



# CITY OF GARDEN GROVE

June 30, 2020

Orange County Transportation Authority  
ATTN: Archie Tan  
Regional Modeling and Traffic Operations  
Planning Division  
P.O. Box 14184  
Orange, CA 92863-1584

**Steven R. Jones**  
Mayor

**John R. O'Neill**  
Mayor Pro Tem - District 2

**George S. Brietgam**  
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**Patrick Phat Bui**  
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**Stephanie Klopfenstein**  
Council Member - District 5

**Kim Bernice Nguyen**  
Council Member - District 6

**Subject: Local Signal Synchronization Plan Submittal as Part of the Measure M2 Eligibility Process**

Dear Mr. Tan:

The City of Garden Grove is pleased to submit its Local Signal Synchronization Plan as part of the Measure M2 eligibility process. The submittal includes the following components:

1. A completed "Local Signal Synchronization Plan Consistency Review Checklist" form establishing consistency between the Local Signal Synchronization Plan and the Regional Traffic Signal Synchronization Master Plan.
2. An updated Local Signal Synchronization Plan for Fiscal Years 2020/21 to 2022/23 including and all required elements as identified in the "Guidelines for the Preparation of Local Signal Synchronization Plans".

The City looks forward to continuing the implementation of the beneficial programs and construction projects required and made possible by Measure M2.

If you have any questions, please call me at (714) 741-5189.

Sincerely,

Dai Vu, P.E.  
City Traffic Engineer

**Enclosures**

- A. Local Signal Synchronization Plan Consistency Review Checklist
- B. Local Signal Synchronization Plan

## LOCAL SIGNAL SYNCHRONIZATION PLAN CONSISTENCY REVIEW CHECKLIST


The Local Agency Name: City of Garden Grove Plan Date: June 30, 2020

Local agencies must submit a copy of the Local Signal Synchronization Plan, a completed consistency review checklist, and any supporting documentation. Complete the table below.

Complete the table below:

Local Agency Statement	Page(s) in LSSP	Provided or N/A
1) Signal synchronization goals of the agency are consistent with those outlined as part of the Regional Traffic Signal Synchronization Master Plan.	4-5	Provided
2) Traffic signal synchronization street routes are identified, including all corridors along the regional signal synchronization network located within the local agency.	6-7	Provided
3) Traffic signal inventory for all traffic signal synchronization street routes.	8-11	Provided
4) Three-year plan separately showing costs, available funding, and phasing for capital, operations, and maintenance of signal synchronization along the traffic signal synchronization street routes and traffic signals for constrained, unconstrained and build-out scenarios.	12-15	Provided
5) Signal synchronization review, revision, and assessment of synchronization activities along the traffic signal synchronization street routes and traffic signals.	16-21	Provided

I certify that the above statements are true to the best of my knowledge.

  
 \_\_\_\_\_  
 Signature 5/20/2020  
 Date

\_\_\_\_\_  
 Dai Vu, City Traffic Engineer, City of Garden Grove  
 Printed Name, Title, & Local Agency

## **LOCAL SIGNAL SYNCHRONIZATION PLAN**

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**SECTION ONE**  
**TRAFFIC SIGNAL SYNCHRONIZATION GOALS, POLICIES AND**  
**OBJECTIVES**

The City of Garden Grove's Local Signal Synchronization Plan (LSSP) is an integral part in helping establish the City's goal to optimize the signal progression throughout the City.

The City of Garden Grove is continually changing with new developments and growing families. With these changes comes additional traffic along our corridors, by maintaining and updating our LSSP every 3 years, we can proactively accommodate this growth. The City's LLSP is consistent with OCTA's regional plan.

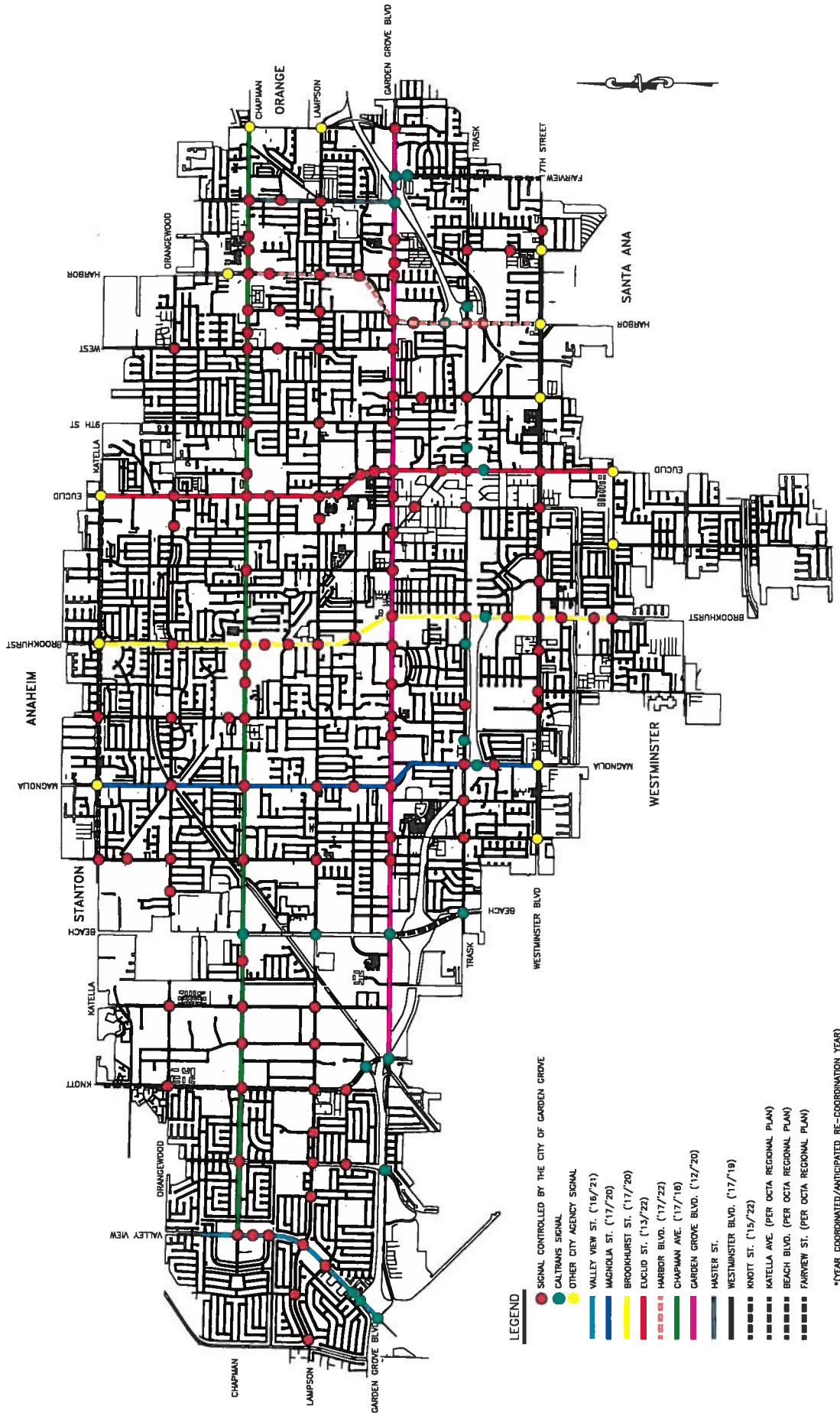
The City's Traffic Management Center (TMC) is an integral part of our signal synchronization network. The City currently uses Centracs to communicate with all our signals on our fiber optic network. The TMC also allows staff to view the 37 video cameras that were strategically placed on our busiest corridors. The video is invaluable because it enables staff to monitor entire corridors at one time and Centracs allows staff to monitor the timing and make any adjustments necessary right at the TMC.

The City currently has 111 of 132 total traffic signals connected to the fiber network. In order for the City to establish connectivity to the remaining 21 signals, certain equipment upgrades and infrastructure improvements need to be made. These upgrades and improvements are integral to keeping our network up to date and is an important part of the LSSP.

The City of Garden Grove has been a supporter and partner in multiple multi-jurisdictional signal coordination projects. These projects include Magnolia St., Brookhurst St., Garden Grove Blvd. and Valley View St. The City currently does not have the staff to be a lead partner in any of these projects, but the City is always eager to be a participant and partner in these very important signal coordination projects.

**SECTION TWO**  
**TRAFFIC SIGNAL SYNCHRONIZATION STREET ROUTES**  
**(EXISTING AND PLANNED)**

# CITY OF GARDEN GROVE LOCAL SIGNAL COORDINATION PLAN



## LEGEND

- SIGNAL CONTROLLED BY THE CITY OF GARDEN GROVE
- CALTRANS SIGNAL
- OTHER CITY AGENCY SIGNAL
- VALLEY VIEW ST. ('16/'21)
- MAGNOLIA ST. ('17/'20)
- BROOKHURST ST. ('17/'20)
- EUCLID ST. ('13/'22)
- HARBOR BLVD. ('17/'22)
- CHAPMAN AVE. ('17/'18)
- GARDEN GROVE BLVD. ('12/'20)
- HASTER ST.
- WESTMINSTER BLVD. ('17/'19)
- KNOTT ST. ('15/'22)
- KATELLA AVE. (PER OCTA REGIONAL PLAN)
- BEACH BLVD. (PER OCTA REGIONAL PLAN)
- FARVIEW ST. (PER OCTA REGIONAL PLAN)

\*YEAR COORDINATED/ANTICIPATED RE-COORDINATION YEAR

**SECTION THREE**  
**TRAFFIC SIGNAL INVENTORY**



**Traffic Synchronization Inventory**  
City of Garden Grove

Corridor	Cross Street Intersection	Cycle Length				Operations			Equipment											
		AM	MID	PM	WKND	Maintenance Responsibility	Left	Right	Other	Cabinet	Type	Software	Detection	Blake Detection	CCTV	Power Backup	Comm	Other ITS	ATMS	Status
Valley View	Chapman	130	120	130	Free	Garden Grove			P (T52 Type 1)	ASC/3	Econolite (NEM Video)	Yes	Other	N/A	Fiber	N/A	Centracs	Centracs	online	
	Fire Station	130	120	130	Free	Garden Grove			P (T52 Type 1)	ASC/2	Econolite (NEM Loops)	No	N/A	N/A	Fiber	N/A	Centracs	Centracs	online	
	Belgrave	130	120	130	Free	Garden Grove			P (T52 Type 1)	ASC/2	Econolite (NEM Loops)	No	N/A	N/A	Fiber	N/A	Centracs	Centracs	online	
	Lampson	130	120	130	Free	Garden Grove			P (T52 Type 1)	ASC/2	Econolite (NEM Loops)	No	Other	N/A	Fiber	N/A	Centracs	Centracs	online	
	Cenulean	130	120	130	Free	Caltrans			P (T52 Type 1)	ASC/2	Econolite (NEM Loops)	No	Other	N/A	Fiber	N/A	Centracs	Centracs	online	
	Tiffany	120	Free	130	Free	Caltrans			Other	170/170E	Other	No	N/A	N/A	Other	N/A	N/A	N/A	N/A	N/A
	WB 22 Off Ramp	Unkwn	Unkwn	Unkwn	Unkwn	Caltrans			Other	170/170E	Other	No	N/A	N/A	Other	N/A	N/A	N/A	N/A	N/A
	Garden Grove	Unkwn	Unkwn	Unkwn	Unkwn	Caltrans			Other	170/170E	Other	No	N/A	N/A	Other	N/A	N/A	N/A	N/A	N/A
	Orangewood	140	140	140	140	Garden Grove			P (T52 Type 1)	Cobalt	Econolite (NEM Video)	Yes	Other	N/A	Fiber	N/A	Centracs	Centracs	online	
	Chapman	140	140	140	140	Garden Grove			P (T52 Type 1)	Cobalt	Econolite (NEM Video)	Yes	Other	N/A	Fiber	N/A	Centracs	Centracs	online	
Brookhurst	Pavillion	140	140	140	140	Garden Grove			P (T52 Type 1)	Cobalt	Econolite (NEM Video)	Yes	N/A	Fiber	N/A	Centracs	Centracs	online		
	Bixby	140	140	140	140	Garden Grove			P (T52 Type 1)	Cobalt	Econolite (NEM Video)	Yes	N/A	Fiber	N/A	Centracs	Centracs	online		
	Lampson	140	140	140	140	Garden Grove			P (T52 Type 1)	Cobalt	Econolite (NEM Video)	Yes	Other	N/A	Fiber	N/A	Centracs	Centracs	online	
	Stanford	140	140	140	140	Garden Grove			P (T52 Type 1)	Cobalt	Econolite (NEM Video)	Yes	N/A	Fiber	N/A	Centracs	Centracs	online		
	Garden Grove	140	140	140	140	Garden Grove			P (T52 Type 1)	Cobalt	Econolite (NEM Video)	Yes	Other	N/A	Fiber	N/A	Centracs	Centracs	online	
	Trask	120	120	120	120	Garden Grove			P (T52 Type 1)	Cobalt	Econolite (NEM Video)	Yes	Other	N/A	Fiber	N/A	Centracs	Centracs	online	
	EB 22 On Ramp	140	140	140	140	Caltrans			Other	2070	Other	No	N/A	N/A	Other	N/A	N/A	N/A	N/A	
	Woodbury	140	140	140	140	Garden Grove			P (T52 Type 1)	ASC/3	Econolite (NEM Video)	Yes	N/A	N/A	Fiber	N/A	Centracs	Centracs	online	
	Westminster	140	140	140	140	Garden Grove			P (T52 Type 1)	ASC/3	Econolite (NEM Video)	Yes	Other	N/A	Fiber	N/A	Centracs	Centracs	online	
	15th/ Reading	140	140	140	140	Garden Grove			P (T52 Type 1)	ASC/3	Econolite (NEM Video)	Yes	N/A	N/A	Fiber	N/A	Centracs	Centracs	online	
Euclid	11th Street	140	140	140	140	Garden Grove			P (T52 Type 1)	ASC/3	Econolite (NEM Video)	Yes	N/A	N/A	Fiber	N/A	Centracs	Centracs	online	
	Hazard	140	140	140	140	Garden Grove			P (T52 Type 1)	ASC/3	Econolite (NEM Video)	Yes	N/A	N/A	Fiber	N/A	Centracs	Centracs	online	
	Orangewood	120	120	120	120	Garden Grove			P (T52 Type 1)	ASC/3	Econolite (NEM Loops)	No	Other	N/A	Fiber	N/A	Centracs	Centracs	online	
	Chapman	130	130	130	130	Garden Grove			P (T52 Type 1)	Cobalt	Econolite (NEM Video)	Yes	Other	N/A	Fiber	N/A	Centracs	Centracs	online	
	Marian	120	120	120	120	Garden Grove			Other	ASC/3	Econolite (NEM Loops)	No	N/A	Fiber	N/A	Centracs	Centracs	online		
	Lampson	120	120	120	120	Garden Grove			P (T52 Type 1)	ASC/3	Econolite (NEM Loops)	No	Other	N/A	Fiber	N/A	Centracs	Centracs	online	
	Main/College	120	120	120	120	Garden Grove			P (T52 Type 1)	ASC/3	Econolite (NEM Loops)	No	N/A	Fiber	N/A	Centracs	Centracs	online		
	Stanford	120	120	120	120	Garden Grove			P (T52 Type 1)	ASC/3	Econolite (NEM Loops)	No	N/A	Fiber	N/A	Centracs	Centracs	online		
	Acacia	120	120	120	120	Garden Grove			P (T52 Type 1)	ASC/3	Econolite (NEM Loops)	No	Other	N/A	Fiber	N/A	Centracs	Centracs	online	
	Garden Grove	120	120	120	120	Garden Grove			P (T52 Type 1)	ASC/3	Econolite (NEM Video)	Yes	Other	N/A	Fiber	N/A	Centracs	Centracs	online	
Harbor	Century	120	120	120	120	Garden Grove			P (T52 Type 1)	ASC/3	Econolite (NEM Loops)	No	Other	N/A	Fiber	N/A	Centracs	Centracs	online	
	Trask	120	120	120	120	Garden Grove			Other	ASC/3	Econolite (NEM Loops)	No	Other	N/A	Fiber	N/A	Centracs	Centracs	online	
	SR-22	120	120	120	120	Caltrans			Other	2070	Other	No	N/A	Other	N/A	N/A	N/A	N/A	N/A	
	Westminster	140	140	140	140	Garden Grove			P (T52 Type 1)	ASC/3	Econolite (NEM Loops)	No	Other	N/A	Fiber	N/A	Centracs	Centracs	online	
	Chapman	130	130	130	130	Garden Grove			P (T52 Type 1)	ASC/3	Econolite (NEM Video)	Yes	Other	N/A	Fiber	N/A	Centracs	Centracs	online	
	Resort Way	130	130	130	130	Garden Grove			P (T52 Type 1)	ASC/3	Econolite (NEM Video)	Yes	N/A	Fiber	N/A	Centracs	Centracs	online		
	Twintree (HAWK)	130	130	130	130	Garden Grove			P (T52 Type 1)	Cobalt	Econolite (NEM Video)	Yes	N/A	Fiber	N/A	Centracs	Centracs	online		
	Lampson	130	130	130	130	Garden Grove			P (T52 Type 1)	ASC/3	Econolite (NEM Video)	Yes	Other	N/A	Fiber	N/A	Centracs	Centracs	online	
	Great Wolf	130	130	130	130	Garden Grove			P (T52 Type 1)	Cobalt	Econolite (NEM Video)	Yes	N/A	Fiber	N/A	Centracs	Centracs	online		
	Palm	130	130	130	130	Garden Grove			P (T52 Type 1)	ASC/3	Econolite (NEM Video)	Yes	N/A	Fiber	N/A	Centracs	Centracs	online		
Garden Grove	Garden Grove	130	130	130	130	Garden Grove			P (T52 Type 1)	ASC/3	Econolite (NEM Video)	Yes	N/A	Fiber	N/A	Centracs	Centracs	online		
	Albertsons	130	130	130	130	Garden Grove			P (T52 Type 1)	ASC/3	Econolite (NEM Video)	Yes	Other	N/A	Fiber	N/A	Centracs	Centracs	online	

Corridor	Intersection	Cycle Length				Operations				Equipment										
		AM	MID	PM	WKND	Responsibility	Left	Right	Other	Cabinet	Type	Software	Detection	Detection	CTTV	Backup	Comm	Other ITS	ATMS	Status
Harbor	SR-22/Banner	120	120	140	120	Caltrans				Other	170/170E	Other	Loops	No	N/A	N/A	Other	N/A	N/A	N/A
	Trask	130	130	130	130	Garden Grove				P (TS2 Type 1)	ASC/3	Econolite (NEM Video)	Loops Video	Yes	Other	N/A	Fiber	CMS	Centracs	online
Chapman	Cardinal	130	130	130	130	Garden Grove				P (TS2 Type 1)	ASC/3	Econolite (NEM Video)	Loops Video	Yes	N/A	N/A	Fiber	N/A	Centracs	online
	Valley View	130	120	130	120	Garden Grove				P (TS2 Type 1)	ASC/3	Econolite (NEM Video)	Loops Video	Yes	Other	N/A	Fiber	N/A	Centracs	online
	Springdale	130	110	130	110	Garden Grove				P (TS2 Type 1)	ASC/3	Econolite (NEM Video)	Loops Video	Yes	N/A	N/A	Fiber	N/A	Centracs	online
	Knott	130	110	130	110	Garden Grove				P (TS2 Type 1)	Cobalt	Econolite (NEM Video)	Loops Video	Yes	Other	N/A	Fiber	N/A	Centracs	online
	Monarch	130	110	130	110	Garden Grove				P (TS2 Type 1)	Cobalt	Econolite (NEM Video)	Loops Video	Yes	N/A	N/A	Fiber	N/A	Centracs	online
	Western	130	110	130	110	Garden Grove				P (TS2 Type 1)	Cobalt	Econolite (NEM Video)	Loops Video	Yes	N/A	N/A	Fiber	N/A	Centracs	online
	Ped Signal	65	55	65	55	Garden Grove				Other	ASC/3	Econolite (NEM Loops)	Loops	No	N/A	N/A	Fiber	N/A	Centracs	online
	Beach	140	120	140	120	Garden Grove				P (TS2 Type 1)	170/170E	Other	Loops	No	N/A	N/A	Other	N/A	N/A	N/A
	Nearing	130	130	130	130	Orange County				Other	other	Econolite (NEM Loops)	Loops	No	N/A	N/A	Fiber	N/A	Centracs	online
	Dale	130	130	130	130	Garden Grove				P (TS2 Type 1)	ASC/3	Econolite (NEM Video)	Loops Video	Yes	N/A	N/A	Fiber	N/A	Centracs	online
	Magnolia	140	140	140	140	Garden Grove				P (TS2 Type 1)	Cobalt	Econolite (NEM Video)	Loops Video	Yes	Other	N/A	Fiber	N/A	Centracs	online
	Gilbert	130	130	130	130	Garden Grove				P (TS2 Type 1)	Cobalt	Econolite (NEM Video)	Loops Video	Yes	N/A	N/A	Fiber	N/A	Centracs	online
	Promenade	130	130	130	130	Garden Grove				P (TS2 Type 1)	ASC/3	Econolite (NEM Video)	Loops Video	Yes	N/A	N/A	Fiber	N/A	Centracs	online
	Covey	130	130	130	130	Garden Grove				P (TS2 Type 1)	ASC/3	Econolite (NEM Video)	Loops Video	Yes	N/A	N/A	Fiber	N/A	Centracs	online
	Brookhurst	140	140	140	140	Garden Grove				P (TS2 Type 1)	Cobalt	Econolite (NEM Video)	Loops Video	Yes	Other	N/A	Fiber	N/A	Centracs	online
	Nutwood	130	130	130	130	Garden Grove				P (TS2 Type 1)	ASC/3	Econolite (NEM Video)	Loops Video	Yes	N/A	N/A	Fiber	N/A	Centracs	online
	Euclid	130	130	130	130	Garden Grove				P (TS2 Type 1)	Cobalt	Econolite (NEM Video)	Loops Video	Yes	Other	N/A	Fiber	N/A	Centracs	online
	Delia	130	130	130	130	Garden Grove				P (TS2 Type 1)	ASC/3	Econolite (NEM Video)	Loops Video	Yes	N/A	N/A	Fiber	N/A	Centracs	online
	9th Street	130	130	130	130	Garden Grove				P (TS2 Type 1)	ASC/3	Econolite (NEM Video)	Loops Video	Yes	N/A	N/A	Fiber	N/A	Centracs	online
	West	130	130	130	130	Garden Grove				P (TS2 Type 1)	Cobalt	Econolite (NEM Video)	Loops Video	Yes	Other	N/A	Fiber	N/A	Centracs	online
	Buaro	130	130	130	130	Garden Grove				P (TS2 Type 1)	ASC/3	Econolite (NEM Video)	Loops Video	Yes	N/A	N/A	Fiber	N/A	Centracs	online
	Harbor	130	130	130	130	Garden Grove				P (TS2 Type 1)	ASC/3	Econolite (NEM Video)	Loops Video	Yes	Other	N/A	Fiber	N/A	Centracs	online
	Willowbrook	130	130	130	130	Garden Grove				P (TS2 Type 1)	ASC/3	Econolite (NEM Video)	Loops Video	Yes	N/A	N/A	Fiber	N/A	Centracs	online
	Somerset	130	130	130	130	Garden Grove				P (TS2 Type 1)	ASC/3	Econolite (NEM Video)	Loops Video	Yes	N/A	N/A	Fiber	N/A	Centracs	online
	Haester	130	130	130	130	Garden Grove				P (TS2 Type 1)	ASC/3	Econolite (NEM Video)	Loops Video	Yes	N/A	N/A	Fiber	N/A	Centracs	online
	Knott	Unkwn	Unkwn	Unkwn	Unkwn	Caltrans				Other	ASC/3	Econolite (NEM Loops)	Loops	No	N/A	N/A	Other	N/A	N/A	N/A
Garden Grove	Beach	Unkwn	Unkwn	Unkwn	Unkwn	Caltrans				Other	ASC/3	Econolite (NEM Loops)	Loops	No	N/A	N/A	Other	N/A	N/A	N/A
	Dale	120	120	120	120	Garden Grove				P (TS2 Type 1)	ASC/3	Econolite (NEM Loops)	Loops	No	Other	N/A	Fiber	N/A	Centracs	online
	Newland	120	120	120	120	Garden Grove				P (TS2 Type 1)	ASC/3	Econolite (NEM Loops)	Loops	No	N/A	N/A	Fiber	N/A	Centracs	online
	Magnolia	140	140	140	140	Garden Grove				P (TS2 Type 1)	Cobalt	Econolite (NEM Loops)	Loops	No	N/A	N/A	Fiber	N/A	Centracs	online
	Casa Linda	120	120	120	120	Garden Grove				Other	ASC/3	Econolite (NEM Loops)	Loops	No	Other	N/A	Fiber	N/A	Centracs	online
	Gilbert	120	120	120	120	Garden Grove				P (TS2 Type 1)	ASC/3	Econolite (NEM Loops)	Loops	No	N/A	N/A	Fiber	N/A	Centracs	online
	Galway	120	120	120	120	Garden Grove				Other	ASC/3	Econolite (NEM Loops)	Loops	No	N/A	N/A	Fiber	N/A	Centracs	online
	Brookhurst Way	120	120	120	120	Garden Grove				P (TS2 Type 1)	ASC/3	Econolite (NEM Loops)	Loops	No	N/A	N/A	Fiber	N/A	Centracs	online
	Brookhurst St	140	140	140	140	Garden Grove				P (TS2 Type 1)	Cobalt	Econolite (NEM Loops)	Loops	Yes	Other	N/A	Fiber	N/A	Centracs	online
	Nutwood	120	120	120	120	Garden Grove				P (TS2 Type 1)	ASC/3	Econolite (NEM Loops)	Loops	No	Other	N/A	Fiber	N/A	Centracs	online
	Nelson/ Century	120	120	120	120	Garden Grove				P (TS2 Type 1)	ASC/3	Econolite (NEM Loops)	Loops	No	Other	N/A	Fiber	N/A	Centracs	online
	Main	120	120	120	120	Garden Grove				Other	ASC/3	Econolite (NEM Loops)	Loops	No	Other	N/A	Fiber	N/A	Centracs	online
	Euclid	120	120	120	120	Garden Grove				Other	ASC/3	Econolite (NEM Loops)	Loops	No	Other	N/A	Fiber	N/A	Centracs	online
	9th Street	120	120	120	120	Garden Grove				P (TS2 Type 1)	ASC/3	Econolite (NEM Video)	Loops Video	Yes	Other	N/A	Fiber	N/A	Centracs	online
	Newhope	120	120	120	120	Garden Grove				Other	ASC/3	Econolite (NEM Loops)	Loops	No	Other	N/A	Fiber	N/A	Centracs	online
	West	120	120	120	120	Garden Grove				Other	ASC/3	Econolite (NEM Loops)	Loops	No	N/A	N/A	Fiber	N/A	Centracs	online
	Harbor	130	130	130	130	Garden Grove				P (TS2 Type 1)	ASC/3	Econolite (NEM Loops)	Loops	No	Other	N/A	Fiber	N/A	Centracs	online
	Palm	120	120	120	120	Garden Grove				P (TS2 Type 1)	ASC/3	Econolite (NEM Loops)	Loops	No	N/A	N/A	Fiber	N/A	Centracs	online

Corridor	Intersection	Cycle Length					Operations					Equipment					Status		
		AM	MID	PM	WKND	Responsibility	Left	Right	Other	Cabinet	Type	Software	Detection	Detection	Backup	Comm		Other ITS	ATMS
Garden Grove	Ped Signal	60	60	60	60	Garden Grove			Other	ASC/3	Econolite (NEM)	Loops	No	N/A	Fiber	N/A	Centracs	online	
	Partridge	Free	Free	Free	Free	Garden Grove			P (TS2 Type 1)	ASC/3	Econolite (NEM)	Loops	No	N/A	Fiber	N/A	Centracs	online	
	Haster	Unkwn	Unkwn	Unkwn	Unkwn	Caltrans			Other	170/170E	Other	Loops	No	N/A	Fiber	N/A	Centracs	online	
	Fairview	Unkwn	Unkwn	Unkwn	Unkwn	Caltrans			Other	170/170E	Other	Loops	No	N/A	Fiber	N/A	Centracs	online	
Magnolia	Lewis	Free	Free	Free	Free	Garden Grove			Other	ASC/2	Econolite (NEM)	Loops	No	N/A	Other	N/A	Centracs	online	
	Orangewood	140	140	140	140	Garden Grove			P (TS2 Type 1)	Cobalt	Econolite (NEM)	Video	Yes	N/A	Fiber	N/A	Centracs	online	
	Chapman	140	140	140	140	Garden Grove			P (TS2 Type 1)	Cobalt	Econolite (NEM)	Video	Yes	Other	Fiber	N/A	Centracs	online	
	Lampson	140	140	140	140	Garden Grove			P (TS2 Type 1)	Cobalt	Econolite (NEM)	Video	Yes	Other	Fiber	N/A	Centracs	online	
Trask	Stanford	140	140	140	140	Garden Grove			P (TS2 Type 1)	Cobalt	Econolite (NEM)	Video	Yes	Other	Fiber	N/A	Centracs	online	
	Garden Grove	140	140	140	140	Garden Grove			P (TS2 Type 1)	Cobalt	Econolite (NEM)	Video	Yes	N/A	Fiber	N/A	Centracs	online	
	Trask	140	140	140	140	Garden Grove			P (TS2 Type 1)	Cobalt	Econolite (NEM)	Video	Yes	Other	Fiber	N/A	Centracs	online	
	EB 22 Ramp	120	120	120	120	Caltrans			Other	170/170E	Econolite (NEM)	Other	No	N/A	Other	N/A	Centracs	online	
Westminster	Mays	140	140	140	140	Garden Grove			P (TS2 Type 1)	Cobalt	Econolite (NEM)	Video	Yes	N/A	Fiber	N/A	Centracs	online	
	Beach	130	130	130	130	Caltrans			Other	2070	Other	Loops	No	N/A	Fiber	N/A	Centracs	online	
	Newland	120	Free	120	Free	Caltrans			Other	ASC/3	Econolite (NEM)	Loops	No	N/A	Fiber	N/A	Centracs	online	
	Yockey	120	Free	120	Free	Garden Grove			P (TS2 Type 1)	ASC/3	Econolite (NEM)	Loops	No	N/A	Fiber	N/A	Centracs	online	
Katella	Magnolia	140	140	140	140	Garden Grove			P (TS2 Type 1)	Cobalt	Econolite (NEM)	Loops	No	N/A	Fiber	N/A	Centracs	online	
	22 Fwy Off Ramp	120	Unkwn	120	Unkwn	Caltrans			Other	170/170E	Other	Loops	No	N/A	Other	N/A	Centracs	online	
	Ped Signal	120	Free	120	Free	Garden Grove			Other	ASC/3	Econolite (NEM)	Loops	No	N/A	Fiber	N/A	Centracs	online	
	22 on/off Ramps	120	Unkwn	120	Unkwn	Caltrans			Other	170/170E	Other	Loops	No	N/A	Other	N/A	Centracs	online	
Fairview	Clinton	120	Free	120	Free	Garden Grove			P (TS2 Type 1)	ASC/3	Econolite (NEM)	Loops	No	N/A	Other	N/A	Centracs	online	
	Deodara	140	140	140	140	Garden Grove			P (TS2 Type 1)	ASC/3	Econolite (NEM)	Video	Yes	Other	Fiber	N/A	Centracs	online	
	Bushard	140	140	140	140	Garden Grove			P (TS2 Type 1)	ASC/3	Econolite (NEM)	Video	Yes	N/A	Fiber	N/A	Centracs	online	
	Kerry	140	140	140	140	Garden Grove			P (TS2 Type 1)	ASC/3	Econolite (NEM)	Video	Yes	N/A	Fiber	N/A	Centracs	online	
Knott	Brookhurst St	140	140	140	140	Garden Grove			P (TS2 Type 1)	Cobalt	Econolite (NEM)	Video	Yes	Other	Fiber	N/A	Centracs	online	
	Bowen	140	140	140	140	Garden Grove			P (TS2 Type 1)	ASC/3	Econolite (NEM)	Video	Yes	N/A	Fiber	N/A	Centracs	online	
	Taft	140	140	140	140	Garden Grove			P (TS2 Type 1)	ASC/3	Econolite (NEM)	Video	Yes	N/A	Fiber	N/A	Centracs	online	
	Euclid	140	140	140	140	Garden Grove			P (TS2 Type 1)	ASC/3	Econolite (NEM)	Video	Yes	Other	Fiber	N/A	Centracs	online	
Fairview	Orangewood	130	110	130	110	Garden Grove			P (TS2 Type 1)	ASC/3	Econolite (NEM)	Loops	No	N/A	Fiber	N/A	Centracs	online	
	Chapman	130	110	130	110	Garden Grove			P (TS2 Type 1)	Cobalt	Econolite (NEM)	Video	Yes	N/A	Fiber	N/A	Centracs	online	
	Lampson	130	110	130	110	Garden Grove			P (TS2 Type 1)	ASC/3	Econolite (NEM)	Video	Yes	Other	Fiber	N/A	Centracs	online	
	Stanford	65	110	130	110	Garden Grove			P (TS2 Type 1)	ASC/3	Econolite (NEM)	Video	Yes	N/A	Fiber	N/A	Centracs	online	
Fairview	Acacia	Unkwn	Unkwn	Unkwn	Unkwn	Caltrans			Other	170/170E	Other	Loops	No	N/A	Other	N/A	Centracs	N/A	
	Garden Grove	Unkwn	Unkwn	Unkwn	Unkwn	Caltrans			Other	170/170E	Other	Loops	No	N/A	Other	N/A	Centracs	N/A	
	Dale	120	120	120	120	Garden Grove			P (TS2 Type 1)	ASC/3	Econolite (NEM)	Loops	No	N/A	BBS	N/A	Centracs	N/A	
	Gilbert	120	120	120	120	Garden Grove			P (TS2 Type 1)	ASC/3	Econolite (NEM)	Loops	No	N/A	BBS	N/A	Centracs	N/A	
Fairview	22 Fwy On Ramp	Unkwn	Unkwn	Unkwn	Unkwn	Caltrans			Other	170/170E	Other	Loops	No	N/A	Other	N/A	Centracs	N/A	
	22 Fwy Off Ramp	Unkwn	Unkwn	Unkwn	Unkwn	Caltrans			Other	170/170E	Other	Loops	No	N/A	Other	N/A	Centracs	N/A	

**SECTION FOUR**  
**TRAFFIC SIGNAL SYNCHRONIZATION SYSTEM AND THREE**  
**YEAR PLAN**

**3-YEAR OUTLOOK  
TRAFFIC SIGNAL SYNCHRONIZATION**

**Funding Needs for Synchronized Operation (Constrained)**

**Reporting Jurisdiction Expenditures: City of Garden Grove**

**Type of Traffic Signal Synchronization Expenditures in Year of Expenditure  
Dollars**

**MAINTENANCE**

PROJECT	FY20/21	FY21/22	FY22/23	TOTAL
Communication and Software Maintenance	35,000	35,000	35,000	105,000
Subtotal Maintenance	35,000	35,000	35,000	105,000

**CONSTRUCTION**

PROJECT	FY20/21	FY21/22	FY22/23	TOTAL
Citywide Signal Synchronization	2,020,000	55,000	55,000	2,130,000
Subtotal Construction	2,020,000	55,000	55,000	2,130,000

**OPERATIONS**

PROJECT	FY20/21	FY21/22	FY22/23	TOTAL
Citywide Signal Timing Maintenance	40,000	40,000	40,000	120,000
Subtotal Operations	40,000	40,000	40,000	120,000
<b>Grand Total</b>	<b>2,095,000</b>	<b>130,000</b>	<b>130,000</b>	<b>2,355,000</b>

## 3-YEAR OUTLOOK TRAFFIC SIGNAL SYNCHRONIZATION

### Funding Needs for Synchronized Operation (Unconstrained)

Reporting Jurisdiction Expenditures: City of Garden Grove

Type of Traffic Signal Synchronization Expenditures in Year of Expenditure  
Dollars

#### MAINTENANCE

PROJECT	FY20/21	FY21/22	FY22/23	TOTAL
Communication and Software Maintenance	65,000	65,000	65,000	195,000
Subtotal Maintenance	65,000	65,000	65,000	195,000

#### CONSTRUCTION

PROJECT	FY20/21	FY21/22	FY22/23	TOTAL
Citywide Signal Synchronization	2,100,000	1,000,000	700,000	3,800,000
Upgrade timing and replace controllers, cabinets, switches, detection, fiber splicing and TMC upgrades.				
Subtotal Construction	2,100,000	1,000,000	700,000	3,800,000

#### OPERATIONS

PROJECT	FY20/21	FY21/22	FY22/23	TOTAL
Citywide Signal Timing Maintenance	80,000	80,000	80,000	240,000
Subtotal Operations	80,000	80,000	80,000	240,000
<b>Grand Total</b>	<b>2,245,000</b>	<b>1,145,000</b>	<b>845,000</b>	<b>4,235,000</b>

## LSSP IMPLEMENTATION – CANDIDATE SIGNAL SYNCHORNIZATION PROJECTS WITH ESTIMATED COSTS

**Reporting Jurisdiction Expenditures: City of Garden Grove**

The City has secured funding for Garden Grove Blvd. and Valley View Street. These 2 projects will be implemented in FY 20/21. Candidate corridors for future synchronization projects are Euclid St., Knott St. and Harbor Blvd. The City is planning to pursue grant funding for these two corridors in FY 21/22 to FY 22/23. The scope of the projects include upgrade signal timing, signal cabinets, fiber optic switches, video detection, CCTV cameras, as well as upgrade equipment in the Traffic Management Center (TMC).

CORRIDOR	IMPROVEMENT SUMMARY	ESTIMATED COST
Garden Grove Blvd.	Upgrade timing, cabinets, switches, detection, CCTV cameras, and TMC upgrades.	\$2,275,000
Valley View St.	Upgrade timing, cabinets, switches, detection, CCTV cameras, and TMC upgrades.	\$567,000
Euclid St.	Upgrade timing, cabinets, switches, detection, CCTV cameras, and TMC upgrades.	\$700,000
Knott St.	Upgrade timing, cabinets, switches, detection, CCTV cameras, and TMC upgrades.	\$280,000
Harbor Blvd.	Upgrade timing, cabinets, switches, detection, CCTV cameras, and TMC upgrades.	\$560,000
	Total Estimated Cost	\$4,382,000

**SECTION FIVE**

**TRAFFIC SIGNAL SYNCHRONIZATION ASSESSMENT REVIEW  
AND REVISE, AS MAY BE NECESSARY, THE TIMING OF  
TRAFFIC SIGNALS**

**Significant timing plan updates and projects completed FY  
2020/2021 through 2022/2023**



The City of Garden Grove in conjunction with several other government agencies and consultants completed the synchronization of 5 corridors since 2017. The corridors completed are shown in the Table on Page 19.

Optimizing progression along our major corridors is a priority in the City of Garden Grove. Reducing stops and travel times results reduced emissions, increase in safety, and overall driver satisfaction. As part of the synchronization projects, the selected consultant was required to perform before and after studies which included several measures of effectiveness. All the corridors showed a significant decrease in travel times as well as decrease in stops per mile. Speeds along Harbor Blvd. were increased by 33% and stops per mile were decreased by 34%. Speeds along Chapman Ave. were increased by 6% and stops per mile were decreased by 25%. Speeds along Westminster Ave. were increased by 5% and stops per mile were decreased by 7%. The Corridor Synchronization Performance Index (CSPI) were improved for all corridors. The CSPI tier for Harbor Blvd. was decreased from tier 4 to tier 3. The CSPI scores for Chapman Ave. was increased by 11 points while the CSPI score of Westminster Avenue was increased by approximately 9 points.

As part of the Project P funded projects, consultants are required to maintain the synchronization for 3 years. This has been a useful tool in keeping our timing plans current. City staff also periodically drives the corridors to determine any problem areas in the synchronization that may have arisen. The City also monitors the progression along the corridors through the Centrac's central system and CCTV Cameras in the Traffic Management Center.

It is paramount to the City that the corridors in the Local Signal Coordination Plan be updated on a timely basis. The City understands that driving patterns, new developments, and population increases require that the synchronization on our corridors be kept up to date. The City of Garden Grove will be an eager participant in all multi-jurisdictional synchronization projects. However, because of staffing issues, the City currently cannot take the lead on any of the multi-jurisdictional synchronization project.

## TRAFFIC SIGNAL SYNCHRONIZATION ASSESSMENT, REVIEW, AND REVISION

LOCAL AGENCY CORRIDOR	TIMING REVIEWED (Past 3 Years)	DID TIMING REQUIRE AN UPDATE?	TIMING UPDATE RESULTS (if available)									
			Speed Travel		Stops per mile		Greens per red		CSPI Score (Tier)			
			Before	After	Before	After	Before	After	Before	After		
Harbor Blvd. <sup>1</sup>	2017	Yes	18.1	24.1	1.91	1.26	3.5	3.8	(4)	(3)		
Chapman Ave. <sup>1</sup>	2018	Yes	20.2	21.4	1.20	0.90	2.8	3.7	66.2	77.2		
Westminster Ave. <sup>1</sup>	2019	Yes	22.8	24.0	1.16	1.08	2.7	3.5	69.48 (3)	78.09 (3)		
Brookhurst St. <sup>1</sup>	2020	Yes	Before studies completed. After studies to be conducted in August of 2020.									
Magnolia St. <sup>1</sup>	2020	Yes	Before studies completed. After studies to be conducted in September of 2020.									

<sup>1</sup> Project P

## SIGNAL TIMING REVISIONS

PROJECT CORRIDOR	CROSS STREET	CYCLE LENGTH (Before/After)
Harbor Blvd.	Entire Corridor	Before = 120 / After = 130
Chapman Ave.	Entire Corridor	Before = 120 / After = 130
Westminster Ave.	Entire Corridor	Before= 120 / After = 140
Brookhurst St.	Entire Corridor	Before= 120 / After = 140
Magnolia St.	Entire Corridor	Before= 120 / After = 140

## **CSPI MAP**

In 2009, OCTA identified a new parameter to gauge the signal synchronization performance of arterial corridors. The parameter is called Corridor Synchronization Performance Index (CSPI). The CSPI is categorized into five levels: Tier I through Tier V. Tier I indicates very good signal synchronization conditions while Tier V indicates that the corridor would greatly benefit from improvements to signal synchronization. Attached is the 2017 Corridor Operational Performance map for Garden Grove. The map shows the CSPI of the City's arterial corridors which helps City to evaluate traffic mobility and identify candidate corridors for future signal synchronization projects.



# 2017 Corridor Operational Performance Garden Grove

