1.54	2.31	10.9	0.32	0.35	7	6.50	39.0
West: PR-3 W									
1213	1.000	3.59	5.38	10.6	0.39	0.23	20	19.84	44.8
ALL VEHICLES:									
2618	1.000	11.99	17.98	16.5	0.56	0.49	29	52.60	39.4
INTERSECTION (persons):									
3927	1.000		17.98	16.5	0.56	0.49		52.60	39.4

Queue values in this table are mean cycle-average queue (metres).

Table S.7 - Lane Performance
03 Int PR-3 y PR-180
Pico AM Base
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 72 (Sum of User-given Phase Times)

Lane No.	Effective Green Times (sec) R1	G1	Red and R2	G2	Dem Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue Cycle (vehs)	Queue Aver. (m)	Lane Length (m)
South: PR-180 S												
1 L	64	8	0	0	1	186	0.005	39.2	0.60	0.0	0.1	28.0T
2 TR	18	22	16	16	256	490	0.522	23.2	0.89	1.2	8.6	500.0
East: PR-3 E												
1 L	62	10	0	0	48	180	0.267	38.9	0.74	0.4	2.9	27.0T
2 TR	44	28	0	0	592	736	0.805	28.4	0.94	4.1	28.9	500.0
North: PR-180 N												
1 L	64	8	0	0	99	99	1.000	42.7r	0.76	1.0	6.7<	15.0T
2 LTR	15	29	4	24	409	1398	0.292	4.5	0.61	0.3	1.8	500.0
West: PR-3 W												

1 L	62	10	0	0	258	258	1.000	48.4r	0.89	2.9	20.2<	44.0T
2 LTR	4	40	4	24	955	1733	0.551	0.5	0.24	0.1	0.9	500.0

< Short lane capacity is reached and there is excess flow into an adjacent lane

r Delay, stops and queue length for this lane have been cut down to fit in the queuing space. The amount cut may not be accounted for fully in the adjacent lane performance statistics. You may wish to change the short lane to a full lane to investigate the extent of this effect.

T Short lane due to specification of Turn Slot

Table S.8 - Lane Flow and Capacity Information
03 Int PR-3 y PR-180
Pico AM Base
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 72 (Sum of User-given Phase Times)

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Lane Width (m)	Saturation Flow Adj. Basic (tcu)	Aver 1st (veh)	Aver 2nd (veh)	End Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
South: PR-180 S												
1 L	1	0	0	1	3.50	1970	1671<	0	0	186	0.005	100
2 TR	0	60	196	256	3.70	1990	274	1830	50	490	0.522	100
East: PR-3 E												
1 L	48	0	0	48	3.10	1930	1295<	0	0	180	0.267	100
2 TR	0	352	240	592	3.10	1930	1892	0	0	736	0.805	100
North: PR-180 N												
1 L	99	0	0	99	2.90	1910	893<	0	0	99	1.000	100
2 LTR	221E	76	112	409	2.90	1910	1910	1887	50	1398	0.292	100
West: PR-3 W												
1 L	258	0	0	258	3.30	1950	1857	0	0	258	1.000	100
2 LTR	54E	900	1	955	3.30	1950	1950	1950	50	1733	0.551	100

E "Excess" flow from back of an adjacent short lane

< Reduced saturation flow due to a short lane effect

Basic Saturation Flow in this table is adjusted for lane width, approach grade, parking manoeuvres and number of buses stopping. Saturation flow scale applies if specified.

Table S.10 - Movement Capacity and Performance Summary
03 Int PR-3 y PR-180
Pico AM Base
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 72 (Sum of User-given Phase Times)

Mov	Mov	Dem	Total	Lane	Deg.	Eff.	Grn	Aver.	Eff.	Cycle	Perf.

ID	Typ	Flow (veh /h)	Cap. (veh /h)	Util (%)	Satn x	1st Grn	2nd Grn	Delay (sec)	Stop Rate	Average Queue (veh)	Index
South: PR-180 S											
1	L	1	186<	100	0.005	8		39.2	0.60	0.0	0.03
2	T	60	115	100	0.522	10*		17.2	0.85	1.2	1.46
3	R (Slp)	196	375	100	0.522	34	24	25.1	0.91	1.2	5.28
East: PR-3 E											
4	L	48	180<	100	0.267	10		38.9	0.74	0.4	1.61
5	T	352	438	100	0.805	28		25.1	0.93	4.1	10.28
6	R	240	298	100	0.805	28*		33.3	0.96	4.1	7.59
North: PR-180 N											
7	L	99	99<	100	1.000*	8*		42.7	0.76	1.0	3.55
8	LT	297E	1015	100	0.292	10		0.6	0.07	0.3	0.98
9	R (Slp)	112	383	100	0.292	29	24	10.2	0.71	0.3	1.97
West: PR-3 W											
10	L	258	258	100	1.000*	10*		48.4	0.89	2.9	10.21
11	LT	954E	1731	100	0.551	28		0.4	0.05	0.1	9.61
12	R (Slp)	1	2	100	0.529	40	24	8.3	0.67	0.1	0.02

E "Excess" flow from the short lane of an adjacent movement added to normal flow
< Reduced capacity due to a short lane effect
* Maximum degree of saturation, or critical green periods

Table S.14 - Summary of Input and Output Data
03 Int PR-3 y PR-180
Pico AM Base
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 72 (Sum of User-given Phase Times)

Lane No.	Demand Flow (veh/h) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
South: PR-180 S												
1 L	1			1	0	1970	8		0.005	39.2	0	28
2 TR		60	196	256	0	1990	22	16	0.522	23.2	9	500
	1	60	196	257	0				0.522	23.3	9	
East: PR-3 E												
1 L	48			48	0	1929	10		0.267	38.9	3	27
2 TR		352	240	592	0	1930	28		0.805	28.4	29	500
	48	352	240	640	0				0.805	29.2	29	
North: PR-180 N												
1 L	99			99	0	1909	8		1.000	42.7r	7	15
2 LTR		76	112	409	0	1910	29	24	0.292	4.5	2	500

	99	76	112	287	0				1.000	21.1	7		
West: PR-3 W													
1 L	258			258	0	1949	10		1.000	48.4r	20	44	
2 LTR		900	1	955	0	1950	40	24	0.551	0.5	1	500	
	258	900	1	1159	0				1.000	11.2	20		

ALL VEHICLES	Total Flow	% HV	Cycle Time	Max X	Aver. Delay	Max Queue
	2618	0	72	1.000	16.5	29

Peak flow period = 15 minutes.

Queue values in this table are mean cycle-average queue (metres).

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

r Delay, stops and queue length for this lane have been cut down to fit in the queuing space. The amount cut may not be accounted for fully in the adjacent lane performance statistics. You may wish to change the short lane to a full lane to investigate the extent of this effect.

Table S.15 - Capacity and Level of Service
03 Int PR-3 y PR-180
Pico AM Base
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 72 (Sum of User-given Phase Times)

Mov ID	Mov Typ	Green Ratio 1st grn	Green Ratio 2nd grn	Time (g/C)	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Queue Cycle (vehs)	Longest Queue Aver. (m)
South: PR-180 S											
1	L	0.111			1	186<	0.005	39.2	D	0.0	0
2	T	0.139*			60	115	0.522	17.2	B	1.2	9
3	R (Slp)	0.472	0.333		196	375	0.522	25.1	C	1.2	9
East: PR-3 E											
4	L	0.139			48	180<	0.267	38.9	D	0.4	3
5	T	0.389			352	438	0.805	25.1	C	4.1	29
6	R	0.389*			240	298	0.805	33.3	C	4.1	29
North: PR-180 N											
7	L	0.111*			99	99<	1.000*	42.7	D	1.0	7
8	LT	0.139			297E	1015	0.292	0.6	A	0.3	2
9	R (Slp)	0.403	0.333		112	383	0.292	10.2	B	0.3	2
West: PR-3 W											
10	L	0.139*			258	258	1.000*	48.4	D	2.9	20
11	LT	0.389			954E	1731	0.551	0.4	A	0.1	1
12	R (Slp)	0.556	0.333		1	2	0.529	8.3	A	0.1	1

ALL VEHICLES:	2618	1.000	16.5	B	4.1	29
INTERSECTION (persons):	3927		16.5		4.1	29

Level of Service calculations are based on
average control delay including geometric delay (HCM criteria),
independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the
SIDRA Output Guide or the Output section of the on-line help.

< Reduced capacity due to a short lane effect
* Maximum v/c ratio, or critical green periods
" Movement Level of service has been determined using adjacent lane v/c ratio rather than short lane v/c ratio (v/c=1.0)
E "Excess" flow from the short lane of an adjacent movement added to normal flow

Site: 03_PR-3 y PR-180_BA
D:\Documents and Settings\Carlos M. Contreras\My Documents\My Projects\Salinas Development\Revision 2007\SalinasBase.aap
Processed Jan 13, 2007 10:07:53AM

M0276, TCG, Large Office
Produced by SIDRA Intersection 3.1.061208.34

www.sidrasolutions.com

Output Tables
Output Tables
03 Int PR-3 y PR-180
Pico PM Base

Run Information
Cycle Time = 72 (Sum of User-given Phase Times)

* Basic Parameters:
Intersection Type: Signalised - Fixed Time
Driving on the right-hand side of the road
Input data specified in Metric units
Model Defaults: Standard Right
Peak Flow Period (for performance): 15 minutes
Unit time (for volumes): 60 minutes.
Delay definition: Control delay
Geometric delay included
SIDRA Standard Delay model used
SIDRA Standard Queue model used
Level of Service based on: Delay (HCM method)
Queue definition: Cycle average queue, Average

* Iteration Data:
No. of Main (Timing-Capacity) Iterations = 1
Comparison of last two iterations:
Difference in intersection degree of satn = 0.0 %
Largest difference in eff. green times = 0 secs
(max. value for stopping = 0 secs)

* Movement 7 has large x because of short lanes.
The degree of saturation of adjacent movement 8 is less than xp,
hence this solution may be satisfactory.
See Table S.7 for queue length, delay etc.

Table B.1 - Movement Definitions and Flow Rates (Origin-Destination)
03 Int PR-3 y PR-180
Pico PM Base
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 72 (Sum of User-given Phase Times)

From Approach	To Approach	Mov ID	Turn	Flow Rate LV	Flow Rate HV	Flow Scale	Peak Flow Factor
South: PR-180 S							
	East	3	Right	60	0	1.00	1.00
	North	2	Thru	96	0	1.00	1.00
	West	1	Left	1	0	1.00	1.00
East: PR-3 E							
	South	4	Left	124	0	1.00	1.00
	North	6	Right	244	0	1.00	1.00
	West	5	Thru	420	0	1.00	1.00

North: PR-180 N							
	South	8	Thru	100	0	1.00	1.00
	East	7	Left	304	0	1.00	1.00
	West	9	Right	56	0	1.00	1.00
West: PR-3 W							
	South	12	Right	1	0	1.00	1.00
	East	11	Thru	424	0	1.00	1.00
	North	10	Left	304	0	1.00	1.00

Unit Time for Volumes = 60 minutes
Peak Flow Period = 15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor

Table S.1 - Movement Phase and Timing Parameters
03 Int PR-3 y PR-180
Pico PM Base
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 72 (Sum of User-given Phase Times)

Mov ID	Mov Typ	PHASE MATRIX First Green Fr	To	Op Pr	Second Green Fr	To	Op Pr	Lost Tim 1st Grn	2nd Grn	Req.Mov.Time 1st Grn	2nd Grn	Eff. Grn 1st	2nd
South: PR-180 S													
1	L	C	D					4		10.0Min		8	
2	T	*D	A					4		10.0Min		10	
3	R (Slp)	B	D	Y	D	B		8	4	20.0Min	20.0Min	36	24
East: PR-3 E													
4	L	A	B					4		11.7		10	
5	T	B	C					4		32.0		28	
6	R	*B	C					4		32.0		28	
North: PR-180 N													
7	L	*C	D					4		12.9		8	

```
    8 LT        D      A                                    4         10.0Min
10
    9 R  (Slp) B       D       Y       D      B             18    4   20.2
20.0Min  26   24
 ------------------------------------------------------------------------------
----------
 West: PR-3 W
   10 L        *A      B                                    4         15.1
10
   11 LT        B      C                                    4         13.0
28
   12 R  (Slp) B       D               D      B       Y     4    8    20.0Min
20.0Min  40   20
 ------------------------------------------------------------------------------
----------
 ------------------------------------------------------------------------------
----------
   Current Phase Sequence: Sequence 1
   Input phase sequence: A B C D
   Output phase sequence: A B C D
 ------------------------------------------------------------------------------
----------
   *  Critical Movement/Green Period

 Movement Types:                                  Under heading 'Op':
   Slp  Slip Lane Movement                          Y   If opposed turn
   Ped  Pedestrian
   Dum  Dummy
```

Table S.2 - Movement Capacity Parameters
03 Int PR-3 y PR-180
Pico PM Base
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 72 (Sum of User-given Phase Times)

Mov ID	Dem Flow (veh /h)	HV (%)	Satn Flow 1st Grn	Satn Flow 2nd Grn	Flow Ratio 1st Grn	Flow Ratio 2nd Grn	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
South: PR-180 S											
1 L	1	0.0	1671<		0.001		186	0.90	****	100	0.005
2 T	96	0.0	1478		0.065		205	0.90	92	100	0.468
3 R	60	0.0	48	313	0.000	0.192	128	0.90	93	100	0.468
East: PR-3 E											
4 L	124	0.0	1283<		0.097		178	0.90	29	100	0.696
5 T	420	0.0	1199		0.350		466	0.90	0	100	0.901
6 R	244	0.0	696		0.351		271	0.90	0	100	0.901
North: PR-180 N											
7 L	99	0.0	893<		0.111		99	0.90	-10	100	1.000*

8	LT	305E	0.0	8038		0.038		1116	0.90	230	100	0.273
9	R	56	0.0	356	230	0.035	0.189	205	0.90	230	100	0.273
West: PR-3 W												
10	L	258	0.0	1857		0.139		258	0.90	-10	100	1.000*
11	LT	470E	0.0	4169		0.113		1621	0.90	210	100	0.290
12	R	1	0.0	2	8	0.000	0.125	3	0.90	200	100	0.300

E "Excess" flow from the short lane of an adjacent movement added to normal flow

Movement 7 has large x because of short lanes.
The degree of saturation of adjacent movement 8 is less than xp, hence this solution may be satisfactory.
See Table S.7 for queue length, delay etc.

Table S.3 - Intersection Parameters
03 Int PR-3 y PR-180
Pico PM Base
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 72 (Sum of User-given Phase Times)

Crit Mov ID	App. and Turn	Green Period	Phases Fr	Phases To	Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
10	W_L		A	B	4	0.139	0.154	15.1
6	E_R		B	C	4	0.351	0.390	32.0
7	N_L		C	D	4	0.111	0.123	12.9
2	S_T		D	A	10	-	-	10.0Min
				Total:	22	0.601	0.667	70.0

\- Flow ratio not used for cycle time calculations and the adjusted lost time equals the required movement time (=Min or Max as shown in Table S.1)

Cycle Time:

Minimum	Maximum	Practical	Chosen
40	150	66	72

(Phase times user specified, cycle time = sum of phase times)

Intersection Level of Service	=	C
Worst movement Level of Service	=	D
Average intersection delay (s/pers)	=	24.5
Largest average movement delay (s)	=	48.4
Largest cycle-average queue, mean (m)	=	45
Performance Index	=	53.80
Degree of saturation (highest)	=	1.000
Practical Spare Capacity (lowest)	=	-10 %
Effective intersection capacity, (veh/h)	=	2134
Total vehicle flow (veh/h)	=	2134
Total person flow (pers/h)	=	3201
Total vehicle delay (veh-h/h)	=	14.53
Total person delay (pers-h/h)	=	21.80

Total effective vehicle stops (veh/h)	=	1373
Total effective person stops (pers/h)	=	2060
Total vehicle travel (veh-km/h)	=	1140.9
Total cost ($/h)	=	1099.12
Total fuel (L/h)	=	137.4
Total CO2 (kg/h)	=	343.45

Table S.4 - Phase Information
03 Int PR-3 y PR-180
Pico PM Base
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 72 (Sum of User-given Phase Times)

Phase	Change Time	Starting Intgrn	Green Start	Displayed Green	Green End	Terminating Intgrn	Phase Time	Phase Split
A	0	4	4	10	14	4	14	19%
B	14	4	18	28	46	4	32	44%
C	46	4	50	8	58	4	12	17%
D	58	4	62	10	72	4	14	19%

(Phase times specified by the user)
Current Phase Sequence: Sequence 1
Input phase sequence: A B C D
Output phase sequence: A B C D

Table S.5 - Movement Performance

Mov ID	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Cycle (vehs)	Queue Aver. (m)	Perf. Index	Aver. Speed (km/h)
South: PR-180 S									
1 L	0.01	0.02	39.2	0.91	0.60	0.0	0	0.03	28.8
2 T	0.59	0.89	22.3	0.94	0.78	1.0	7	2.58	37.2
3 R	0.50	0.75	30.2	0.94	0.82	1.0	7	1.76	32.9
East: PR-3 E									
4 L	1.46	2.18	42.3	0.97	0.85	1.2	8	4.47	27.7
5 T	4.06	6.08	34.8	1.00	1.09	6.4	45	14.91	30.7
6 R	2.91	4.37	43.0	1.00	1.09	6.4	45	9.21	27.5
North: PR-180 N									
7 L	1.18	1.77	42.7	0.98	0.76	1.0	7	3.55	27.5
8 LT	0.09	0.13	1.0	0.13	0.10	0.3	2	1.35	54.5
9 R	0.17	0.26	11.0	0.40	0.72	0.3	2	1.01	45.9
West: PR-3 W									
10 L	3.47	5.20	48.4	1.00	0.89	2.9	20	10.21	25.7
11 LT	0.09	0.14	0.7	0.21	0.08	0.1	1	4.70	56.9
12 R	0.00	0.00	8.7	0.23	0.68	0.1	1	0.02	48.2

Table S.6 - Intersection Performance
03 Int PR-3 y PR-180
Pico PM Base
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 72 (Sum of User-given Phase Times)

Total Flow (veh/h)	Deg. Satn x	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue (m)	Perf. Index	Aver. Speed (km/h)
South: PR-180 S									
157	0.468	1.11	1.66	25.4	0.94	0.80	7	4.37	35.4
East: PR-3 E									
788	0.901	8.42	12.64	38.5	0.99	1.06	45	28.59	29.1
North: PR-180 N									
460	1.000	1.44	2.16	11.3	0.35	0.32	7	5.92	38.4
West: PR-3 W									
729	1.000	3.56	5.34	17.6	0.49	0.37	20	14.93	39.0
ALL VEHICLES:									
2134	1.000	14.53	21.80	24.5	0.68	0.64	45	53.80	33.8
INTERSECTION (persons):									
3201	1.000		21.80	24.5	0.68	0.64		53.80	33.8

Queue values in this table are mean cycle-average queue (metres).

Table S.7 - Lane Performance
03 Int PR-3 y PR-180
Pico PM Base
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 72 (Sum of User-given Phase Times)

Lane No.	Effective Green Times (sec) R1	G1	R2	G2	Dem Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue Cycle (vehs)	Queue Aver. (m)	Lane Length (m)
South: PR-180 S												
1 L	64	8	0	0	1	186	0.005	39.2	0.60	0.0	0.1	28.0T
2 TR	20	4	36	12	156	334	0.468	25.3	0.80	1.0	6.8	500.0
East: PR-3 E												
1 L	62	10	0	0	124	178	0.696	42.3	0.85	1.2	8.2	27.0T
2 TR	44	28	0	0	664	737	0.901	37.8	1.09	6.4	44.9	500.0
North: PR-180 N												
1 L	64	8	0	0	99	99	1.000	42.7r	0.76	1.0	6.7<	15.0T
2 LTR	18	26	4	24	361	1322	0.273	4.4	0.57	0.3	2.2	500.0
West: PR-3 W												

1	L	62	10	0	0	258	258	1.000	48.4r	0.89	2.9	20.2<	44.0T
2	LTR	4	40	8	20	471	1625	0.290	0.8	0.39	0.1	0.7	500.0

< Short lane capacity is reached and there is excess flow into an adjacent lane

r Delay, stops and queue length for this lane have been cut down to fit in the queuing space. The amount cut may not be accounted for fully in the adjacent lane performance statistics. You may wish to change the short lane to a full lane to investigate the extent of this effect.

T Short lane due to specification of Turn Slot

Table S.8 - Lane Flow and Capacity Information
03 Int PR-3 y PR-180
Pico PM Base
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 72 (Sum of User-given Phase Times)

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Lane Width (m)	Saturation Flow Adj. Basic (tcu)	Aver 1st (veh)	Aver 2nd (veh)	End Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
South: PR-180 S												
1 L	1	0	0	1	3.50	1970	1671<	0	0	186	0.005	100
2 TR	0	96	60	156	3.70	1990	561	1815	50	334	0.468	100
East: PR-3 E												
1 L	124	0	0	124	3.10	1930	1283<	0	0	178	0.696	100
2 TR	0	420	244	664	3.10	1930	1895	0	0	737	0.901	100
North: PR-180 N												
1 L	99	0	0	99	2.90	1910	893<	0	0	99	1.000	100
2 LTR	205E	100	56	361	2.90	1910	1910	1896	50	1322	0.273	100
West: PR-3 W												
1 L	258	0	0	258	3.30	1950	1857	0	0	258	1.000	100
2 LTR	46E	424	1	471	3.30	1950	1950	1950	50	1625	0.290	100

E "Excess" flow from back of an adjacent short lane

< Reduced saturation flow due to a short lane effect

Basic Saturation Flow in this table is adjusted for lane width, approach grade, parking manoeuvres and number of buses stopping. Saturation flow scale applies if specified.

Table S.10 - Movement Capacity and Performance Summary
03 Int PR-3 y PR-180
Pico PM Base
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 72 (Sum of User-given Phase Times)

Mov	Mov	Dem	Total	Lane	Deg.	Eff.	Grn	Aver.	Eff.	Cycle	Perf.

ID	Typ	Flow (veh /h)	Cap. (veh /h)	Util (%)	Satn x	1st Grn	2nd Grn	Delay (sec)	Stop Rate	Average Queue (veh)	Index
South: PR-180 S											
1	L	1	186<	100	0.005	8		39.2	0.60	0.0	0.03
2	T	96	205	100	0.468	10*		22.3	0.78	1.0	2.58
3	R (Slp)	60	128	100	0.468	36	24	30.2	0.82	1.0	1.76
East: PR-3 E											
4	L	124	178<	100	0.696	10		42.3	0.85	1.2	4.47
5	T	420	466	100	0.901	28		34.8	1.09	6.4	14.91
6	R	244	271	100	0.901	28*		43.0	1.09	6.4	9.21
North: PR-180 N											
7	L	99	99<	100	1.000*	8*		42.7	0.76	1.0	3.55
8	LT	305E	1116	100	0.273	10		1.0	0.10	0.3	1.35
9	R (Slp)	56	205	100	0.273	26	24	11.0	0.72	0.3	1.01
West: PR-3 W											
10	L	258	258	100	1.000*	10*		48.4	0.89	2.9	10.21
11	LT	470E	1621	100	0.290	28		0.7	0.08	0.1	4.70
12	R (Slp)	1	3	100	0.300	40	20	8.7	0.68	0.1	0.02

E "Excess" flow from the short lane of an adjacent movement added to normal flow
< Reduced capacity due to a short lane effect
* Maximum degree of saturation, or critical green periods

Table S.14 - Summary of Input and Output Data
03 Int PR-3 y PR-180
Pico PM Base
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 72 (Sum of User-given Phase Times)

Lane No.	Demand Flow (veh/h) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
South: PR-180 S												
1 L	1			1	0	1970	8		0.005	39.2	0	28
2 TR		96	60	156	0	1990	4	12	0.468	25.3	7	500
	1	96	60	157	0				0.468	25.4	7	
East: PR-3 E												
1 L	124			124	0	1929	10		0.696	42.3	8	27
2 TR		420	244	664	0	1930	28		0.901	37.8	45	500
	124	420	244	788	0				0.901	38.5	45	
North: PR-180 N												
1 L	99			99	0	1909	8		1.000	42.7r	7	15
2 LTR		100	56	361	0	1910	26	24	0.273	4.4	2	500

	99	100	56	255	0				1.000	22.8	7		
West: PR-3 W													
1 L	258			258	0	1949	10		1.000	48.4r	20	44	
2 LTR		424	1	471	0	1950	40	20	0.290	0.8	1	500	
	258	424	1	683	0				1.000	18.8	20		

ALL VEHICLES	Total Flow	% HV	Cycle Time	Max X	Aver. Delay	Max Queue
	2134	0	72	1.000	24.5	45

Peak flow period = 15 minutes.

Queue values in this table are mean cycle-average queue (metres).

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

r Delay, stops and queue length for this lane have been cut down to fit in the queuing space. The amount cut may not be accounted for fully in the adjacent lane performance statistics. You may wish to change the short lane to a full lane to investigate the extent of this effect.

Table S.15 - Capacity and Level of Service
03 Int PR-3 y PR-180
Pico PM Base
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 72 (Sum of User-given Phase Times)

Mov ID	Mov Typ	Green Ratio 1st grn	Green Ratio 2nd grn	Time (g/C)	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Queue Cycle (vehs)	Longest Queue Aver. (m)
South: PR-180 S											
1 L		0.111			1	186<	0.005	39.2	D	0.0	0
2 T		0.139*			96	205	0.468	22.3	C	1.0	7
3 R	(Slp)	0.500	0.333		60	128	0.468	30.2	C	1.0	7
East: PR-3 E											
4 L		0.139			124	178<	0.696	42.3	D	1.2	8
5 T		0.389			420	466	0.901	34.8	C	6.4	45
6 R		0.389*			244	271	0.901	43.0	D	6.4	45
North: PR-180 N											
7 L		0.111*			99	99<	1.000*	42.7	D	1.0	7
8 LT		0.139			305E	1116	0.273	1.0	A	0.3	2
9 R	(Slp)	0.361	0.333		56	205	0.273	11.0	B	0.3	2
West: PR-3 W											
10 L		0.139*			258	258	1.000*	48.4	D	2.9	20
11 LT		0.389			470E	1621	0.290	0.7	A	0.1	1
12 R	(Slp)	0.556	0.278		1	3	0.300	8.7	A	0.1	1

ALL VEHICLES:	2134	1.000	24.5	C	6.4	45
INTERSECTION (persons):	3201		24.5		6.4	45

Level of Service calculations are based on
average control delay including geometric delay (HCM criteria),
independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the
SIDRA Output Guide or the Output section of the on-line help.

< Reduced capacity due to a short lane effect
* Maximum v/c ratio, or critical green periods
" Movement Level of service has been determined using adjacent lane v/c ratio rather than short lane v/c ratio (v/c=1.0)
E "Excess" flow from the short lane of an adjacent movement added to normal flow

Site: 03_PR-3 y PR-180_BP
D:\Documents and Settings\Carlos M. Contreras\My Documents\My Projects\Salinas Development\Revision 2007\SalinasBase.aap
Processed Jan 13, 2007 10:07:53AM

M0276, TCG, Large Office
Produced by SIDRA Intersection 3.1.061208.34

www.sidrasolutions.com

Output Tables
Output Tables
03 Int PR-3 y PR-180
Pico AM Futuro 2012

Run Information
Cycle Time = 102 (User-given Cycle Time)

* Basic Parameters:
Intersection Type: Signalised - Fixed Time
Driving on the right-hand side of the road
Input data specified in Metric units
Model Defaults: Standard Right
Peak Flow Period (for performance): 15 minutes
Unit time (for volumes): 60 minutes.
Delay definition: Control delay
Geometric delay included
SIDRA Standard Delay model used
SIDRA Standard Queue model used
Level of Service based on: Delay (HCM method)
Queue definition: Cycle average queue, Average

* Iteration Data:
No. of Main (Timing-Capacity) Iterations = 6
Comparison of last two iterations:
Difference in intersection degree of satn = 0.1 %
Largest difference in eff. green times = 1 secs
(max. value for stopping = 1 secs)
Information on Previous Iteration:
Cycle Time = 102
Phase Times: 0, 18, 72, 90
Critical Movements: 10, 6, 7, 2

* Movement 7 has large x because of short lanes.
The degree of saturation of adjacent movement 8 is less than xp,
hence this solution may be satisfactory.
See Table S.7 for queue length, delay etc.

* Movement 10 has large x because of short lanes.
The degree of saturation of adjacent movement 11 is less than xp,
hence this solution may be satisfactory.
See Table S.7 for queue length, delay etc.

Table B.1 - Movement Definitions and Flow Rates (Origin-Destination)
03 Int PR-3 y PR-180
Pico AM Futuro 2012
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 102 (User-given Cycle Time)

From Approach	To Approach	Mov ID	Turn	Flow Rate LV	Flow Rate HV	Flow Scale	Peak Flow Factor

South: PR-180 S							
	East	3	Right	215	0	1.00	1.00
	North	2	Thru	66	0	1.00	1.00
	West	1	Left	1	0	1.00	1.00
East: PR-3 E							
	South	4	Left	53	0	1.00	1.00
	North	6	Right	418	0	1.00	1.00
	West	5	Thru	490	0	1.00	1.00
North: PR-180 N							
	South	8	Thru	84	0	1.00	1.00
	East	7	Left	403	0	1.00	1.00
	West	9	Right	123	0	1.00	1.00
West: PR-3 W							
	South	12	Right	1	0	1.00	1.00
	East	11	Thru	1023	0	1.00	1.00
	North	10	Left	343	0	1.00	1.00

Unit Time for Volumes = 60 minutes
Peak Flow Period = 15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor

Table B.2A - Flow Rates (Separate Light and Heavy Vehicles)
03 Int PR-3 y PR-180
Pico AM Futuro 2012
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 102 (User-given Cycle Time)

Mov ID	Left		Through		Right	
	LV	HV	LV	HV	LV	HV
Demand flows in veh/hour as used by the program						
South: PR-180 S						
1 L	1	0	0	0	0	0
2 T	0	0	66	0	0	0
3 R	0	0	0	0	215	0
East: PR-3 E						
4 L	53	0	0	0	0	0
5 T	0	0	490	0	0	0
6 R	0	0	0	0	418	0
North: PR-180 N						
7 L	403	0	0	0	0	0
8 T	0	0	84	0	0	0
9 R	0	0	0	0	123	0
West: PR-3 W						
10 L	343	0	0	0	0	0
11 T	0	0	1023	0	0	0
12 R	0	0	0	0	1	0

```
-----------------------------------------------
Unit Time for Volumes =  60 minutes
Peak Flow Period =  15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor


Table S.1 - Movement Phase and Timing Parameters
  03 Int PR-3 y PR-180
  Pico AM Futuro 2012
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 102 (User-given Cycle Time)

-------------------------------------------------------------------------------
----------
  Mov     Mov          P H A S E  M A T R I X          Lost Tim  Req.Mov.Time
Eff. Grn
  ID      Typ     First Green         Second Green     --------  ------------
--------
                ------------------  ------------------ 1st  2nd  1st      2nd
1st  2nd
                 Fr    To   Op Pr    Fr    To   Op Pr  Grn  Grn  Grn      Grn
Grn  Grn
-------------------------------------------------------------------------------
----------
 South: PR-180 S
    1 L        C     D                                  4        10.0Min
14
    2 T       *D     A                                  4        11.0
7
    3 R  (Slp) B     D      Y      D     B              20    4   20.0Min  39.2
52   26
-------------------------------------------------------------------------------
----------
 East: PR-3 E
    4 L        A     B                                  4        10.6
15
    5 T        B     C                                  4        58.6
50
    6 R       *B     C                                  4        58.6
50
-------------------------------------------------------------------------------
----------
 North: PR-180 N
    7 L       *C     D                                  4        19.5
14
    8 LT       D     A                                  4        10.0Min
7
    9 R  (Slp) B     D      Y      D     B              29    4   33.2     35.8
43   26
-------------------------------------------------------------------------------
----------
 West: PR-3 W
   10 L       *A     B                                  4        20.7
15
   11 LT       B     C                                  4        40.2
50
```

```
   12 R  (Slp) B     D             D     B      Y       4    5   57.3
20.0Min  68   25
 ---------------------------------------------------------------------------
----------
 ---------------------------------------------------------------------------
----------
   Current Phase Sequence: Sequence 1
   Input phase sequence: A B C D
   Output phase sequence: A B C D
 ---------------------------------------------------------------------------
----------
   *  Critical Movement/Green Period

 Movement Types:                                  Under heading 'Op':
   Slp  Slip Lane Movement                          Y   If opposed turn
   Ped  Pedestrian
   Dum  Dummy
```

Table S.2 - Movement Capacity Parameters
03 Int PR-3 y PR-180
Pico AM Futuro 2012
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 102 (User-given Cycle Time)

Mov ID	Dem Flow (veh /h)	HV (%)	Satn Flow 1st Grn	Satn Flow 2nd Grn	Flow Ratio 1st Grn	Flow Ratio 2nd Grn	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
South: PR-180 S											
1 L	1	0.0	1031<		0.001		142	0.90	****	100	0.007
2 T	66	0.0	1072		0.062		74	0.90	0	100	0.897
3 R	215	0.0	124	692	0.000	0.311	240	0.90	0	100	0.897
East: PR-3 E											
4 L	53	0.0	913<		0.058		134	0.90	128	100	0.395
5 T	490	0.0	1018		0.481		499	0.90	-8	100	0.982
6 R	418	0.0	868		0.482		425	0.90	-8	100	0.982
North: PR-180 N											
7 L	76	0.0	552<		0.137		76	0.90	-10	100	0.999
8 LT	411E	0.0	14449		0.028		992	0.90	117	100	0.415
9 R	123	0.0	476	376	0.037	0.281	297	0.90	117	100	0.415
West: PR-3 W											
10 L	207	0.0	1409<		0.147		207	0.90	-10	100	1.000*
11 LT	1159E	0.0	3624		0.320		1776	0.90	38	100	0.652
12 R	1	0.0	0	4	0.471	0.132	2	0.90	48	100	0.607

E "Excess" flow from the short lane of an adjacent movement added to normal flow

Movement 7 has large x because of short lanes.
The degree of saturation of adjacent movement 8 is less than xp,
hence this solution may be satisfactory.
See Table S.7 for queue length, delay etc.

Movement 10 has large x because of short lanes.
The degree of saturation of adjacent movement 11 is less than xp,
hence this solution may be satisfactory.
See Table S.7 for queue length, delay etc.

Table S.3 - Intersection Parameters
03 Int PR-3 y PR-180
Pico AM Futuro 2012
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 102 (User-given Cycle Time)

Crit Mov ID	App. and Turn	Green Period	Phases Fr	Phases To	Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
10	W_L		A	B	4	0.147	0.163	20.7
6	E_R		B	C	4	0.482	0.535	58.6
7	N_L		C	D	4	0.137	0.152	19.5
2	S_T		D	A	4	0.062	0.068	11.0
				Total:	16	0.827	0.919	109.8

Cycle Time:

Minimum	Maximum	Practical	Chosen
40	150	150	102

(Cycle time specified by the user)

Intersection Level of Service	=	C
Worst movement Level of Service	=	E
Average intersection delay (s/pers)	=	29.4
Largest average movement delay (s)	=	67.1
Largest cycle-average queue, mean (m)	=	101
Performance Index	=	88.48
Degree of saturation (highest)	=	1.000
Practical Spare Capacity (lowest)	=	-10 %
Effective intersection capacity, (veh/h)	=	3221
Total vehicle flow (veh/h)	=	3220
Total person flow (pers/h)	=	4830
Total vehicle delay (veh-h/h)	=	26.32
Total person delay (pers-h/h)	=	39.48
Total effective vehicle stops (veh/h)	=	1880
Total effective person stops (pers/h)	=	2820
Total vehicle travel (veh-km/h)	=	1671.4
Total cost ($/h)	=	1750.98
Total fuel (L/h)	=	205.3
Total CO2 (kg/h)	=	513.16

Table S.4 - Phase Information

03 Int PR-3 y PR-180
Pico AM Futuro 2012
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 102 (User-given Cycle Time)

Phase	Change Time	Starting Intgrn	Green Start	Displayed Green	Green End	Terminating Intgrn	Phase Time	Phase Split
A	0	4	4	15	19	4	19	19%
B	19	4	23	50	73	4	54	53%
C	73	4	77	14	91	4	18	18%
D	91	4	95	7	102	4	11	11%

Current Phase Sequence: Sequence 1
Input phase sequence: A B C D
Output phase sequence: A B C D

Table S.5 - Movement Performance

Mov ID		Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue Cycle (vehs)	Longest Queue Aver. (m)	Perf. Index	Aver. Speed (km/h)
South: PR-180 S										
1	L	0.01	0.02	48.8	0.88	0.60	0.0	0	0.04	25.6
2	T	1.09	1.63	59.3	1.00	1.13	4.6	32	3.26	22.8
3	R	4.01	6.01	67.1	1.00	1.13	4.6	32	11.09	21.2
East: PR-3 E										
4	L	0.74	1.11	50.2	0.92	0.74	0.6	4	2.11	25.2
5	T	7.82	11.72	57.4	1.00	1.22	14.5	101	23.90	23.3
6	R	7.62	11.43	65.6	1.00	1.22	14.5	101	21.32	21.4
North: PR-180 N										
7	L	1.10	1.65	52.2	0.94	0.75	0.9	6	3.10	24.6
8	LT	0.15	0.22	1.3	0.10	0.08	0.9	7	1.32	50.7
9	R	0.48	0.72	14.1	0.48	0.75	0.9	7	2.46	43.2
West: PR-3 W										
10	L	3.15	4.73	54.8	1.00	0.82	2.7	19	8.86	23.9
11	LT	0.15	0.23	0.5	0.21	0.06	0.2	1	11.00	56.8
12	R	0.00	0.00	8.4	0.24	0.67	0.0	0	0.02	48.2

Table S.6 - Intersection Performance
03 Int PR-3 y PR-180
Pico AM Futuro 2012
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 102 (User-given Cycle Time)

Total Flow (veh/h)	Deg. Satn x	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue (m)	Perf. Index	Aver. Speed (km/h)

South: PR-180 S										
282	0.897	5.11	7.67	65.2	1.00	1.13	32	14.38	21.5
East: PR-3 E										
961	0.982	16.17	24.26	60.6	1.00	1.19	101	47.33	22.5
North: PR-180 N										
610	0.999	1.73	2.59	10.2	0.28	0.30	7	6.88	37.3
West: PR-3 W										
1367	1.000	3.31	4.96	8.7	0.33	0.17	19	19.88	46.2
ALL VEHICLES:										
3220	1.000	26.32	39.48	29.4	0.58	0.58	101	88.48	30.6
INTERSECTION (persons):										
4830	1.000		39.48	29.4	0.58	0.58		88.48	30.6

Queue values in this table are mean cycle-average queue (metres).

Table S.7 - Lane Performance
03 Int PR-3 y PR-180
Pico AM Futuro 2012
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 102 (User-given Cycle Time)

Lane No.	Effective Green Times (sec) R1	G1	R2	G2	Dem Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue Cycle (vehs)	Queue Aver. (m)	Lane Length (m)
South: PR-180 S												
1 L	88	14	0	0	1	141	0.007	48.8	0.60	0.0	0.1	28.0T
2 TR	33	29	27	13	281	313	0.897	65.3	1.13	4.6	32.4	500.0
East: PR-3 E												
1 L	87	15	0	0	53	134	0.395	50.2	0.74	0.6	4.3	27.0T
2 TR	52	50	0	0	908	925	0.982	61.2	1.22	14.5	101.4	500.0
North: PR-180 N												
1 L	88	14	0	0	76	76	1.000	52.2r	0.75	0.9	6.5<	15.0T
2 LTR	29	43	4	26	534	1288	0.415	8.1	0.64	0.9	6.5	500.0
West: PR-3 W												
1 L	87	15	0	0	207	207	1.000	54.8r	0.82	2.7	18.8<	44.0T
2 LTR	4	68	5	25	1160	1778	0.652	0.5	0.19	0.2	1.2	500.0

< Short lane capacity is reached and there is excess flow into an adjacent lane

r Delay, stops and queue length for this lane have been cut down to fit in the queuing space. The amount cut may not be accounted for fully in the adjacent lane performance statistics. You may wish to change the short lane to a full lane to investigate the extent of this effect.

T Short lane due to specification of Turn Slot

Table S.8 - Lane Flow and Capacity Information
03 Int PR-3 y PR-180
Pico AM Futuro 2012
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 102 (User-given Cycle Time)

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Lane Width (m)	Saturation Flow Adj. Basic (tcu)	Aver 1st (veh)	Aver 2nd (veh)	End Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
South: PR-180 S												
1 L	1	0	0	1	3.50	1970	1031<	0	0	141	0.007	100
2 TR	0	66	215	281	3.70	1990	263	1872	35	313	0.897	100
East: PR-3 E												
1 L	53	0	0	53	3.10	1930	913<	0	0	134	0.395	100
2 TR	0	490	418	908	3.10	1930	1886	0	0	925	0.982	100
North: PR-180 N												
1 L	76	0	0	76	2.90	1910	552<	0	0	76	1.000	100
2 LTR	327E	84	123	534	2.90	1910	1910	1895	35	1288	0.415	100
West: PR-3 W												
1 L	207	0	0	207	3.30	1950	1409<	0	0	207	1.000	100
2 LTR	136E	1023	1	1160	3.30	1950	1950	1950	35	1778	0.652	100

E "Excess" flow from back of an adjacent short lane
< Reduced saturation flow due to a short lane effect

Basic Saturation Flow in this table is adjusted for lane width, approach grade, parking manoeuvres and number of buses stopping. Saturation flow scale applies if specified.

Table S.10 - Movement Capacity and Performance Summary
03 Int PR-3 y PR-180
Pico AM Futuro 2012
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 102 (User-given Cycle Time)

Mov ID	Mov Typ	Dem Flow (veh /h)	Total Cap. (veh /h)	Lane Util (%)	Deg. Satn x	Eff. Grn 1st Grn	Eff. Grn 2nd Grn	Aver. Delay (sec)	Eff. Stop Rate	Cycle Average Queue (veh)	Perf. Index
South: PR-180 S											
1 L		1	142<	100	0.007	14		48.8	0.60	0.0	0.04
2 T		66	74	100	0.897	7*		59.3	1.13	4.6	3.26
3 R	(Slp)	215	240	100	0.897	52	26	67.1	1.13	4.6	11.09
East: PR-3 E											

4	L	53	134<	100	0.395	15		50.2	0.74	0.6	2.11
5	T	490	499	100	0.982	50		57.4	1.22	14.5	23.90
6	R	418	425	100	0.982	50*		65.6	1.22	14.5	21.32
North: PR-180 N											
7	L	76	76<	100	0.999	14*		52.2	0.75	0.9	3.10
8	LT	411E	992	100	0.415	7		1.3	0.08	0.9	1.32
9	R (Slp)	123	297	100	0.415	43	26	14.1	0.75	0.9	2.46
West: PR-3 W											
10	L	207	207<	100	1.000*	15*		54.8	0.82	2.7	8.86
11	LT	1159E	1776	100	0.652	50		0.5	0.06	0.2	11.00
12	R (Slp)	1	2	100	0.607	68	25	8.4	0.67	0.0	0.02

E "Excess" flow from the short lane of an adjacent movement added to normal flow
< Reduced capacity due to a short lane effect
* Maximum degree of saturation, or critical green periods

Table S.14 - Summary of Input and Output Data
03 Int PR-3 y PR-180
Pico AM Futuro 2012
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 102 (User-given Cycle Time)

Lane No.	Demand Flow (veh/h) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
South: PR-180 S												
1 L	1			1	0	1970	14		0.007	48.8	0	28
2 TR		66	215	281	0	1990	29	13	0.897	65.3	32	500
	1	66	215	282	0				0.897	65.2	32	
East: PR-3 E												
1 L	53			53	0	1929	15		0.395	50.2	4	27
2 TR		490	418	908	0	1930	50		0.982	61.2	101	500
	53	490	418	961	0				0.982	60.6	101	
North: PR-180 N												
1 L	76			76	0	1909	14		1.000	52.2r	6	15
2 LTR		84	123	534	0	1910	43	26	0.415	8.1	7	500
	76	84	123	283	0				1.000	29.2	7	
West: PR-3 W												
1 L	207			207	0	1949	15		1.000	54.8r	19	44
2 LTR		1023	1	1160	0	1950	68	25	0.652	0.5	1	500
	207	1023	1	1231	0				1.000	9.7	19	

ALL VEHICLES	Total Flow	% HV	Cycle Time	Max X	Aver. Delay	Max Queue

			3220	0	102	1.000	29.4	101	

Peak flow period = 15 minutes.

Queue values in this table are mean cycle-average queue (metres).

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

r Delay, stops and queue length for this lane have been cut down to fit in the queuing space. The amount cut may not be accounted for fully in the adjacent lane performance statistics. You may wish to change the short lane to a full lane to investigate the extent of this effect.

Table S.15 - Capacity and Level of Service
03 Int PR-3 y PR-180
Pico AM Futuro 2012
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 102 (User-given Cycle Time)

Mov ID	Mov Typ	Green Time Ratio (g/C) 1st grn	2nd grn	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Queue Cycle (vehs)	Aver. (m)
South: PR-180 S										
1	L	0.137		1	142<	0.007	48.8	D	0.0	0
2	T	0.069*		66	74	0.897	59.3	E	4.6	32
3	R (Slp)	0.510	0.255	215	240	0.897	67.1	E	4.6	32
East: PR-3 E										
4	L	0.147		53	134<	0.395	50.2	D	0.6	4
5	T	0.490		490	499	0.982	57.4	E	14.5	101
6	R	0.490*		418	425	0.982	65.6	E	14.5	101
North: PR-180 N										
7	L	0.137*		76	76<	0.999	52.2	D	0.9	6
8	LT	0.069		411E	992	0.415	1.3	A	0.9	7
9	R (Slp)	0.422	0.255	123	297	0.415	14.1	B	0.9	7
West: PR-3 W										
10	L	0.147*		207	207<	1.000*	54.8	D	2.7	19
11	LT	0.490		1159E	1776	0.652	0.5	A	0.2	1
12	R (Slp)	0.667	0.245	1	2	0.607	8.4	A	0.0	0
ALL VEHICLES:				3220		1.000	29.4	C	14.5	101
INTERSECTION (persons):				4830			29.4		14.5	101

Level of Service calculations are based on
average control delay including geometric delay (HCM criteria),
independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the
SIDRA Output Guide or the Output section of the on-line help.

< Reduced capacity due to a short lane effect
* Maximum v/c ratio, or critical green periods
" Movement Level of service has been determined using adjacent lane v/c ratio rather than short lane v/c ratio (v/c=1.0)
E "Excess" flow from the short lane of an adjacent movement added to normal flow

Table D.3A - Lane Queues (veh)
03 Int PR-3 y PR-180
Pico AM Futuro 2012
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 102 (User-given Cycle Time)

Lane	Deg. Satn	Ovrfl. Queue	Average (veh)			Percentile (veh)					Queue Stor.
No.	x	No	Nc1	Nc2	Nc	70%	85%	90%	95%	98%	Ratio
South: PR-180 S											
1 L	0.007	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.01
2 TR	0.897	1.8	2.9	1.7	4.6	5.6	7.7	9.1	10.6	11.8	0.12
East: PR-3 E											
1 L	0.395	0.0	0.6	0.0	0.6	0.8	1.2	1.5	2.2	2.6	0.38
2 TR	0.982	7.3	6.9	7.6	14.5	17.4	23.2	26.2	30.4	33.3	0.52
North: PR-180 N											
1 L	1.000	0.8	0.9	0.0	0.9	1.2	1.7	2.2*	3.1*	3.6*	1.00
2 LTR	0.415	0.0	0.9	0.0	0.9	1.2	1.7	2.2	3.1	3.7	0.09
West: PR-3 W											
1 L	1.000	1.8	2.7	0.0	2.7	3.3	4.7	5.7	7.0*	8.0*	1.00
2 LTR	0.652	0.0	0.2	0.0	0.2	0.2	0.3	0.4	0.7	0.8	0.06

Values printed in this table are cycle-average queues (vehicles).
* Queue length exceeds short lane length due to specification of a percentile queue in the Tools-Options (Model tab). For calculation of this statistic, you may specify the lane with full length.

Table D.3B - Lane Queues (metres)
03 Int PR-3 y PR-180
Pico AM Futuro 2012
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 102 (User-given Cycle Time)

Lane No.	Deg. Satn x	Ovrfl. Queue No	Average (metres) Nc1	Nc2	Nc	Percentile (metres) 70%	85%	90%	95%	98%	Queue Stor. Ratio
South: PR-180 S											
1 L	0.007	0.0	0.1	0.0	0.1	0.1	0.2	0.2	0.3	0.4	0.01
2 TR	0.897	12.4	20.4	12.0	32.4	39.4	53.9	63.8	74.4	82.8	0.12
East: PR-3 E											
1 L	0.395	0.0	4.3	0.0	4.3	5.5	8.3	10.6	15.5	18.2	0.38
2 TR	0.982	51.2	48.4	53.0	101.4	121.7	162.3	183.1	213.0	233.4	0.52
North: PR-180 N											
1 L	1.000	5.5	6.5	0.0	6.5	8.2	12.2	15.5*	21.8*	25.5*	1.00
2 LTR	0.415	0.0	6.5	0.0	6.5	8.3	12.2	15.5	21.8	25.6	0.09
West: PR-3 W											
1 L	1.000	12.3	18.8	0.0	18.8	23.2	32.6	39.9	49.2*	55.9*	1.00
2 LTR	0.652	0.0	1.2	0.0	1.2	1.6	2.4	3.1	4.8	5.7	0.06

Values printed in this table are cycle-average queues (metres).
* Queue length exceeds short lane length due to specification of a percentile queue in the Tools-Options (Model tab). For calculation of this statistic, you may specify the lane with full length.

Site: 03_PR-3 y PR-180_FA1

D:\Documents and Settings\Carlos M. Contreras\My Documents\My Projects\Salinas Development\Revision 2007\Salinas2012.aap
Processed Jan 12, 2007 11:40:32AM

M0276, TCG, Large Office
Produced by SIDRA Intersection 3.1.061208.34

www.sidrasolutions.com

Output Tables
Output Tables
03 Int PR-3 y PR-180
Pico AM Futuro 2017

Run Information
Cycle Time = 110 (Optimum Cycle Time)

* Basic Parameters:
Intersection Type: Signalised - Fixed Time
Driving on the right-hand side of the road
Input data specified in Metric units
Model Defaults: Standard Right
Peak Flow Period (for performance): 15 minutes
Unit time (for volumes): 60 minutes.
Specified performance measure for "best" cycle time in variable run - Delay
Delay definition: Control delay
Geometric delay included
SIDRA Standard Delay model used
SIDRA Standard Queue model used
Level of Service based on: Delay (HCM method)
Queue definition: Cycle average queue, Average

* Iteration Data:
No. of Main (Timing-Capacity) Iterations = 6
Comparison of last two iterations:
Difference in intersection degree of satn = 0.0 %
Largest difference in eff. green times = 1 secs
(max. value for stopping = 2 secs)
Information on Previous Iteration:
Cycle Time = 110
Phase Times: 0, 17, 77, 96
Critical Movements: 10, 5, 7, 2

* If an "optimum" cycle time solution is adopted for actuated signal purposes ensure that vehicle-actuated settings reflect this solution in real life. Consider using the "sensitivity analysis" facility to optimise maximum green settings for actuated signals.

* Movement 7 has large x because of short lanes.
The degree of saturation of adjacent movement 8 is less than xp, hence this solution may be satisfactory.
See Table S.7 for queue length, delay etc.

* Movement 10 has large x because of short lanes.
The degree of saturation of adjacent movement 11 is less than xp, hence this solution may be satisfactory.
See Table S.7 for queue length, delay etc.

Table B.1 - Movement Definitions and Flow Rates (Origin-Destination)
03 Int PR-3 y PR-180
Pico AM Futuro 2017

Intersection ID: 3
Fixed-Time Signals, Cycle Time = 110 (Optimum Cycle Time)

From Approach	To Approach	Mov ID	Turn	Flow Rate LV	Flow Rate HV	Flow Scale	Peak Flow Factor
South: PR-180 S							
	East	3	Right	232	0	1.00	1.00
	North	2	Thru	71	0	1.00	1.00
	West	1	Left	1	0	1.00	1.00
East: PR-3 E							
	South	4	Left	57	0	1.00	1.00
	North	6	Right	438	0	1.00	1.00
	West	5	Thru	519	0	1.00	1.00
North: PR-180 N							
	South	8	Thru	90	0	1.00	1.00
	East	7	Left	429	0	1.00	1.00
	West	9	Right	132	0	1.00	1.00
West: PR-3 W							
	South	12	Right	1	0	1.00	1.00
	East	11	Thru	1097	0	1.00	1.00
	North	10	Left	369	0	1.00	1.00

Unit Time for Volumes = 60 minutes
Peak Flow Period = 15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor

Table S.1 - Movement Phase and Timing Parameters
03 Int PR-3 y PR-180
Pico AM Futuro 2017
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 110 (Optimum Cycle Time)

Mov ID	Mov Typ	P H A S E M A T R I X First Green Fr	First Green To	First Green Op Pr	Second Green Fr	Second Green To	Second Green Op Pr	Lost Tim 1st Grn	Lost Tim 2nd Grn	Req.Mov.Time 1st Grn	Req.Mov.Time 2nd Grn	Eff. Grn 1st Grn	Eff. Grn 2nd Grn
South: PR-180 S													
1	L	C	D					4		10.0	Min	15	
2	T	*D	A					4		13.2		9	

```
    3 R  (Slp) B     D      Y      D     B            22    4   20.0Min  41.0
57   27
 ------------------------------------------------------------------------------
----------
 East: PR-3 E
    4 L        A     B                                 4        11.3
14
    5 T       *B     C                                 4        66.0
56
    6 R        B     C                                 4        66.0
56
 ------------------------------------------------------------------------------
----------
 North: PR-180 N
    7 L       *C     D                                 4        20.7
15
    8 LT       D     A                                 4        10.0Min
9
    9 R  (Slp) B     D      Y      D     B            33    4   39.1     41.3
46   27
 ------------------------------------------------------------------------------
----------
 West: PR-3 W
   10 L       *A     B                                 4        19.6
14
   11 LT       B     C                                 4        48.4
56
   12 R  (Slp) B     D             D     B      Y      4    5   81.2
20.0Min  75   26
 ------------------------------------------------------------------------------
----------
 ------------------------------------------------------------------------------
----------
   Current Phase Sequence: Sequence 1
   Input phase sequence: A B C D
   Output phase sequence: A B C D
 ------------------------------------------------------------------------------
----------
   *  Critical Movement/Green Period

 Movement Types:                              Under heading 'Op':
   Slp  Slip Lane Movement                      Y   If opposed turn
   Ped  Pedestrian
   Dum  Dummy
```

```
Table S.2 - Movement Capacity Parameters
  03 Int PR-3 y PR-180
  Pico AM Futuro 2017
 Intersection ID: 3
 Fixed-Time Signals, Cycle Time = 110 (Optimum Cycle Time)

 ------------------------------------------------------------------------------
  Mov      Dem           Satn Flow   Flow Ratio  Total Prac. Prac. Lane   Deg.
```

ID		Flow (veh /h)	HV (%)	1st Grn	2nd Grn	1st Grn	2nd Grn	Cap. (veh /h)	Deg. Satn xp	Spare Cap. (%)	Util (%)	Satn x
South: PR-180 S												
1	L	1	0.0	968<		0.001		132	0.90	****	100	0.008
2	T	71	0.0	944		0.075		77	0.90	-2	100	0.919
3	R	232	0.0	124	767	0.000	0.302	253	0.90	-2	100	0.919
East: PR-3 E												
4	L	57	0.0	960<		0.059		122	0.90	93	100	0.467
5	T	519	0.0	1023		0.507		521	0.90	-10	100	0.997
6	R	438	0.0	864		0.507		440	0.90	-10	100	0.996
North: PR-180 N												
7	L	71	0.0	518<		0.136		71	0.90	-10	100	1.000*
8	LT	448E	0.0	11925		0.038		976	0.90	96	100	0.460
9	R	132	0.0	479	354	0.050	0.305	287	0.90	96	100	0.460
West: PR-3 W												
10	L	189	0.0	1487<		0.127		189	0.90	-10	100	1.000*
11	LT	1277E	0.0	3514		0.363		1789	0.90	26	100	0.714
12	R	1	0.0	0	3	0.632	0.123	1	0.90	25	100	0.719

E "Excess" flow from the short lane of an adjacent movement added to normal flow

Movement 7 has large x because of short lanes.
The degree of saturation of adjacent movement 8 is less than xp, hence this solution may be satisfactory.
See Table S.7 for queue length, delay etc.

Movement 10 has large x because of short lanes.
The degree of saturation of adjacent movement 11 is less than xp, hence this solution may be satisfactory.
See Table S.7 for queue length, delay etc.

Table S.3 - Intersection Parameters
03 Int PR-3 y PR-180
Pico AM Futuro 2017
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 110 (Optimum Cycle Time)

Crit Mov ID	App. and Turn	Green Period	Phases Fr	Phases To	Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
10	W_L		A	B	4	0.127	0.141	19.6
5	E_T		B	C	4	0.507	0.564	66.0
7	N_L		C	D	4	0.136	0.152	20.7
2	S_T		D	A	4	0.075	0.084	13.2
				Total:	16	0.846	0.940	119.4

Cycle Time:

Minimum	Maximum	Practical	Chosen
40	150	150	110

(Program-determined Optimum Cycle Time)

Intersection Level of Service	=	C
Worst movement Level of Service	=	E
Average intersection delay (s/pers)	=	31.4
Largest average movement delay (s)	=	74.1
Largest cycle-average queue, mean (m)	=	118
Performance Index	=	97.89
Degree of saturation (highest)	=	1.000
Practical Spare Capacity (lowest)	=	-10 %
Effective intersection capacity, (veh/h)	=	3436
Total vehicle flow (veh/h)	=	3436
Total person flow (pers/h)	=	5154
Total vehicle delay (veh-h/h)	=	30.00
Total person delay (pers-h/h)	=	45.00
Total effective vehicle stops (veh/h)	=	2000
Total effective person stops (pers/h)	=	3001
Total vehicle travel (veh-km/h)	=	1757.0
Total cost ($/h)	=	1909.38
Total fuel (L/h)	=	220.2
Total CO2 (kg/h)	=	550.50

Table S.4 - Phase Information

03 Int PR-3 y PR-180

Pico AM Futuro 2017

Intersection ID: 3

Fixed-Time Signals, Cycle Time = 110 (Optimum Cycle Time)

Phase	Change Time	Starting Intgrn	Green Start	Displayed Green	Green End	Terminating Intgrn	Phase Time	Phase Split
A	0	4	4	14	18	4	18	16%
B	18	4	22	56	78	4	60	55%
C	78	4	82	15	97	4	19	17%
D	97	4	101	9	110	4	13	12%

Current Phase Sequence: Sequence 1

Input phase sequence: A B C D

Output phase sequence: A B C D

Table S.5 - Movement Performance

Mov ID	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue Cycle (vehs)	Longest Queue Aver. (m)	Perf. Index	Aver. Speed (km/h)
South: PR-180 S									
1 L	0.01	0.02	52.0	0.88	0.60	0.0	0	0.04	24.7
2 T	1.31	1.96	66.3	1.00	1.15	5.6	39	3.79	21.3
3 R	4.78	7.16	74.1	1.00	1.15	5.6	39	12.89	19.8

East: PR-3 E										
	4	L	0.89	1.33	55.9	0.94	0.74	0.8	5	2.45	23.6
	5	T	9.12	13.68	63.2	1.00	1.24	16.8	118	27.06	21.9
	6	R	8.69	13.04	71.4	1.00	1.24	16.8	118	23.81	20.2
North: PR-180 N											
	7	L	1.09	1.64	55.7	0.95	0.75	0.9	7	3.03	23.7
	8	LT	0.19	0.29	1.6	0.10	0.09	1.2	9	1.51	49.1
	9	R	0.57	0.86	15.6	0.52	0.76	1.2	9	2.76	41.9
West: PR-3 W											
	10	L	3.17	4.76	60.4	1.00	0.81	2.7	19	8.68	22.5
	11	LT	0.18	0.27	0.5	0.22	0.06	0.2	1	11.86	56.6
	12	R	0.00	0.00	8.4	0.26	0.68	0.0	0	0.02	48.1

Table S.6 - Intersection Performance
03 Int PR-3 y PR-180
Pico AM Futuro 2017
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 110 (Optimum Cycle Time)

Total Flow (veh/h)	Deg. Satn x	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue (m)	Perf. Index	Aver. Speed (km/h)
South: PR-180 S									
304	0.919	6.10	9.15	72.2	1.00	1.15	39	16.71	20.2
East: PR-3 E									
1014	0.997	18.69	28.04	66.4	1.00	1.21	118	53.32	21.2
North: PR-180 N									
651	1.000	1.86	2.79	10.3	0.28	0.29	9	7.30	36.8
West: PR-3 W									
1467	1.000	3.35	5.03	8.2	0.32	0.16	19	20.56	46.3
ALL VEHICLES:									
3436	1.000	30.00	45.00	31.4	0.57	0.58	118	97.89	29.4
INTERSECTION (persons):									
5154	1.000		45.00	31.4	0.57	0.58		97.89	29.4

Queue values in this table are mean cycle-average queue (metres).

Table S.7 - Lane Performance
03 Int PR-3 y PR-180
Pico AM Futuro 2017
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 110 (Optimum Cycle Time)

	Effective Red and	Dem	Q u e u e

Lane No.	Green Times (sec) R1	G1	R2	G2	Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Cycle Aver. (vehs)	(m)	Lane Length (m)
South: PR-180 S												
1 L	95	15	0	0	1	132	0.008	52.0	0.60	0.0	0.1	28.0T
2 TR	34	30	31	15	303	330	0.919	72.3	1.15	5.6	39.0	500.0
East: PR-3 E												
1 L	96	14	0	0	57	122	0.467	55.9	0.74	0.8	5.3	27.0T
2 TR	54	56	0	0	957	961	0.996	67.0	1.24	16.8	117.7	500.0
North: PR-180 N												
1 L	95	15	0	0	71	71	1.000	55.7r	0.75	0.9	6.5<	15.0T
2 LTR	33	46	4	27	580	1263	0.460	9.5	0.66	1.2	8.7	500.0
West: PR-3 W												
1 L	96	14	0	0	189	189	1.000	60.4r	0.81	2.7	19.2<	44.0T
2 LTR	4	75	5	26	1278	1790	0.714	0.6	0.18	0.2	1.5	500.0

< Short lane capacity is reached and there is excess flow into an adjacent lane

r Delay, stops and queue length for this lane have been cut down to fit in the queuing space. The amount cut may not be accounted for fully in the adjacent lane performance statistics. You may wish to change the short lane to a full lane to investigate the extent of this effect.

T Short lane due to specification of Turn Slot

Table S.8 - Lane Flow and Capacity Information
03 Int PR-3 y PR-180
Pico AM Futuro 2017
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 110 (Optimum Cycle Time)

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Lane Width (m)	Saturation Flow Adj. Basic (tcu)	Aver 1st (veh)	Aver 2nd (veh)	End Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
South: PR-180 S												
1 L	1	0	0	1	3.50	1970	968<	0	0	132	0.008	100
2 TR	0	71	232	303	3.70	1990	272	1872	33	330	0.919	100
East: PR-3 E												
1 L	57	0	0	57	3.10	1930	960<	0	0	122	0.467	100
2 TR	0	519	438	957	3.10	1930	1887	0	0	961	0.996	100
North: PR-180 N												
1 L	71	0	0	71	2.90	1910	518<	0	0	71	1.000	100
2 LTR	358E	90	132	580	2.90	1910	1910	1891	33	1263	0.460	100
West: PR-3 W												
1 L	189	0	0	189	3.30	1950	1487<	0	0	189	1.000	100
2 LTR	180E	1097	1	1278	3.30	1950	1950	1950	33	1790	0.714	100

E "Excess" flow from back of an adjacent short lane
< Reduced saturation flow due to a short lane effect

Basic Saturation Flow in this table is adjusted for lane width, approach grade, parking manoeuvres and number of buses stopping. Saturation flow scale applies if specified.

Table S.10 - Movement Capacity and Performance Summary
03 Int PR-3 y PR-180
Pico AM Futuro 2017
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 110 (Optimum Cycle Time)

Mov ID	Mov Typ	Dem Flow (veh /h)	Total Cap. (veh /h)	Lane Util (%)	Deg. Satn x	Eff. Grn 1st Grn	Eff. Grn 2nd Grn	Aver. Delay (sec)	Eff. Stop Rate	Cycle Average Queue (veh)	Perf. Index
South: PR-180 S											
1	L	1	132<	100	0.008	15		52.0	0.60	0.0	0.04
2	T	71	77	100	0.919	9*		66.3	1.15	5.6	3.79
3	R (Slp)	232	253	100	0.919	57	27	74.1	1.15	5.6	12.89
East: PR-3 E											
4	L	57	122<	100	0.467	14		55.9	0.74	0.8	2.45
5	T	519	521	100	0.997	56*		63.2	1.24	16.8	27.06
6	R	438	440	100	0.996	56		71.4	1.24	16.8	23.81
North: PR-180 N											
7	L	71	71<	100	1.000*	15*		55.7	0.75	0.9	3.03
8	LT	448E	976	100	0.460	9		1.6	0.09	1.2	1.51
9	R (Slp)	132	287	100	0.460	46	27	15.6	0.76	1.2	2.76
West: PR-3 W											
10	L	189	189<	100	1.000*	14*		60.4	0.81	2.7	8.68
11	LT	1277E	1789	100	0.714	56		0.5	0.06	0.2	11.86
12	R (Slp)	1	1	100	0.719	75	26	8.4	0.68	0.0	0.02

E "Excess" flow from the short lane of an adjacent movement added to normal flow
< Reduced capacity due to a short lane effect
* Maximum degree of saturation, or critical green periods

Table S.14 - Summary of Input and Output Data
03 Int PR-3 y PR-180
Pico AM Futuro 2017
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 110 (Optimum Cycle Time)

Lane No.	Demand Flow (veh/h) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)

South: PR-180 S												
1 L	1			1	0	1970	15		0.008	52.0	0	28
2 TR		71	232	303	0	1990	30	15	0.919	72.3	39	500
	1	71	232	304	0				0.919	72.2	39	
East: PR-3 E												
1 L	57			57	0	1929	14		0.467	55.9	5	27
2 TR		519	438	957	0	1930	56		0.996	67.0	118	500
	57	519	438	1014	0				0.996	66.4	118	
North: PR-180 N												
1 L	71			71	0	1909	15		1.000	55.7r	7	15
2 LTR		90	132	580	0	1910	46	27	0.460	9.5	9	500
	71	90	132	293	0				1.000	32.3	9	
West: PR-3 W												
1 L	189			189	0	1949	14		1.000	60.4r	19	44
2 LTR		1097	1	1278	0	1950	75	26	0.714	0.6	1	500
	189	1097	1	1287	0				1.000	9.5	19	

ALL VEHICLES	Total Flow	% HV	Cycle Time	Max X	Aver. Delay	Max Queue
	3436	0	110	1.000	31.4	118

Peak flow period = 15 minutes.

Queue values in this table are mean cycle-average queue (metres).

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

r Delay, stops and queue length for this lane have been cut down to fit in the queuing space. The amount cut may not be accounted for fully in the adjacent lane performance statistics. You may wish to change the short lane to a full lane to investigate the extent of this effect.

Table S.15 - Capacity and Level of Service
03 Int PR-3 y PR-180
Pico AM Futuro 2017
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 110 (Optimum Cycle Time)

Mov ID	Mov Typ	Green Ratio 1st grn	Green Ratio 2nd grn	Time (g/C)	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Queue Cycle (vehs)	Longest Queue Aver. (m)
South: PR-180 S											
1	L	0.136			1	132<	0.008	52.0	D	0.0	0

2	T		0.082*		71	77	0.919	66.3	E	5.6	39
3	R	(Slp)	0.518	0.245	232	253	0.919	74.1	E	5.6	39
East: PR-3 E											
4	L		0.127		57	122<	0.467	55.9	E	0.8	5
5	T		0.509*		519	521	0.997	63.2	E	16.8	118
6	R		0.509		438	440	0.996	71.4	E	16.8	118
North: PR-180 N											
7	L		0.136*		71	71<	1.000*	55.7	E	0.9	7
8	LT		0.082		448E	976	0.460	1.6	A	1.2	9
9	R	(Slp)	0.418	0.245	132	287	0.460	15.6	B	1.2	9
West: PR-3 W											
10	L		0.127*		189	189<	1.000*	60.4	E	2.7	19
11	LT		0.509		1277E	1789	0.714	0.5	A	0.2	1
12	R	(Slp)	0.682	0.236	1	1	0.719	8.4	A	0.0	0
ALL VEHICLES:					3436		1.000	31.4	C	16.8	118
INTERSECTION (persons):					5154			31.4		16.8	118

Level of Service calculations are based on
average control delay including geometric delay (HCM criteria),
independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the
SIDRA Output Guide or the Output section of the on-line help.

< Reduced capacity due to a short lane effect

* Maximum v/c ratio, or critical green periods

" Movement Level of service has been determined using adjacent lane v/c ratio rather than short lane v/c ratio (v/c=1.0)

E "Excess" flow from the short lane of an adjacent movement added to normal flow

Table V.21 - Intersection Summary for Optimum Cycle Time
03 Int PR-3 y PR-180
Pico AM Futuro 2017
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 110 (Optimum Cycle Time)

Cycle Time (sec)	Eff. Int. Cap.	Intersn Deg. of Satn	Prac. Spare Cap.	Aver. Delay (sec)	Stop Rate	Longest Queue (veh)	Perf. Index	Cost Total $/h	Unsett
70	3096	1.110	-19	37.4	0.72	25.0	112.3	2106.2	
80	3132	1.097	-18	37.2	0.70	24.6	111.6	2105.0	
90	3236	1.062	-15	35.9	0.66	21.8	108.6	2066.6	
100	3251	1.057	-15	37.2	0.64	22.1	110.3	2082.3	
110	3436	1.000	-10	31.4	0.58	16.8	97.9	1909.4	
120	3330	1.032	-13	38.1	0.60	21.1	110.9	2083.4	
130	3334	1.031	-13	38.9	0.59	21.6	112.0	2097.0	
140	3290	1.045	-14	40.8	0.59	23.9	115.6	2136.1	
150	3341	1.028	-12	40.7	0.57	22.8	114.8	2123.3	

Site: 03_PR-3 y PR-180_FA2
D:\Documents and Settings\Carlos M. Contreras\My Documents\My Projects\Salinas Development\Revision 2007\Salinas2017.aap
Processed Jan 12, 2007 04:14:38PM

M0276, TCG, Large Office
Produced by SIDRA Intersection 3.1.061208.34

www.sidrasolutions.com

Output Tables
Output Tables
03 Int PR-3 y PR-180
Pico PM Futuro 2012

Run Information
Cycle Time = 100 (Optimum Cycle Time)

* Basic Parameters:
Intersection Type: Signalised - Fixed Time
Driving on the right-hand side of the road
Input data specified in Metric units
Model Defaults: Standard Right
Peak Flow Period (for performance): 15 minutes
Unit time (for volumes): 60 minutes.
Specified performance measure for "best" cycle time in variable run - Delay
Delay definition: Control delay
Geometric delay included
SIDRA Standard Delay model used
SIDRA Standard Queue model used
Level of Service based on: Delay (HCM method)
Queue definition: Cycle average queue, Average

* Iteration Data:
No. of Main (Timing-Capacity) Iterations = 3
Comparison of last two iterations:
Difference in intersection degree of satn = 2.2 %
Largest difference in eff. green times = 1 secs
(max. value for stopping = 1 secs)
Information on Previous Iteration:
Cycle Time = 100
Phase Times: 0, 18, 66, 89
Critical Movements: 10, 5, 7, 2

* If an "optimum" cycle time solution is adopted for actuated signal purposes ensure that vehicle-actuated settings reflect this solution in real life. Consider using the "sensitivity analysis" facility to optimise maximum green settings for actuated signals.

* Movement 7 has large x because of short lanes.
The degree of saturation of adjacent movement 8 is less than xp, hence this solution may be satisfactory.
See Table S.7 for queue length, delay etc.

* Movement 10 has large x because of short lanes.
The degree of saturation of adjacent movement 11 is less than xp, hence this solution may be satisfactory.
See Table S.7 for queue length, delay etc.

Table B.1 - Movement Definitions and Flow Rates (Origin-Destination)
03 Int PR-3 y PR-180
Pico PM Futuro 2012

Intersection ID: 3
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

From Approach	To Approach	Mov ID	Turn	Flow Rate LV	Flow Rate HV	Flow Scale	Peak Flow Factor
South: PR-180 S							
	East	3	Right	66	0	1.00	1.00
	North	2	Thru	106	0	1.00	1.00
	West	1	Left	1	0	1.00	1.00
East: PR-3 E							
	South	4	Left	136	0	1.00	1.00
	North	6	Right	360	0	1.00	1.00
	West	5	Thru	523	0	1.00	1.00
North: PR-180 N							
	South	8	Thru	110	0	1.00	1.00
	East	7	Left	490	0	1.00	1.00
	West	9	Right	62	0	1.00	1.00
West: PR-3 W							
	South	12	Right	1	0	1.00	1.00
	East	11	Thru	570	0	1.00	1.00
	North	10	Left	334	0	1.00	1.00

Unit Time for Volumes = 60 minutes
Peak Flow Period = 15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor

Table B.2A - Flow Rates (Separate Light and Heavy Vehicles)
03 Int PR-3 y PR-180
Pico PM Futuro 2012
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

Mov ID	Left		Through		Right	
	LV	HV	LV	HV	LV	HV
Demand flows in veh/hour as used by the program						
South: PR-180 S						
1 L	1	0	0	0	0	0
2 T	0	0	106	0	0	0
3 R	0	0	0	0	66	0
East: PR-3 E						
4 L	136	0	0	0	0	0
5 T	0	0	523	0	0	0
6 R	0	0	0	0	360	0
North: PR-180 N						
7 L	490	0	0	0	0	0

8	T	0	0	110	0	0	0
9	R	0	0	0	0	62	0

West: PR-3 W

10	L	334	0	0	0	0	0
11	T	0	0	570	0	0	0
12	R	0	0	0	0	1	0

Unit Time for Volumes = 60 minutes
Peak Flow Period = 15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor

Table S.1 - Movement Phase and Timing Parameters
03 Int PR-3 y PR-180
Pico PM Futuro 2012
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

Mov ID	Mov Typ	PHASE MATRIX First Green Fr	To	Op Pr	Second Green Fr	To	Op Pr	Lost Tim 1st Grn	2nd Grn	Req.Mov.Time 1st Grn	2nd Grn	Eff. Grn 1st Grn	2nd Grn
South: PR-180 S													
1	L	C	D					4		10.0Min		18	
2	T	*D	A					4		11.4		7	
3	R (Slp)	B	D	Y	D	B		8	4	20.0Min	36.9	63	25
East: PR-3 E													
4	L	A	B					4		19.6		14	
5	LT	*B	C					4		56.0		45	
6	R	B	C					4		55.9		45	
North: PR-180 N													
7	L	*C	D					4		24.0		18	
8	LT	D	A					4		10.0Min		7	
9	R (Slp)	B	D	Y	D	B		30	4	35.2	37.8	41	25

```
 ------------------------------------------------------------------------------
----------
 West: PR-3 W
   10 L       *A     B                                      4        19.6
14
   11 LT       B     C                                      4        24.1
45
   12 R  (Slp) B     D             D     B      Y         4    7   20.6
20.0Min  67   22
 ------------------------------------------------------------------------------
----------
 ------------------------------------------------------------------------------
----------
   Current Phase Sequence: Sequence 1
   Input phase sequence: A B C D
   Output phase sequence: A B C D
 ------------------------------------------------------------------------------
----------
   *  Critical Movement/Green Period

 Movement Types:                                  Under heading 'Op':
   Slp  Slip Lane Movement                          Y   If opposed turn
   Ped  Pedestrian
   Dum  Dummy
```

Table S.2 - Movement Capacity Parameters
03 Int PR-3 y PR-180
Pico PM Futuro 2012
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

Mov ID	Dem Flow (veh /h)	HV (%)	Satn Flow 1st Grn	Satn Flow 2nd Grn	Flow Ratio 1st Grn	Flow Ratio 2nd Grn	Total Cap. (veh /h)	Prac. Deg. Satn xp	Prac. Spare Cap. (%)	Lane Util (%)	Deg. Satn x
South: PR-180 S											
1 L	1	0.0	845<		0.001		152	0.90	****	100	0.007
2 T	106	0.0	1598		0.066		112	0.90	-5	100	0.948
3 R	66	0.0	25	214	0.000	0.308	69	0.90	-6	100	0.953
East: PR-3 E											
4 L	134	0.0	959<		0.140		134	0.90	-10	100	1.000
5 LT	525E	0.0	1122		0.468		505	0.90	-13	100	1.039*
6 R	360	0.0	770		0.468		347	0.90	-13	100	1.039*
North: PR-180 N											
7 L	82	0.0	455<		0.180		82	0.90	-10	100	1.000
8 LT	518E	0.0	16052		0.032		1124	0.90	95	100	0.461
9 R	62	0.0	225	169	0.047	0.304	135	0.90	95	100	0.461
West: PR-3 W											

10	L	209	0.0	1490<		0.140		209	0.90	-10	100	1.000
11	LT	695E	0.0	3851		0.181		1733	0.90	124	100	0.401
12	R	1	0.0	2	6	0.149	0.117	3	0.90	139	100	0.376

E "Excess" flow from the short lane of an adjacent movement added to normal flow

Movement 7 has large x because of short lanes.
The degree of saturation of adjacent movement 8 is less than xp, hence this solution may be satisfactory.
See Table S.7 for queue length, delay etc.

Movement 10 has large x because of short lanes.
The degree of saturation of adjacent movement 11 is less than xp, hence this solution may be satisfactory.
See Table S.7 for queue length, delay etc.

Table S.3 - Intersection Parameters
03 Int PR-3 y PR-180
Pico PM Futuro 2012
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

Crit Mov ID	App. and Turn	Green Period	Phases Fr	Phases To	Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
10	W_L		A	B	4	0.140	0.156	19.6
5	E_LT		B	C	4	0.468	0.520	56.0
7	N_L		C	D	4	0.180	0.200	24.0
2	S_T		D	A	4	0.066	0.074	11.4
				Total:	16	0.854	0.949	110.9

Cycle Time:

Minimum	Maximum	Practical	Chosen
40	150	150	100

(Program-determined Optimum Cycle Time)

Intersection Level of Service	=	D
Worst movement Level of Service	=	F
Average intersection delay (s/pers)	=	39.2
Largest average movement delay (s)	=	86.5
Largest cycle-average queue, mean (m)	=	135
Performance Index	=	90.68
Degree of saturation (highest)	=	1.039
Practical Spare Capacity (lowest)	=	-13 %
Effective intersection capacity, (veh/h)	=	2654
Total vehicle flow (veh/h)	=	2759
Total person flow (pers/h)	=	4139
Total vehicle delay (veh-h/h)	=	30.01
Total person delay (pers-h/h)	=	45.01
Total effective vehicle stops (veh/h)	=	1850
Total effective person stops (pers/h)	=	2775

Total vehicle travel (veh-km/h)	=	1347.4
Total cost ($/h)	=	1664.25
Total fuel (L/h)	=	183.6
Total CO2 (kg/h)	=	458.99

Table S.4 - Phase Information
03 Int PR-3 y PR-180
Pico PM Futuro 2012
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

Phase	Change Time	Starting Intgrn	Green Start	Displayed Green	Green End	Terminating Intgrn	Phase Time	Phase Split
A	0	4	4	14	18	4	18	18%
B	18	4	22	45	67	4	49	49%
C	67	4	71	18	89	4	22	22%
D	89	4	93	7	100	4	11	11%

Current Phase Sequence: Sequence 1
Input phase sequence: A B C D
Output phase sequence: A B C D

Table S.5 - Movement Performance

Mov ID	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Cycle (vehs)	Queue Aver. (m)	Perf. Index	Aver. Speed (km/h)
South: PR-180 S									
1 L	0.01	0.02	43.9	0.84	0.60	0.0	0	0.04	27.2
2 T	1.85	2.78	62.8	1.00	1.05	3.0	21	5.39	22.0
3 R	1.30	1.94	70.7	1.00	1.05	3.0	21	3.50	20.5
East: PR-3 E									
4 L	1.96	2.94	52.6	0.97	0.79	1.7	12	5.56	24.5
5 LT	11.38	17.07	78.0	1.00	1.35	19.2	135	31.98	19.0
6 R	8.65	12.97	86.5	1.00	1.36	19.2	135	22.82	17.7
North: PR-180 N									
7 L	1.12	1.68	49.2	0.95	0.76	0.9	7	3.22	25.5
8 LT	0.22	0.32	1.5	0.11	0.09	1.1	8	1.81	49.8
9 R	0.26	0.39	14.9	0.52	0.76	1.1	8	1.27	42.5
West: PR-3 W									
10 L	3.18	4.77	54.8	1.00	0.82	2.7	19	8.93	23.9
11 LT	0.09	0.13	0.5	0.15	0.05	0.1	1	6.14	57.5
12 R	0.00	0.00	8.4	0.18	0.67	0.1	1	0.02	48.5

Table S.6 - Intersection Performance
03 Int PR-3 y PR-180
Pico PM Futuro 2012

Intersection ID: 3
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

Total Flow (veh/h)	Deg. Satn x	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue (m)	Perf. Index	Aver. Speed (km/h)
South: PR-180 S									
173	0.953	3.16	4.74	65.7	1.00	1.05	21	8.93	21.4
East: PR-3 E									
1019	1.039	21.99	32.98	77.7	0.99	1.28	135	60.37	19.1
North: PR-180 N									
662	1.000	1.59	2.39	8.7	0.25	0.24	8	6.30	36.9
West: PR-3 W									
905	1.000	3.27	4.90	13.0	0.35	0.23	19	15.09	41.8
ALL VEHICLES:									
2759	1.039	30.01	45.01	39.2	0.60	0.67	135	90.68	25.6
INTERSECTION (persons):									
4139	1.039		45.01	39.2	0.60	0.67		90.68	25.6

Queue values in this table are mean cycle-average queue (metres).

Table S.7 - Lane Performance
03 Int PR-3 y PR-180
Pico PM Futuro 2012
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

Lane No.	Effective Green Times (sec) R1	G1	R2	G2	Dem Flow (veh/h)	Cap (veh/h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Queue Cycle (vehs)	Queue Aver. (m)	Lane Length (m)
South: PR-180 S												
1 L	82	18	0	0	1	152	0.007	43.9	0.60	0.0	0.1	28.0T
2 TR	24	5	62	9	172	182	0.948	65.9	1.05	3.0	21.0	500.0
East: PR-3 E												
1 L	86	14	0	0	134	134	1.000	52.6r	0.79	1.7	11.6<	27.0T
2 LTR	55	45	0	0	885	851	1.040	81.6	1.28	19.2	134.7	500.0
North: PR-180 N												
1 L	82	18	0	0	82	82	1.000	49.2r	0.76	0.9	6.5<	15.0T
2 LTR	30	41	4	25	580	1258	0.461	7.9	0.61	1.1	8.0	500.0
West: PR-3 W												
1 L	86	14	0	0	209	209	1.000	54.8r	0.82	2.7	18.9<	44.0T
2 LTR	4	67	7	22	696	1735	0.401	0.6	0.27	0.1	0.7	500.0

< Short lane capacity is reached and there is excess flow into an adjacent lane

r Delay, stops and queue length for this lane have been cut down to fit in the queuing space. The amount cut may not be accounted for fully in the adjacent lane performance statistics. You may wish to change the short lane to a full lane to investigate the extent of this effect.

T Short lane due to specification of Turn Slot

Table S.8 - Lane Flow and Capacity Information
03 Int PR-3 y PR-180
Pico PM Futuro 2012
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Lane Width (m)	Saturation Flow Adj. Basic (tcu)	Aver 1st (veh)	Aver 2nd (veh)	End Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
South: PR-180 S												
1 L	1	0	0	1	3.50	1970	845<	0	0	152	0.007	100
2 TR	0	106	66	172	3.70	1990	448	1768	36	182	0.948	100
East: PR-3 E												
1 L	134	0	0	134	3.10	1930	959<	0	0	134	1.000	100
2 LTR	2E	523	360	885	3.10	1930	1891	0	0	851	1.040	100
North: PR-180 N												
1 L	82	0	0	82	2.90	1910	455<	0	0	82	1.000	100
2 LTR	408E	110	62	580	2.90	1910	1910	1900	36	1258	0.461	100
West: PR-3 W												
1 L	209	0	0	209	3.30	1950	1490<	0	0	209	1.000	100
2 LTR	125E	570	1	696	3.30	1950	1950	1950	36	1735	0.401	100

E "Excess" flow from back of an adjacent short lane

< Reduced saturation flow due to a short lane effect

Basic Saturation Flow in this table is adjusted for lane width, approach grade, parking manoeuvres and number of buses stopping. Saturation flow scale applies if specified.

Table S.10 - Movement Capacity and Performance Summary
03 Int PR-3 y PR-180
Pico PM Futuro 2012
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

Mov ID	Mov Typ	Dem Flow (veh /h)	Total Cap. (veh /h)	Lane Util (%)	Deg. Satn x	Eff. Grn 1st Grn	Eff. Grn 2nd Grn	Aver. Delay (sec)	Eff. Stop Rate	Cycle Average Queue (veh)	Perf. Index

South: PR-180 S											
1	L		1	152<	100	0.007	18		43.9	0.60	0.0	0.04
2	T		106	112	100	0.948	7*		62.8	1.05	3.0	5.39
3	R	(Slp)	66	69	100	0.953	63	25	70.7	1.05	3.0	3.50
East: PR-3 E												
4	L		134	134<	100	1.000	14		52.6	0.79	1.7	5.56
5	LT		525E	505	100	1.039*	45*		78.0	1.35	19.2	31.98
6	R		360	347	100	1.039*	45		86.5	1.36	19.2	22.82
North: PR-180 N												
7	L		82	82<	100	1.000	18*		49.2	0.76	0.9	3.22
8	LT		518E	1124	100	0.461	7		1.5	0.09	1.1	1.81
9	R	(Slp)	62	135	100	0.461	41	25	14.9	0.76	1.1	1.27
West: PR-3 W												
10	L		209	209<	100	1.000	14*		54.8	0.82	2.7	8.93
11	LT		695E	1733	100	0.401	45		0.5	0.05	0.1	6.14
12	R	(Slp)	1	3	100	0.376	67	22	8.4	0.67	0.1	0.02

E "Excess" flow from the short lane of an adjacent movement added to normal flow
< Reduced capacity due to a short lane effect
* Maximum degree of saturation, or critical green periods

Table S.14 - Summary of Input and Output Data
03 Int PR-3 y PR-180
Pico PM Futuro 2012
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

Lane No.		Demand Flow (veh/h) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)
South: PR-180 S													
1	L	1			1	0	1970	18		0.007	43.9	0	28
2	TR		106	66	172	0	1990	5	9	0.948	65.9	21	500
		1	106	66	173	0				0.948	65.7	21	
East: PR-3 E													
1	L	134			134	0	1929	14		1.000	52.6r	12	27
2	LTR		523	360	885	0	1930	45		1.040	81.6	135	500
		134	523	360	1017	0				1.040	78.0	135	
North: PR-180 N													
1	L	82			82	0	1909	18		1.000	49.2r	7	15
2	LTR		110	62	580	0	1910	41	25	0.461	7.9	8	500
		82	110	62	254	0				1.000	34.0	8	
West: PR-3 W													

1	L	209			209	0	1949	14		1.000	54.8r	19	44
2	LTR		570	1	696	0	1950	67	22	0.401	0.6	1	500
		209	570	1	780	0				1.000	15.2	19	

ALL VEHICLES	Total Flow	% HV	Cycle Time	Max X	Aver. Delay	Max Queue
	2759	0	100	1.039	39.2	135

Peak flow period = 15 minutes.

Queue values in this table are mean cycle-average queue (metres).

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

r Delay, stops and queue length for this lane have been cut down to fit in the queuing space. The amount cut may not be accounted for fully in the adjacent lane performance statistics. You may wish to change the short lane to a full lane to investigate the extent of this effect.

Table S.15 - Capacity and Level of Service
03 Int PR-3 y PR-180
Pico PM Futuro 2012
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

Mov ID	Mov Typ	Green Ratio 1st grn	Green Ratio 2nd grn	Time (g/C)	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Queue Cycle (vehs)	Longest Queue Aver. (m)
South: PR-180 S											
1	L	0.180			1	152<	0.007	43.9	D	0.0	0
2	T	0.070*			106	112	0.948	62.8	E	3.0	21
3	R (Slp)	0.630	0.250		66	69	0.953	70.7	E	3.0	21
East: PR-3 E											
4	L	0.140			134	134<	1.000	52.6	D	1.7	12
5	LT	0.450*			525E	505	1.039*	78.0	E	19.2	135
6	R	0.450			360	347	1.039*	86.5	F	19.2	135
North: PR-180 N											
7	L	0.180*			82	82<	1.000	49.2	D	0.9	7
8	LT	0.070			518E	1124	0.461	1.5	A	1.1	8
9	R (Slp)	0.410	0.250		62	135	0.461	14.9	B	1.1	8
West: PR-3 W											
10	L	0.140*			209	209<	1.000	54.8	D	2.7	19
11	LT	0.450			695E	1733	0.401	0.5	A	0.1	1
12	R (Slp)	0.670	0.220		1	3	0.376	8.4	A	0.1	1
ALL VEHICLES:					2759		1.039	39.2	D	19.2	135

INTERSECTION (persons):	4139	39.2	19.2	135

Level of Service calculations are based on
average control delay including geometric delay (HCM criteria),
independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the
SIDRA Output Guide or the Output section of the on-line help.

< Reduced capacity due to a short lane effect
* Maximum v/c ratio, or critical green periods
" Movement Level of service has been determined using adjacent lane v/c ratio rather than short lane v/c ratio (v/c=1.0)
E "Excess" flow from the short lane of an adjacent movement added to normal flow

Table S.21 - Optimum Cycle Time Results
03 Int PR-3 y PR-180
Pico PM Futuro 2012
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

Performance Measure	Smallest Value	Cycle Time
Degree of Satn	1.035	150
Average Delay	39.2	100
Stop Rate	0.60	150
Max. Queue for Any Movement	19.2	100
Perf. Index	90.7	100
Cost	1664.2	100

Performance Measure	Largest Value	Cycle Time
Eff. Inters. Cap.	2666	150
Prac. Spare Cap.	-13	150

If an "optimum" cycle time solution is adopted for actuated signal purposes ensure that vehicle-actuated settings reflect this solution in real life. Consider using the "sensitivity analysis" facility to optimise maximum green settings for actuated signals.

Table D.3A - Lane Queues (veh)
03 Int PR-3 y PR-180
Pico PM Futuro 2012
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

	Deg.	Ovrfl.	Average (veh)	Percentile (veh)	Queue

Lane	Satn	Queue	Average (metres)			Percentile (metres)					Stor.
No.	x	No	Nc1	Nc2	Nc	70%	85%	90%	95%	98%	Ratio
South: PR-180 S											
1 L	0.007	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01
2 TR	0.948	0.9	2.1	1.0	3.0	3.7	5.2	6.3	7.6	8.6	0.08
East: PR-3 E											
1 L	1.000	1.2	1.7	0.0	1.7	2.1	3.0	3.7	4.9*	5.7*	1.00
2 LTR	1.040	11.1	7.3	12.0	19.2	23.1	30.8	34.7	40.4	44.3	0.57
North: PR-180 N											
1 L	1.000	0.9	0.9	0.0	0.9	1.2	1.7	2.2*	3.1*	3.7*	1.00
2 LTR	0.461	0.0	1.1	0.0	1.1	1.4	2.1	2.7	3.7	4.3	0.10
West: PR-3 W											
1 L	1.000	1.7	2.7	0.0	2.7	3.3	4.7	5.7	7.1*	8.0*	1.00
2 LTR	0.401	0.0	0.1	0.0	0.1	0.1	0.2	0.3	0.4	0.5	0.03

Values printed in this table are cycle-average queues (vehicles).

* Queue length exceeds short lane length due to specification of a percentile queue in the Tools-Options (Model tab). For calculation of this statistic, you may specify the lane with full length.

Table D.3B - Lane Queues (metres)
03 Int PR-3 y PR-180
Pico PM Futuro 2012
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

Lane	Satn	Deg. Satn	Ovrfl. Queue	Average (metres)			Percentile (metres)					Queue Stor.
No.		x	No	Nc1	Nc2	Nc	70%	85%	90%	95%	98%	Ratio

South: PR-180 S										
1 L	0.007	0.0	0.1	0.0	0.1	0.1	0.1	0.2	0.3	0.3
0.01										
2 TR	0.948	6.6	14.4	6.7	21.0	25.9	36.2	44.0	53.5	60.5
0.08										
East: PR-3 E										
1 L	1.000	8.6	11.6	0.0	11.6	14.5	21.0	26.2	34.5*	39.9*
1.00										
2 LTR	1.040	77.7	50.9	83.8	134.7	161.7	215.6	242.7	283.0	309.9
0.57										
North: PR-180 N										
1 L	1.000	6.6	6.5	0.0	6.5	8.3	12.2	15.6*	21.9*	25.7*
1.00										
2 LTR	0.461	0.0	8.0	0.0	8.0	10.1	14.8	18.7	25.8	30.1
0.10										
West: PR-3 W										
1 L	1.000	12.0	18.9	0.0	18.9	23.3	32.8	40.2	49.5*	56.3*
1.00										
2 LTR	0.401	0.0	0.7	0.0	0.7	1.0	1.5	1.9	3.0	3.6
0.03										

Values printed in this table are cycle-average queues (metres).

* Queue length exceeds short lane length due to specification of a percentile queue in the Tools-Options (Model tab). For calculation of this statistic, you may specify the lane with full length.

Table V.21 - Intersection Summary for Optimum Cycle Time
03 Int PR-3 y PR-180
Pico PM Futuro 2012
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 100 (Optimum Cycle Time)

Cycle Time (sec)	Eff. Int. Cap.	Intersn Deg. of Satn	Prac. Spare Cap.	Aver. Delay (sec)	Stop Rate	Longest Queue (veh)	Perf. Index	Cost Total $/h	Unsett
90	2626	1.051	-14	39.9	0.71	19.4	92.8	1700.9	
100	2654	1.039	-13	39.2	0.67	19.2	90.7	1664.2	
110	2647	1.042	-14	41.0	0.66	20.3	93.1	1692.3	
120	2641	1.044	-14	42.6	0.64	21.6	95.1	1715.3	
130	2639	1.046	-14	43.1	0.63	22.5	95.4	1715.0	
140	2633	1.048	-14	44.9	0.62	23.7	97.8	1744.6	
150	2666	1.035	-13	45.3	0.60	23.1	98.0	1737.2	

Site: 03_PR-3 y PR-180_FP1
D:\Documents and Settings\Carlos M. Contreras\My Documents\My Projects\Salinas Development\Revision 2007\Salinas2012.aap
Processed Jan 12, 2007 12:05:40PM

M0276, TCG, Large Office
Produced by SIDRA Intersection 3.1.061208.34

www.sidrasolutions.com

Output Tables
Output Tables
03 Int PR-3 y PR-180
Pico PM Futuro 2017

Run Information
Cycle Time = 110 (Optimum Cycle Time)

* Basic Parameters:
Intersection Type: Signalised - Fixed Time
Driving on the right-hand side of the road
Input data specified in Metric units
Model Defaults: Standard Right
Peak Flow Period (for performance): 15 minutes
Unit time (for volumes): 60 minutes.
Specified performance measure for "best" cycle time in variable run - Delay
Delay definition: Control delay
Geometric delay included
SIDRA Standard Delay model used
SIDRA Standard Queue model used
Level of Service based on: Delay (HCM method)
Queue definition: Cycle average queue, Average

* Iteration Data:
No. of Main (Timing-Capacity) Iterations = 4
Comparison of last two iterations:
Difference in intersection degree of satn = 1.9 %
Largest difference in eff. green times = 1 secs
(max. value for stopping = 1 secs)
Information on Previous Iteration:
Cycle Time = 110
Phase Times: 0, 17, 74, 98
Critical Movements: 10, 6, 7, 2

* If an "optimum" cycle time solution is adopted for actuated signal purposes ensure that vehicle-actuated settings reflect this solution in real life. Consider using the "sensitivity analysis" facility to optimise maximum green settings for actuated signals.

* Movement 7 has large x because of short lanes.
The degree of saturation of adjacent movement 8 is less than xp, hence this solution may be satisfactory.
See Table S.7 for queue length, delay etc.

* Movement 10 has large x because of short lanes.
The degree of saturation of adjacent movement 11 is less than xp, hence this solution may be satisfactory.
See Table S.7 for queue length, delay etc.

Table B.1 - Movement Definitions and Flow Rates (Origin-Destination)
03 Int PR-3 y PR-180
Pico PM Futuro 2017

Intersection ID: 3
Fixed-Time Signals, Cycle Time = 110 (Optimum Cycle Time)

From Approach	To Approach	Mov ID	Turn	Flow Rate LV	Flow Rate HV	Flow Scale	Peak Flow Factor
South: PR-180 S							
	East	3	Right	71	0	1.00	1.00
	North	2	Thru	113	0	1.00	1.00
	West	1	Left	1	0	1.00	1.00
East: PR-3 E							
	South	4	Left	147	0	1.00	1.00
	North	6	Right	380	0	1.00	1.00
	West	5	Thru	557	0	1.00	1.00
North: PR-180 N							
	South	8	Thru	118	0	1.00	1.00
	East	7	Left	515	0	1.00	1.00
	West	9	Right	66	0	1.00	1.00
West: PR-3 W							
	South	12	Right	1	0	1.00	1.00
	East	11	Thru	605	0	1.00	1.00
	North	10	Left	359	0	1.00	1.00

Unit Time for Volumes = 60 minutes
Peak Flow Period = 15 minutes
Flow Rates include effects of Flow Scale and Peak Flow Factor

Table S.1 - Movement Phase and Timing Parameters
03 Int PR-3 y PR-180
Pico PM Futuro 2017
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 110 (Optimum Cycle Time)

Mov ID	Mov Typ	PHASE MATRIX First Green Fr	First Green To	First Green Op Pr	Second Green Fr	Second Green To	Second Green Op Pr	Lost Tim 1st Grn	Lost Tim 2nd Grn	Req.Mov.Time 1st Grn	Req.Mov.Time 2nd Grn	Eff. Grn 1st Grn	Eff. Grn 2nd Grn
South: PR-180 S													
1 L	C	D						4		10.0Min		19	
2 T	*D	A						4		12.9		8	

```
    3 R  (Slp) B     D      Y      D     B              9    4   20.0Min  38.5
72   25
 ---------------------------------------------------------------------------
----------
 East: PR-3 E
    4 L        A     B                                  4        18.4
13
    5 LT      *B     C                                  4        66.4
54
    6 R        B     C                                  4        66.3
54
 ---------------------------------------------------------------------------
----------
 North: PR-180 N
    7 L       *C     D                                  4        25.1
19
    8 LT       D     A                                  4        10.0Min
8
    9 R  (Slp) B     D      Y      D     B             34    4   41.5     44.0
47   25
 ---------------------------------------------------------------------------
----------
 West: PR-3 W
   10 L       *A     B                                  4        18.4
13
   11 LT       B     C                                  4        30.9
54
   12 R  (Slp) B     D             D     B      Y       4    8   29.1
20.0Min  77   21
 ---------------------------------------------------------------------------
----------
 ---------------------------------------------------------------------------
----------
   Current Phase Sequence: Sequence 1
   Input phase sequence: A B C D
   Output phase sequence: A B C D
 ---------------------------------------------------------------------------
----------
   *  Critical Movement/Green Period

 Movement Types:                              Under heading 'Op':
   Slp  Slip Lane Movement                      Y   If opposed turn
   Ped  Pedestrian
   Dum  Dummy
```

```
Table S.2 - Movement Capacity Parameters
  03 Int PR-3 y PR-180
  Pico PM Futuro 2017
 Intersection ID: 3
 Fixed-Time Signals, Cycle Time = 110 (Optimum Cycle Time)

 ---------------------------------------------------------------------------
  Mov      Dem           Satn Flow   Flow Ratio  Total Prac. Prac. Lane   Deg.
```

ID	Flow (veh /h)	HV (%)	1st Grn	2nd Grn	1st Grn	2nd Grn	Cap. (veh /h)	Deg. Satn xp	Spare Cap. (%)	Util (%)	Satn x
South: PR-180 S											
1 L	1	0.0	801<		0.001		138	0.90	****	100	0.007
2 T	113	0.0	1546		0.073		112	0.90	-10	100	1.005
3 R	71	0.0	23	244	0.000	0.291	71	0.90	-11	100	1.007
East: PR-3 E											
4 L	120	0.0	1013<		0.118		120	0.90	-10	100	1.000
5 LT	584E	0.0	1145		0.510		562	0.90	-13	100	1.040*
6 R	380	0.0	745		0.510		366	0.90	-13	100	1.039
North: PR-180 N											
7 L	74	0.0	430<		0.173		74	0.90	-10	100	1.001
8 LT	559E	0.0	15342		0.036		1116	0.90	80	100	0.501
9 R	66	0.0	224	160	0.061	0.327	132	0.90	80	100	0.500
West: PR-3 W											
10 L	187	0.0	1581<		0.118		187	0.90	-10	100	1.000
11 LT	777E	0.0	3534		0.220		1735	0.90	101	100	0.448
12 R	1	0.0	2	6	0.205	0.098	3	0.90	129	100	0.393

E "Excess" flow from the short lane of an adjacent movement added to normal flow

Movement 7 has large x because of short lanes.
The degree of saturation of adjacent movement 8 is less than xp, hence this solution may be satisfactory.
See Table S.7 for queue length, delay etc.

Movement 10 has large x because of short lanes.
The degree of saturation of adjacent movement 11 is less than xp, hence this solution may be satisfactory.
See Table S.7 for queue length, delay etc.

Table S.3 - Intersection Parameters
03 Int PR-3 y PR-180
Pico PM Futuro 2017
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 110 (Optimum Cycle Time)

Crit Mov ID	App. and Turn	Green Period	Phases Fr	Phases To	Adjusted Lost Time	Adjusted Flow Ratio	Required Grn Time Ratio	Required Movement Time
10	W_L		A	B	4	0.118	0.131	18.4
5	E_LT		B	C	4	0.510	0.567	66.4
7	N_L		C	D	4	0.173	0.192	25.1
2	S_T		D	A	4	0.073	0.081	12.9
				Total:	16	0.874	0.972	122.9

Cycle Time:

Minimum	Maximum	Practical	Chosen
40	150	150	110

(Program-determined Optimum Cycle Time)

Intersection Level of Service	=	D
Worst movement Level of Service	=	F
Average intersection delay (s/pers)	=	39.6
Largest average movement delay (s)	=	87.4
Largest cycle-average queue, mean (m)	=	149
Performance Index	=	96.29
Degree of saturation (highest)	=	1.040
Practical Spare Capacity (lowest)	=	-13 %
Effective intersection capacity, (veh/h)	=	2821
Total vehicle flow (veh/h)	=	2933
Total person flow (pers/h)	=	4400
Total vehicle delay (veh-h/h)	=	32.28
Total person delay (pers-h/h)	=	48.42
Total effective vehicle stops (veh/h)	=	1908
Total effective person stops (pers/h)	=	2862
Total vehicle travel (veh-km/h)	=	1389.4
Total cost ($/h)	=	1754.67
Total fuel (L/h)	=	191.9
Total CO2 (kg/h)	=	479.65

Table S.4 - Phase Information
03 Int PR-3 y PR-180
Pico PM Futuro 2017
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 110 (Optimum Cycle Time)

Phase	Change Time	Starting Intgrn	Green Start	Displayed Green	Green End	Terminating Intgrn	Phase Time	Phase Split
A	0	4	4	13	17	4	17	15%
B	17	4	21	54	75	4	58	53%
C	75	4	79	19	98	4	23	21%
D	98	4	102	8	110	4	12	11%

Current Phase Sequence: Sequence 1
Input phase sequence: A B C D
Output phase sequence: A B C D

Table S.5 - Movement Performance

Mov ID	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue Cycle (vehs)	Longest Queue Aver. (m)	Perf. Index	Aver. Speed (km/h)
South: PR-180 S									
1 L	0.01	0.02	48.1	0.84	0.60	0.0	0	0.04	25.8
2 T	2.25	3.37	71.6	1.00	1.05	3.7	26	6.30	20.2
3 R	1.57	2.35	79.5	1.00	1.05	3.7	26	4.12	18.9

East: PR-3 E										
	4	L	1.97	2.96	59.3	0.99	0.78	1.7	12	5.40	22.8
	5	LT	12.26	18.39	75.5	0.95	1.28	21.2	149	34.31	18.9
	6	R	9.23	13.84	87.4	1.00	1.34	21.2	149	24.26	17.6
North: PR-180 N										
	7	L	1.11	1.66	53.7	0.96	0.75	0.9	7	3.11	24.2
	8	LT	0.28	0.42	1.8	0.12	0.10	1.5	10	2.05	48.2
	9	R	0.30	0.45	16.3	0.55	0.77	1.5	10	1.41	41.4
West: PR-3 W										
	10	L	3.20	4.79	61.6	1.00	0.81	2.8	19	8.69	22.2
	11	LT	0.11	0.17	0.5	0.15	0.06	0.1	1	6.60	57.4
	12	R	0.00	0.00	8.5	0.20	0.68	0.1	1	0.02	48.4

Table S.6 - Intersection Performance
03 Int PR-3 y PR-180
Pico PM Futuro 2017
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 110 (Optimum Cycle Time)

Total Flow (veh/h)	Deg. Satn x	Total Delay (veh-h/h)	Total Delay (pers-h/h)	Aver. Delay (sec)	Prop. Queued	Eff. Stop Rate	Longest Queue (m)	Perf. Index	Aver. Speed (km/h)
South: PR-180 S									
185	1.007	3.83	5.74	74.5	1.00	1.05	26	10.45	19.7
East: PR-3 E									
1084	1.040	23.46	35.19	77.9	0.97	1.25	149	63.97	18.8
North: PR-180 N									
699	1.001	1.69	2.53	8.7	0.25	0.23	10	6.57	36.3
West: PR-3 W									
965	1.000	3.31	4.97	12.4	0.32	0.21	19	15.31	41.8
ALL VEHICLES:									
2933	1.040	32.28	48.42	39.6	0.59	0.65	149	96.29	25.0
INTERSECTION (persons):									
4400	1.040		48.42	39.6	0.59	0.65		96.29	25.0

Queue values in this table are mean cycle-average queue (metres).

Table S.7 - Lane Performance
03 Int PR-3 y PR-180
Pico PM Futuro 2017
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 110 (Optimum Cycle Time)

	Effective Red and	Dem	Q u e u e

Lane No.	Green Times (sec) R1	G1	R2	G2	Flow (veh /h)	Cap (veh /h)	Deg. Satn x	Aver. Delay (sec)	Eff. Stop Rate	Cycle Aver. (vehs)	(m)	Lane Length (m)
South: PR-180 S												
1 L	91	19	0	0	1	138	0.007	48.1	0.60	0.0	0.1	28.0T
2 TR	24	5	71	10	184	183	1.005	74.6	1.05	3.7	25.6	500.0
East: PR-3 E												
1 L	97	13	0	0	120	120	1.000	59.3r	0.78	1.7	11.9<	27.0T
2 LTR	56	54	0	0	964	928	1.039	82.5	1.28	21.2	148.6	500.0
North: PR-180 N												
1 L	91	19	0	0	74	74	1.000	53.7r	0.75	0.9	6.6<	15.0T
2 LTR	34	47	4	25	625	1248	0.501	9.3	0.62	1.5	10.3	500.0
West: PR-3 W												
1 L	97	13	0	0	187	187	1.000	61.6r	0.81	2.8	19.4<	44.0T
2 LTR	4	77	8	21	778	1737	0.448	0.7	0.25	0.1	1.0	500.0

< Short lane capacity is reached and there is excess flow into an adjacent lane

r Delay, stops and queue length for this lane have been cut down to fit in the queuing space. The amount cut may not be accounted for fully in the adjacent lane performance statistics. You may wish to change the short lane to a full lane to investigate the extent of this effect.

T Short lane due to specification of Turn Slot

Table S.8 - Lane Flow and Capacity Information
03 Int PR-3 y PR-180
Pico PM Futuro 2017
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 110 (Optimum Cycle Time)

Lane No.	Dem Flow (veh/h) Lef	Thru	Rig	Tot	Lane Width (m)	Saturation Flow Adj. Basic (tcu)	Aver 1st (veh)	Aver 2nd (veh)	End Cap (veh /h)	Tot Cap (veh /h)	Deg. Satn x	Lane Util %
South: PR-180 S												
1 L	1	0	0	1	3.50	1970	801<	0	0	138	0.007	100
2 TR	0	113	71	184	3.70	1990	452	1788	33	183	1.005	100
East: PR-3 E												
1 L	120	0	0	120	3.10	1930	1013<	0	0	120	1.000	100
2 LTR	27E	557	380	964	3.10	1930	1890	0	0	928	1.039	100
North: PR-180 N												
1 L	74	0	0	74	2.90	1910	430<	0	0	74	1.000	100
2 LTR	441E	118	66	625	2.90	1910	1910	1899	33	1248	0.501	100
West: PR-3 W												
1 L	187	0	0	187	3.30	1950	1581<	0	0	187	1.000	100
2 LTR	172E	605	1	778	3.30	1950	1950	1950	33	1737	0.448	100

E "Excess" flow from back of an adjacent short lane
< Reduced saturation flow due to a short lane effect

Basic Saturation Flow in this table is adjusted for lane width, approach grade, parking manoeuvres and number of buses stopping. Saturation flow scale applies if specified.

Table S.10 - Movement Capacity and Performance Summary
03 Int PR-3 y PR-180
Pico PM Futuro 2017
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 110 (Optimum Cycle Time)

Mov ID	Mov Typ	Dem Flow (veh /h)	Total Cap. (veh /h)	Lane Util (%)	Deg. Satn x	Eff. Grn 1st Grn	Eff. Grn 2nd Grn	Aver. Delay (sec)	Eff. Stop Rate	Cycle Average Queue (veh)	Perf. Index
South: PR-180 S											
1	L	1	138<	100	0.007	19		48.1	0.60	0.0	0.04
2	T	113	112	100	1.005	8*		71.6	1.05	3.7	6.30
3	R (Slp)	71	71	100	1.007	72	25	79.5	1.05	3.7	4.12
East: PR-3 E											
4	L	120	120<	100	1.000	13		59.3	0.78	1.7	5.40
5	LT	584E	562	100	1.040*	54*		75.5	1.28	21.2	34.31
6	R	380	366	100	1.039	54		87.4	1.34	21.2	24.26
North: PR-180 N											
7	L	74	74<	100	1.001	19*		53.7	0.75	0.9	3.11
8	LT	559E	1116	100	0.501	8		1.8	0.10	1.5	2.05
9	R (Slp)	66	132	100	0.500	47	25	16.3	0.77	1.5	1.41
West: PR-3 W											
10	L	187	187<	100	1.000	13*		61.6	0.81	2.8	8.69
11	LT	777E	1735	100	0.448	54		0.5	0.06	0.1	6.60
12	R (Slp)	1	3	100	0.393	77	21	8.5	0.68	0.1	0.02

E "Excess" flow from the short lane of an adjacent movement added to normal flow
< Reduced capacity due to a short lane effect
* Maximum degree of saturation, or critical green periods

Table S.14 - Summary of Input and Output Data
03 Int PR-3 y PR-180
Pico PM Futuro 2017
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 110 (Optimum Cycle Time)

Lane No.	Demand Flow (veh/h) L	T	R	Tot	%HV	Adj. Basic Satf.	Eff Grn (secs) 1st	2nd	Deg Sat x	Aver. Delay (sec)	Longest Queue (m)	Shrt Lane (m)

South: PR-180 S												
1 L	1			1	0	1970	19		0.007	48.1	0	28
2 TR		113	71	184	0	1990	5	10	1.005	74.6	26	500
	1	113	71	185	0				1.005	74.5	26	
East: PR-3 E												
1 L	120			120	0	1929	13		1.000	59.3r	12	27
2 LTR		557	380	964	0	1930	54		1.039	82.5	149	500
	120	557	380	1057	0				1.039	82.0	149	
North: PR-180 N												
1 L	74			74	0	1909	19		1.000	53.7r	7	15
2 LTR		118	66	625	0	1910	47	25	0.501	9.3	10	500
	74	118	66	258	0				1.000	38.0	10	
West: PR-3 W												
1 L	187			187	0	1949	13		1.000	61.6r	19	44
2 LTR		605	1	778	0	1950	77	21	0.448	0.7	1	500
	187	605	1	793	0				1.000	15.2	19	

ALL VEHICLES	Total Flow	% HV	Cycle Time	Max X	Aver. Delay	Max Queue
	2933	0	110	1.040	39.6	149

Peak flow period = 15 minutes.

Queue values in this table are mean cycle-average queue (metres).

Note: Basic Saturation Flows (in through car units) have been adjusted for grade, lane widths, parking manoeuvres and bus stops.

r Delay, stops and queue length for this lane have been cut down to fit in the queuing space. The amount cut may not be accounted for fully in the adjacent lane performance statistics. You may wish to change the short lane to a full lane to investigate the extent of this effect.

Table S.15 - Capacity and Level of Service
03 Int PR-3 y PR-180
Pico PM Futuro 2017
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 110 (Optimum Cycle Time)

Mov ID	Mov Typ	Green Ratio 1st grn	Green Ratio 2nd grn	Time (g/C)	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Queue Cycle (vehs)	Longest Queue Aver. (m)
South: PR-180 S											
1	L	0.173			1	138<	0.007	48.1	D	0.0	0

2	T		0.073*		113	112	1.005	71.6	E	3.7	26
3	R	(Slp)	0.655	0.227	71	71	1.007	79.5	E	3.7	26
East: PR-3 E											
4	L		0.118		120	120<	1.000	59.3	E	1.7	12
5	LT		0.491*		584E	562	1.040*	75.5	E	21.2	149
6	R		0.491		380	366	1.039	87.4	F	21.2	149
North: PR-180 N											
7	L		0.173*		74	74<	1.001	53.7	D	0.9	7
8	LT		0.073		559E	1116	0.501	1.8	A	1.5	10
9	R	(Slp)	0.427	0.227	66	132	0.500	16.3	B	1.5	10
West: PR-3 W											
10	L		0.118*		187	187<	1.000	61.6	E	2.8	19
11	LT		0.491		777E	1735	0.448	0.5	A	0.1	1
12	R	(Slp)	0.700	0.191	1	3	0.393	8.5	A	0.1	1
ALL VEHICLES:					2933		1.040	39.6	D	21.2	149
INTERSECTION (persons):					4400			39.6		21.2	149

Level of Service calculations are based on
average control delay including geometric delay (HCM criteria),
independent of the current delay definition used.
For the criteria, refer to the "Level of Service" topic in the
SIDRA Output Guide or the Output section of the on-line help.

< Reduced capacity due to a short lane effect

* Maximum v/c ratio, or critical green periods

" Movement Level of service has been determined using adjacent lane v/c ratio rather than short lane v/c ratio (v/c=1.0)

E "Excess" flow from the short lane of an adjacent movement added to normal flow

Table V.21 - Intersection Summary for Optimum Cycle Time
03 Int PR-3 y PR-180
Pico PM Futuro 2017
Intersection ID: 3
Fixed-Time Signals, Cycle Time = 110 (Optimum Cycle Time)

Cycle Time (sec)	Eff. Int. Cap.	Intersn Deg. of Satn	Prac. Spare Cap.	Aver. Delay (sec)	Stop Rate	Longest Queue (veh)	Perf. Index	Cost Total $/h	Unsett
90	2686	1.092	-18	44.4	0.74	24.7	106.1	1899.1	
100	2732	1.074	-16	43.4	0.71	23.8	103.7	1864.2	
110	2821	1.040	-13	39.6	0.65	21.2	96.3	1754.7	
120	2760	1.063	-15	44.3	0.66	24.7	103.8	1853.7	
130	2785	1.053	-15	44.0	0.63	24.4	102.7	1834.9	
140	2810	1.044	-14	43.8	0.61	24.3	102.0	1814.5	
150	2794	1.050	-14	45.6	0.60	25.7	104.5	1846.2	

Site: 03_PR-3 y PR-180_FP2
D:\Documents and Settings\Carlos M. Contreras\My Documents\My Projects\Salinas Development\Revision 2007\Salinas2017.aap
Processed Jan 12, 2007 04:17:42PM

M0276, TCG, Large Office
Produced by SIDRA Intersection 3.1.061208.34

www.sidrasolutions.com