EXECUTIVE SUMMARY

The Rosecrans Corridor Mobility Study was initiated in May 2009. The goal of the study was to identify physical improvements within the four (4) mile corridor that improve access and circulation to all modes of transportation. To complete this task, the corridor was first divided into four areas:

Area 1: North Bay-Midway (Camino del Rio from I-8 connectors to Sports Arena and Rosecrans Pacific Highway to Lytton Street)

Area 2: Liberty Station/NTC (Lytton Street to Nimitz Boulevard)

Area 3: Point Loma Village (Lytton Street to Talbot Street)

Area 4: Peninsula (Talbot Street to Naval Submarine Base)

As each of these four areas had their own characteristics and transportation issues, dividing the corridor into sections allowed the community and project team to focus on the specific mobility concerns for each area. In doing so, the Project Team and Project Working Group developed study area specific solutions. Meeting with community members from each of the study areas, conducting walk audits by study area and conducting workshops that focus in each area resulted in mobility solutions that address the transportation concerns for each area. The issues identified for the corridor were widely varied, ranging from improving traffic flow to slowing down speeding traffic.

In Area 1 (North Bay-Old Town), concerns from the community focused on improving the traffic flow and improving access for all modes through the most congested portion of the corridor. High level traffic simulation software and modeling were used to evaluate the flow of traffic and identify improvements that would address these mobility concerns. In Areas 3 and 4 (Peninsula), concerns about mobility focused around pedestrian access and maintaining existing roadway capacity. Improvements through this area centered on improving the pedestrian and bicycle environment, providing opportunity for streetscape and/or landscape and improving operating conditions at critical intersections.

The main components of the Mobility Study included Community Outreach, Technical Analysis, Physical Constraints Analysis and Feasibility, Preliminary Design and Cost Estimating and Implementation. Over a nine month period, the Project Team, Project Working Group and Community worked together to establish this comprehensive plan. The sections of the report outline the analysis completed, the community outreach process undertaken and the recommendations of this Mobility Study.

ROLE OF COMMUNITY INPUT IN THE MOBILITY STUDY

To gain an understanding of the issues within the community a total of three workshops were conducted over a four month period. A detailed discussion of the various community outreach events, notification, media coordination and project website is provided in Chapter 6 of this study.

The workshops focused on understanding the issues and developing solutions. Although this project evaluated improvements to mobility, a number of comments from the community raised concerns over existing land uses and development of future properties in the study area. Although valuable, and documents in this report, the land use comments were not directly addressed in this study.

Workshop 1

Comments received during the first workshop were used to establish key areas of concern in conjunction with the technical analysis conducted for the corridor. Input received during the first workshop is provided in Table ES-1. Included in Table ES-1 is a reference to the improvement identified in this study that addresses this concern. As shown in Table ES-1, a number of the concerns raised during the first workshop are address in this Mobility Study.

Table ES-1
Summary of Concerns Raised at Workshop #1

Concern Raised	Addressed in Mobility Study?
AREA 1 – I-8 to Lytton Street	
Pedestrian and bicyclist safety	Improvement B: Sidewalks & Bicycle Lanes on Rosecrans (Old Town Transit Center to Sports Arena)
Traffic and circulation around Old Town	Outside of Study Area
Odd geometry at Rosecrans /Midway and Rosecrans / Sports Arena	Improvement C: Extension of Sports Arena & Improvement D: Rosecrans & Midway Improvements
Poor signage for Interstate 5	Improvement C: Extension of Sports Arena
Lack of bike lanes	Improvement B: Sidewalks & Bicycle Lanes on Rosecrans (Old Town Transit Center to Sports Arena) & Improvement E: Bicycle Lanes on Rosecrans (Midway to Lytton)

Table ES-1 (continued)
Summary of Concerns Raised at Workshop #1

Concern Raised	Addressed in Mobility Study?
AREA 2 –Lytton Street to Nimitz Boulevard	
Access from side streets	Improvement F: Modified Signals at Roosevelt & Womble
Traffic congestion during Rock Church services, lunch hours, rush hours, and Sundays	Met with Rock Church and conveyed circulation issues with staff.
Speed	Improvement G: Intermittent medians with landscape & Improvement I: Side street curb extensions to control turning speed.
Traffic blocks emergency access	Improvement H: Widen bicycle lanes (Lytton to Nimitz); provides additional room for vehicles to pull over.
Poor visibility / line of sight	Recommended that landscape in median and along corridor be pruned to improve visibility. Low branches on trees block view from side streets. Future median landscape includes low vegetation.

Concern Raised	Addressed in Mobility Study?
AREA 3 –	
Condition of road (pot holes)	
Emergency access and bike safety	Improvement K: Stripe bicycle lanes through Area 3; provides room for vehicles to pull over and a dedicated lane for bicycles.
Policy/Trust (city council members)	Not addressed.
The navy surge	Recommended off-site parking facility and future consideration for Navy Shuttle service. US Navy participated in monthly PWG meetings and is aware of this community concern.
Close/relocate Rock Church	Land use issue – not addressed in study

Concern Raised	Addressed in Mobility Study?
AREA 4 –	
Speed: slower traffic Talbot to Kellogg	Improvements R through U: Traffic Calming Plan including midblock chokers, mini roundabout and curb extensions at intersections.
Accidents	Improvements R through U: Traffic Calming Plan including midblock chokers, mini roundabout and curb extensions at intersections.
Access from side streets and driveways	Not addressed.
Paving/potholes	Addressed through street maintenance program.
Stop adding residences to Area 4. There is no way out in case of an emergency	Land use issue – not addressed.
Increased traffic due to Rock Church and other large businesses in Liberty Station	Land use issue – not addressed.
Stop densification and increased traffic	Land use issue – not addressed.

Concern Raised	Addressed in Mobility Study?
GENERAL COMMENTS FOR CORRIDOR OVERALL	
Access in Peninsula in case of emergency	Improvements along the corridor do not reduce the capacity of the road. Bicycle lanes help provide a "breakdown area" and turn lanes help improve the flow of traffic through intersections.
Speeding	Traffic calming through Area 4 aimed at reducing speeds from Submarine Base. Operational analysis of other portions of the corridor suggests that traffic improvements are needed for operations and speeds are not the issue.
Traffic congestion	Intersection improvements at Sports Arena, Midway, Roosevelt, Womble, Emerson and Talbot will improve the flow through these intersections. With the proposed improvements, the operational analysis suggests significant improvements in level of service and travel time will result.
Truck traffic	There are no limits on truck traffic for this corridor. Therefore, no improvements are identified to control or restrict truck access.
Traffic volumes	Traffic volume along the corridor is anticipated to increase through 2030 due to expansion of the airport, mixed use development at the Sport Arena and pending development/redevelopment throughout the study area. The Mobility Study suggests considering offsite parking and/or improving transit opportunities to address this long term growth.
Image/Aesthetics	Multiple opportunities for improved landscape and/or public are included in the Mobility Study including curb extensions, raised medians and chokers.
Ugly, wide street	Due to the operational characteristics of the road, the curb to curb width is needed to maintain traffic flow. However, median improvements will help break up the visual width of the road and create opportunities for landscape and public art.
Lack of transit facilities	SANDAG/MTS have not plans to increase service along the corridor. The Mobility Study includes a new queue jump lane on Rosecrans (southbound at Midway) and extension of the existing queue jump lane at Pacific Highway.
Dangerous to walk	New sidewalks through Area 1 and Area 4 improve pedestrian access along the corridor. Through Area 2, curb extensions help reduce the pedestrian crossing distance and wider bicycle lanes increase the buffer between the pedestrian and traffic flow. New curb ramps are proposed along the corridor along with ADA enhancements at signalized intersections including countdown timers and audible push buttons.
Pedestrian connections across Rosecrans	New traffic signal at Rosecrans/Hancock and Rosecrans Emerson create two new signalized crossings for pedestrians. In addition, curb extensions are recommended in Areas 2 through 4 to help reduce the crossing distance for pedestrians and increase pedestrian visibility from the side street.

Workshop 2

At the second workshop, preliminary concepts were presented. Participants were given the opportunity to review draft concept plans and share their thoughts with the project team. A preference survey was conducted to collect participant opinions about the concepts developed. The concepts presented at the workshop received mixed results. Approximately 50 people participated in the workshop and their input was valuable in identifying the elements of the plan that needed further refinement or consideration.

Workshop 3

At the final workshop, the Draft Recommended Concept Plan was presented. The Draft Recommended Concept Plan included a wide array of improvements for the corridor. Although the elements of the plan are designed to work together to improve overall mobility, the cost to design and construct the improvements as one project is infeasible. Therefore, components of the Recommended Concept Plan were grouped into 22 improvements identified as Improvements A through V. Each improvement included elements of the plan that could be constructed together to provide an overall mobility benefit to the corridor. In most cases, the elements provide a benefit to more than one mode. These 22 improvements are used throughout this document for the purpose of cost estimating, implementation planning and project ranking.

Rosecrans Corridor Mobility Study
Preliminary Recommended Alternative Preference Survey

As you visit each station, please complete this form and drop it in the Comment Box before you leave. The Comment Box is located at the sign-in table.

Station 3: Area 1 (Taylor to Lytton)

	Like	Neutral	Dislike
A Moore St Median Closure	3	2	1
B Sidewalks & Bicycle Lanes on Rosecrans to Transit Center	3	2	1
C Extension of Sports Arena & Associated Roadway Changes	3	2	1
D Rosecrans & Midway Intersection Improvements	3	2	1
E Bicycle Lanes on Rosecrans & Removal of Parking	3	2	1
(LONG TERM) Grade Separation of Rosecrans/Sports Arena	3	2	1
(LONG TERM) Realignment of Sports Arena/Camino Del Rio	3	2	1

Station 4: Area 2 (Lytton to Nimitz)

	Like	Neutral	Dislike
A Modified Signals at Dumas/Roosevelt & Zola/Womble	3	2	1
B Intermittent Medians with Northbound Left-Turn Access	3	2	1
C Wider Bicycle Lanes (Lytton to Roosevelt)	3	2	1
D Side Street Curb Extensions to Reduce Crossing Distance	3	2	1
E Consolidation & Relocation of Transit Stops	3	2	1
(LONG TERM) Bicycle Boulevard on Evergreen & Locust	3	2	1

Station 5: Area 3 (Nimitz to Calhoun)

	Like	Neutral	Dislike
A Re-stripe to Add 6' Bicycle Lanes	3	2	1
B Landscaped Medians & Left Turn Pockets at Intersections	3	2	1
C New Traffic Signal at Emerson	3	2	1
D Side Street Curb Extensions to Reduce Crossing Distance	3	2	1
E Relocation of Transit Stops to Signalized Intersections	3	2	1
(LONG TERM) Bicycle Boulevard on Locust	3	2	1

Station 6: Area 4 (Calhoun to Kellogg)

	Like	Neutral	Dislike
A Re-stripe Intersection of Rosecrans &Talbot	3	2	1
B Complete Sidewalks on West Side of Street	3	2	1
C Curb Extensions at Owen and Besemer	3	2	1
D Median Islands at Armada (at the curve)	3	2	1
E Chokers near Qualtrough and Kona	3	2	1
F Mini Roundabout at McCall	3	2	1
G Consolidation of Transit Stops	3	2	1

Comments:

Thank you! Please remember to turn in your survey at the sign-in table!

During the third workshop, participants were invited to visit multiple stations and view the 22 improvements identified in the Draft Recommended Concept Plan. Participants were asked to complete a preference survey identifying whether they liked or dislike the improvement concept. Results of the survey are presented in Table ES-2.

Table ES-2.
Rosecrans Corridor Mobility Study Open House Preference Survey Results

	Like		Neutral		Dislike		Total Responses	No Response	
Area 1									
Moore Street Median	25	**47.2%**	10	18.9%	18	34.0%	53	40	(43.0%)
Sidewalks & Bike Lanes to Transit Center	29	**52.7%**	10	18.2%	16	29.1%	55	38	(40.9%)
Extension of Sports Arena	20	37.7%	11	20.8%	22	**41.5%**	53	40	(43.0%)
Rosecrans & Midway Intersection Imp	37	**67.3%**	7	12.7%	11	20.0%	55	38	(40.9%)
Bicycle Lanes on Rosecrans/Parking Removal	19	35.8%	7	13.2%	27	**50.9%**	53	40	(43.0%)
Long Term: Grade Separation	18	*39.1%*	9	*19.6%*	19	***41.3%***	*46*	*47*	*(50.5%)*
Long Term: Realignment	22	***45.8%***	11	*22.9%*	15	*31.3%*	*48*	*45*	*(48.4%)*
Area 2									
Modified Signals (Roosevelt & Womble)	33	**55.0%**	13	21.7%	14	23.3%	60	33	(35.5%)
Intermittent Medians & NB Left Turn Access	25	**42.4%**	14	23.7%	20	33.9%	59	34	(36.6%)
Wider Bicycle Lanes	16	26.2%	9	14.8%	36	**59.0%**	61	32	(34.4%)
Side Street Curb Extensions	18	31.0%	13	22.4%	27	**46.6%**	58	35	(37.6%)
Consolidation of Transit Stops	27	**46.6%**	16	27.6%	15	25.9%	58	35	(37.6%)
Long Term: Bicycle Boulevard	26	***48.1%***	4	*7.4%*	24	*44.4%*	*54*	*39*	*(41.9%)*
Area 3									
Stripe Bicycle Lanse	11	22.0%	8	16.0%	31	**62.0%**	50	43	(46.2%)
Landscape Medians & Left Turn Pockets	15	31.3%	12	25.0%	21	**43.8%**	48	45	(48.4%)
New Signal at Emerson	24	**48.0%**	7	14.0%	19	38.0%	50	43	(46.2%)
Side Street Curb Extensions	17	34.0%	12	24.0%	21	**42.0%**	50	43	(46.2%)
Relocation of Transit Stops	26	**52.0%**	11	22.0%	13	26.0%	50	43	(46.2%)
Long Term: Bicycle Boulevard	23	**52.3%**	4	9.1%	17	38.6%	44	49	(52.7%)
Area 4									
Restripe Rosecrans & Talbot	32	**51.6%**	11	17.7%	19	30.6%	62	31	(33.3%)
Complete Sidewalks on West Side	27	**40.3%**	17	25.4%	23	34.3%	67	26	(28.0%)
Curb Extensions at Owen & Bessemer	14	22.2%	22	34.9%	27	**42.9%**	63	30	(32.3%)
Median Islands at Armada	13	21.0%	7	11.3%	42	**67.7%**	62	31	(33.3%)
Chokers at Qualtrough & Kona	12	19.4%	12	19.4%	38	**61.3%**	62	31	(33.3%)
Mini Roundabout at McCall	14	20.9%	6	9.0%	47	**70.1%**	67	26	(28.0%)
Consolidation of Transit Stops	26	**42.6%**	24	39.3%	11	18.0%	61	32	(34.4%)

According to the 93 surveys received during the workshop, the following concepts liked by a majority of <u>responding</u> participants (greater than 50%):

- Sidewalks & Bike Lanes to Transit Center (many participants commented they supported the concept of the sidewalks but not the bicycle lanes)
- Rosecrans & Midway Intersection Improvements
- Modified Signals (Roosevelt & Womble)
- Relocation of Transit Stops (Area 3)
- Long Term: Bicycle Boulevard (Area 3)
- Restripe Rosecrans & Talbot

Concepts disliked by a majority of responding participants (greater than 50%) included:

-
- Bicycle Lanes on Rosecrans/Parking Removal (Area 1)
- Wider Bicycle Lanes (Area 2)
- Stripe Bicycle Lanes (Area 3)
- Median Islands at Armada
- Chokers at Qualtrough & Kona
- Mini Roundabout at McCall

Input from the community during the workshops was one element used in the development of the Rosecrans Corridor Recommended Concept Plan. Other key components of the selection and evaluation included input from the Project Working Group and the Project Team as well as the results of the technical analysis.

ROLE OF PROJECT WORKING GROUP IN MOBILITY STUDY

In addition to the three workshops, a Project Working Group was formed to provide direction and input to the Technical Project Team. The Project Working Group was comprised of leaders from various organizations within the community. The group met monthly to discuss issues pertaining to the project, receive updates on the technical analysis and provide direction in the selection of the Recommended Concept Plan. The group also served as liaisons to their respective community groups and was responsible for disseminating information about the project to the community at large. The 22 improvements included in the Recommended Concept Plan were presented to the Project Working Group in November 2009. The Project Working Group collectively completed the preference survey, the results of which are summarized in Table ES-3.

Overall, the Project Working Group supported the 22 improvements of the Recommended Concept Plan, with the following exceptions:

- Improvement C: PWG recommended further study of improvements at Rosecrans St. / Sports Arena Blvd. They did not approve of the removal of the northbound left turn pocket.

- Improvement N: PWG was split on the side street curb extensions through Area 2. The PWG recommended that the installation of such devices be considered on a case-by-case basis pending requests by the community.

- Improvements S through U: PWG agreed with the community pertaining to the traffic calming recommendations for Area 4. Several community members in Area 4 attended the final workshop for the project and opposed the implementation of traffic calming. PWG members stated that they were not opposed to traffic calming through Area 4, but future implementation of such devices would require additional coordination with the community.

The Project Working Group unanimously agreed that the study area would benefit from the construction of an off-site parking structure. As part of the recommendations for this study, the Project Working Group recommended that such a site be identified in the future and major traffic generators from the study area participate in a shuttle service to help reduce the traffic coming into and out of the study area.

ROLE OF THE TECHNICAL PROJECT TEAM IN MOBILITY STUDY

The Technical Project Team was comprised of City staff, the consulting team and representatives from Caltrans. The Technical Project Team met on a monthly basis to discuss the operational analysis of the corridor, pedestrian and bicycle modeling efforts and transit operational assessment.

During the Technical Project Team meetings, members of City of San Diego staff participated to provide input on the analysis conducted. Staff from traffic engineering, planning and other City departments participated as necessary in discussion of the key areas of concerns and collaborated in the development of solutions to address the operational issues within the study area. These meetings were used to discuss the concerns raised by citizens and to identify solutions to issues that arose during the community outreach meetings.

ELEMENTS OF THE RECOMMENDED CONCEPT PLAN

A total of 22 improvement areas or improvement elements were identified in the project study area. The improvement areas are identified in Exhibit ES-1. Details of the elements are provided in Chapter 7 of this report. Table ES-2 summarizes all of the elements of the Recommended Concept Plan, results of the community preference survey, results of the PWG preference survey, cost and implementation timeline. This section provides a brief description of each element and the purpose of the element in resolving mobility issues.

Improvement A: Median at Moore Street

The intersection of Moore Street / Camino del Rio is currently unsignalized. Over the past 10 years 45 accidents, including one fatality, has occurred at this intersection. In the a.m. peak hour, over 250 vehicles turn southbound onto Moore Street. The intersection is located at the end of the I-8 freeway ramp where vehicles approach the intersection at upward of 45 to 55 mph. Signage has been placed in advance of this intersection from multiple directions to attempt to restrict traffic maneuvers approaching the intersection.

The Recommended Concept Plan includes closing the existing southbound left turn lane and constructing a raised median across Moore Street. Left turn traffic would be redirected to Hancock Street where improvements would be made to accommodate the additional traffic. U-turning movements would be allowed to maintain access to Moore Street at Camino Del Rio West.

Table ES-3
Summary of Elements of Recommended Concept Plan

Improvement	Project Working Group Summary	Workshop #3 Summary	Implementation Timeline	Estimated Construction Cost	Type of Improvement
Area 1					
A. Moore Street Median	Like (90%)	Like (47.2%)	Short	$334,225	Traffic Safety
B. Bicycle Lanes & Sidewalk Improvements	Like: Sidewalk & Bike (90%) Neutral: Signal (50%)	Like (52.7%)	Short	$520,788	Pedestrian, Bicycle, Transit
C. Extension of Sports Arena	Extension Concept (40%/40%) Further Study (90%)	Dislike (41.5%)	Long	$739,491	Traffic Flow & Pedestrian
D. Rosecrans & Midway Intersection Improvements	Like (70%)	Like (67.3%)	Medium	$539,405	Traffic Flow, Transit & Bicycle
E. Remove Parking & Stripe Bike Lanes on Rosecrans (Midway to Nimitz)	Like (80%)	Dislike (50.9%)	Short	$131,765	Bicycle
Area 2					
F. Modify Signals	Like (100%)	Like (55.0%)	Short	$176,815	Traffic Flow & Pedestrian
G. Intermittent Medians and Northbound Left Turn Lanes	Like: 20% Neutral: 40% Dislike: 30%	Like (42.4%)	Medium	$125,112	Traffic Safety & Pedestrian
H. Widen Bicycle Lanes through Area 2 (in conjunction with Improvement G)	Like (90%)	Dislike (59.0%)	Medium	$47,040	Bicycle
I. Side Street Curb Extensions	Like: 40% Neutral: 20% Dislike: 30%	Dislike (46.6%)	Long	$328,141	Pedestrian
J. Consolidation of Transit Stop	Like (100%)	Like (46.6%)	Short	$30,000	Transit & Pedestrian
Area 3					
K. Stripe Bicycle Lanes	Like (90%)	Dislike (62.0%)	Short	$105,545	Bicycle

Table ES-3
Summary of Elements of Recommended Concept Plan

Improvement	Project Working Group Summary	Workshop #3 Summary	Implementation Timeline	Estimated Construction Cost	Type of Improvement
L. Landscape Medians and Left Turn Pockets	Like (90%)	Dislike (43.8%)	Medium	$276,767	Traffic Safety & Pedestrian
M. New Signal at Emerson	Like (80%)	Like (48.0%)	Short	$201,196	Traffic, Pedestrian & Bicycle
N. Side Street Curb Extensions	Split (40%/40%)	Like (42.0%)	Long	$207,181	Pedestrian
O. Relocation of Transit Stops	Like (100%)	Dislike (52.0%)	Short	$33,000	Transit & Pedestrian
Area 4					
P. Restripe Rosecrans & Talbot	Like (100%)	Like (51.6%)	Short	$68,924	Traffic Flow & Pedestrian
Q. Complete Sidewalks on West Side of Rosecrans	Like (90%)	Like (40.3%)	Medium	$151,172	Pedestrian
R. Curb Extensions at Owens Bessemer	Like (80%)	Dislike (42.9%)	Uncertain	$167,507	Traffic Calming & Pedestrian
S. Median Islands at Armada	Like: 30% Neutral: 20% Dislike: 40%	Dislike (67.7%)	Uncertain	$36,570	Traffic Safety
T. Chokers at Qualthrough & Kona	Like: 30% Neutral: 20% Dislike: 40%	Dislike (61.3%)	Uncertain	$56,560	Traffic Calming & Pedestrian
U. Mini-Roundabout at McCall	Dislike (80%)	Dislike (70.1%)	Uncertain	$250,000	Traffic Flow & Traffic Calming
V. Consolidation of Transit Stops	Neutral (60%)	Like (42.6%)	Short	$27,500	Transit
Recommendation by PWG					
Identify location for off-site parking structure	Like (100%)	N/A	Long	TBD	Reduction in Traffic Volume

ROSECRANS CORRIDOR MOBILITY STUDY

Recommended Concept Plan

Area 1 (Sheet 1 of 2)

Exhibit ES-1

ROSECRANS CORRIDOR MOBILITY STUDY

Recommended Concept Plan

Area 1 (Sheet 2 of 2)

Exhibit ES-1

ROSECRANS CORRIDOR MOBILITY STUDY

Recommended Concept Plan

Area 2 (Sheet 1 of 3)

Exhibit ES-1

ROSECRANS CORRIDOR MOBILITY STUDY

Recommended Concept Plan

Area 2 (Sheet 2 of 3)

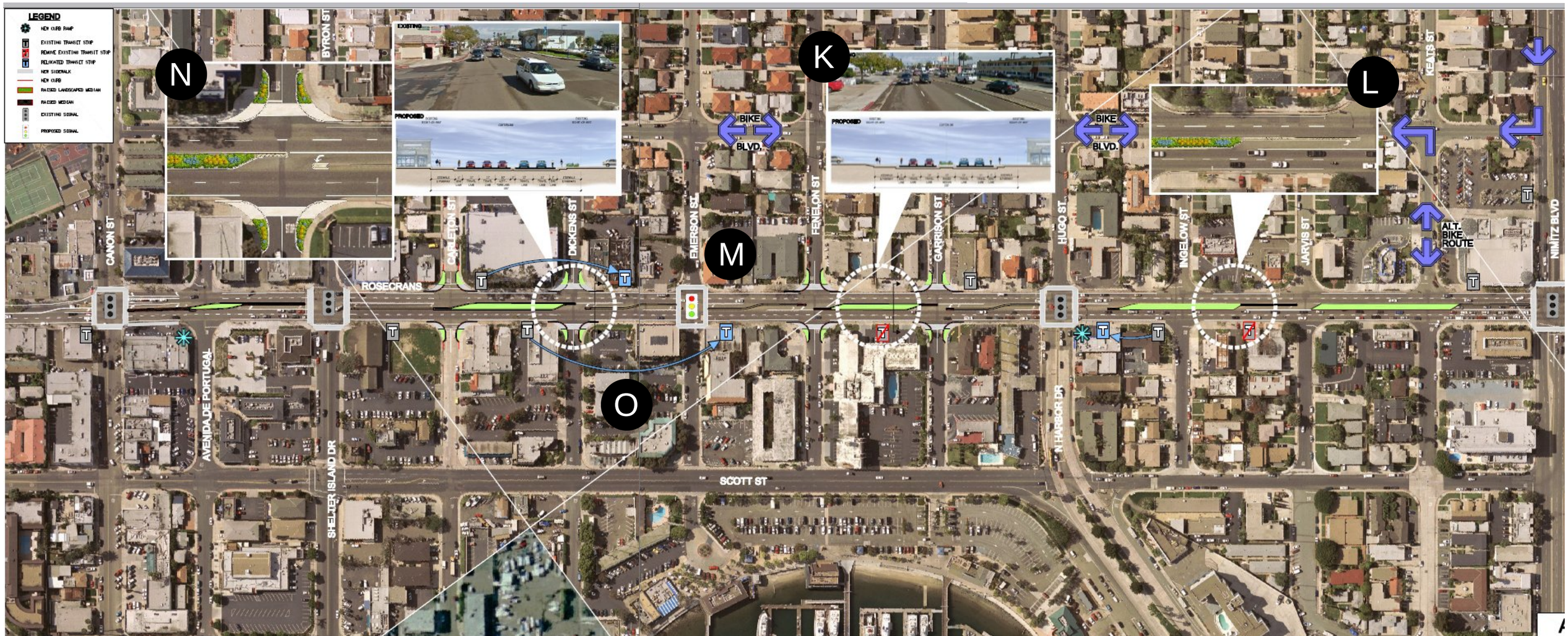
Exhibit ES-1

ROSECRANS CORRIDOR MOBILITY STUDY

Recommended Concept Plan

Area 2 (Sheet 3 of 3)

Exhibit ES-1

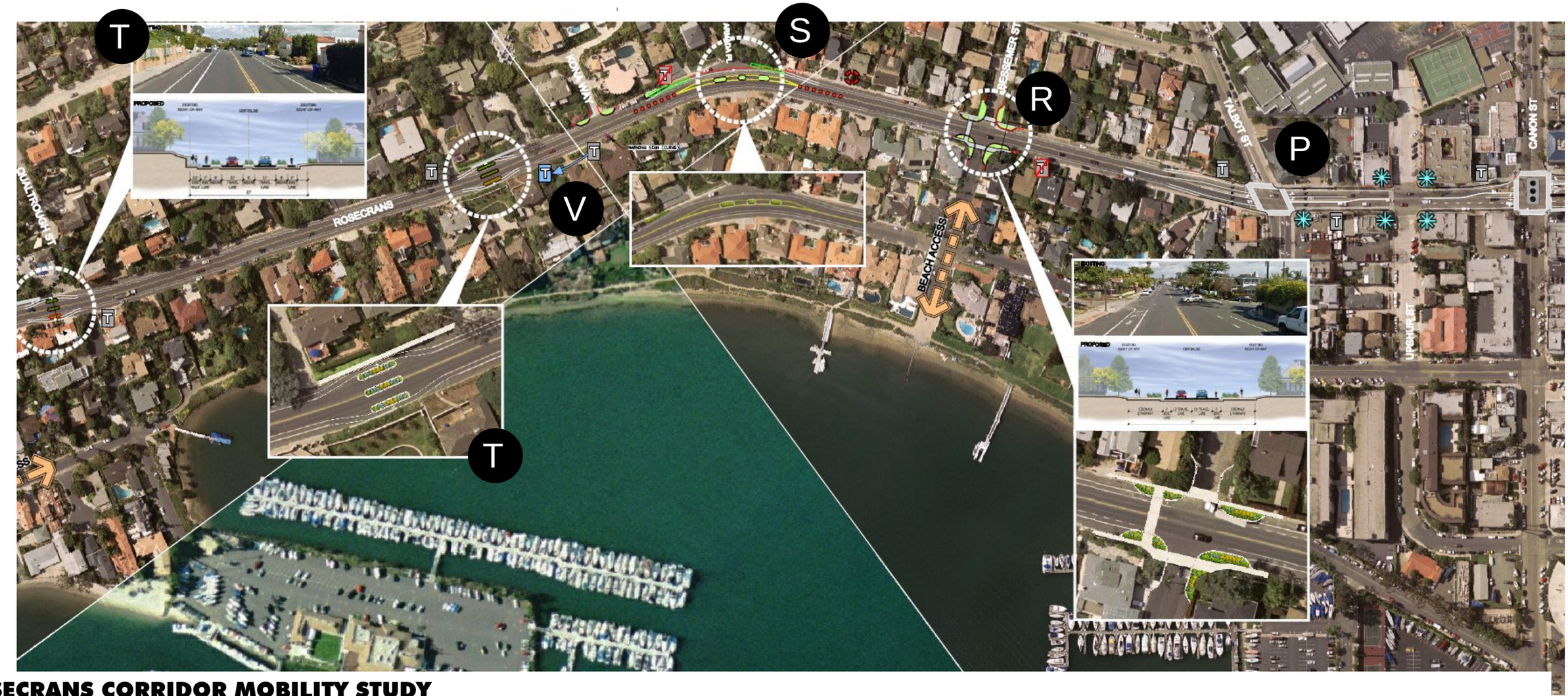


ROSECRANS CORRIDOR MOBILITY STUDY

Recommended Concept Plan

Area 3 (Sheet 1 of 1)

Exhibit ES-1

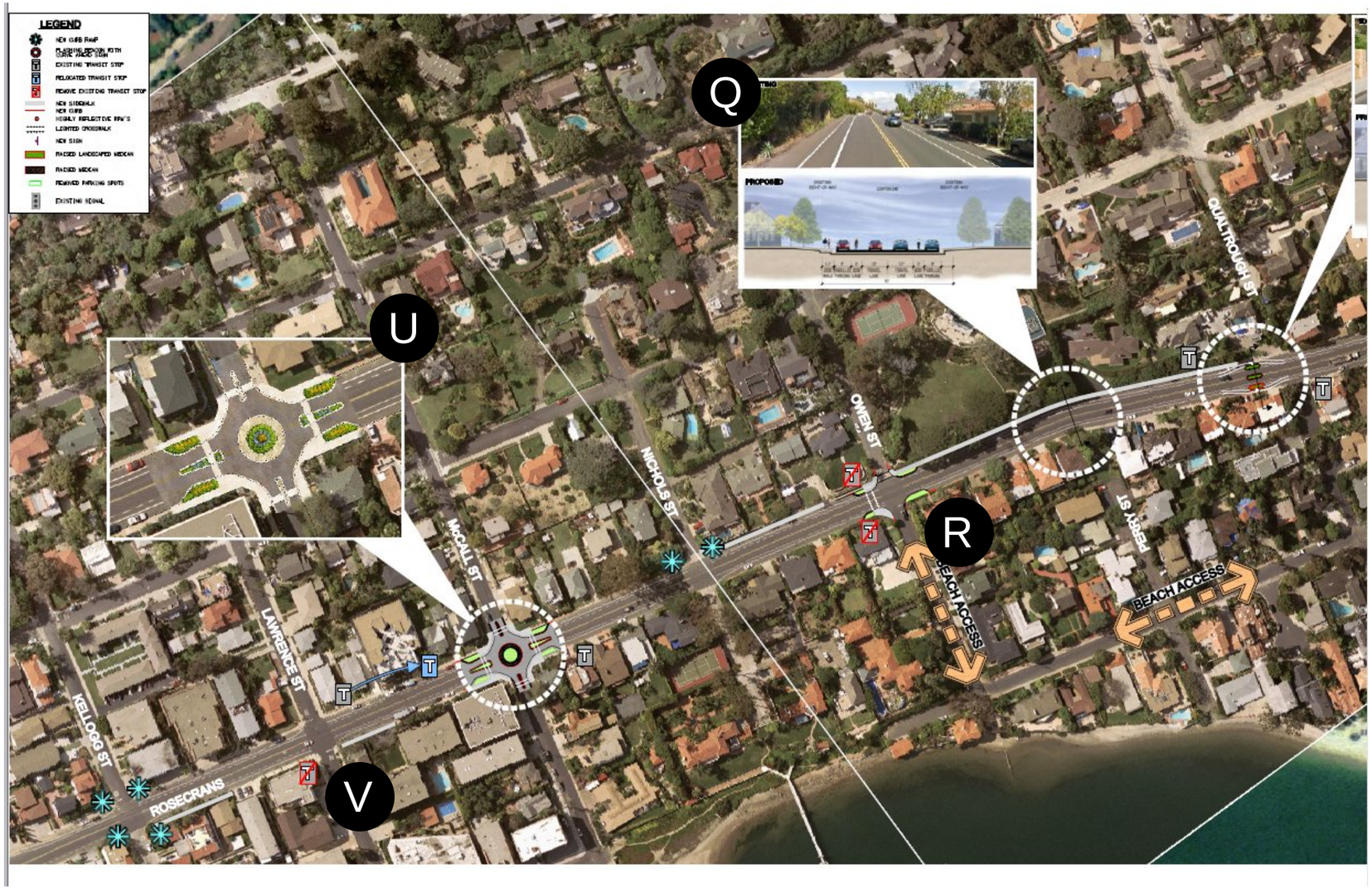


ROSECRANS CORRIDOR MOBILITY STUDY

Recommended Concept Plan

Area 4 (Sheet 1 of 2)

Exhibit ES-1



ROSECRANS CORRIDOR MOBILITY STUDY

Recommended Concept Plan

Area 4 (Sheet 2 of 2)

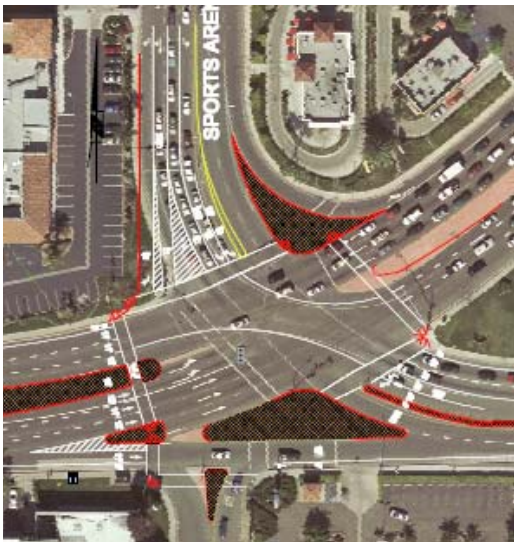
Exhibit ES-1

Improvement B: Sidewalks and Bicycle Lanes on Rosecrans (Old Town to Sports Arena)

Rosecrans Street links the Old Town Transit Center with Activity Centers in the Midway Community. Through this primarily industrial area, there are intermittent sidewalks, multiple curb cuts and no bicycle lanes. The Recommended Concept Plan includes constructing sidewalks, curb ramps, curb extensions and restriping the road to provide for Class II bicycle lanes along Rosecrans Street. These improvements would maintain existing parking and work within the available right-of-way. A new traffic signal is recommended at Hancock Street to improve pedestrian access and control left turn access from Rosecrans Street onto Hancock Street. This signal would be implemented in conjunction with the changes at Moore Street as outlined in Improvement A.

Improvement C: Extension of Sports Arena East at Rosecrans St

The Midway Community Plan currently identifies the long-term improvement of extending Sports Arena east and connecting to Pacific Highway. The existing alignment of Sports Arena through the intersection is such that this improvement could not be accomplished without impacts to right-of-way on the southwest corner of the intersection. Sports Arena is currently offset and the extension would require the north leg to move to the southwest to accomplish an acceptable alignment. To avoid introducing a fifth approach to the intersection, the westbound through movement on Sports Arena would continue to be restricted to right turn onto Rosecrans only.



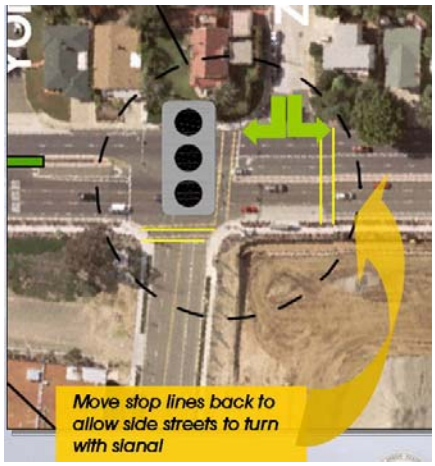
Improvement D: Rosecrans and Midway Intersection Improvements

Traffic delays at Rosecrans St. / Midway Dr. are amongst the highest in the study area. In Area 1, the delays through this intersection control the flow of traffic both northbound and southbound. Existing queues extend beyond the available storage capacity and affect the ability of through traffic to fully utilize the capacity of the road. Recognizing this existing condition, the City of San Diego is will be improving the intersection of Rosecrans and Midway in early 2010 to include a second northbound left-turn lane and extend the existing dual southbound left-turn lanes. Although this is sufficient to address the existing operational deficiencies at this intersection, additional improvements were determined to be necessary to address the mid to long-term mobility at Midway Dr.

Therefore, the Recommended Concept Plan includes widening the intersection on west side of the street and reconstructing the median to provide for a northbound dedicated right-turn lane along Rosecrans. Adding a northbound right turn lane would reduce the delay northbound through and right-turning vehicles. On the southbound approach, Improvement D includes constructing a southbound right turn lane and possible queue jump lane for transit vehicles. With these improvements, the existing Class II bicycle lanes would be extended through the intersection.

Improvement E: Bicycle Lanes on Rosecrans (Midway to Lytton)

Rosecrans Street connects the Old Town Transit Center with several residential and commercial areas in Point Loma. Through this commercial area, there are multiple curb cuts and no bicycle lanes. Traffic counts collected for the corridor revealed that numerous bicyclists use this corridor on a daily basis. Without or with bicycle lanes, bicycles can and will use Rosecrans Street. The Recommended Concept Plan includes striping bicycle lanes within the existing right-of-way. To accomplish this, existing on-street parking would be removed from Evergreen Street to Lytton Street. With speeds along this portion of Rosecrans exceeding 40 mph, it is not a conducive environment for on-street parking and bicycle activity. Removal of the parking would remove one of the many challenges for bicyclists and passenger vehicles along this corridor.



Improvement F: Modified Traffic Signals at Roosevelt Street and Womble Road.

Through Area 2 the west side of Rosecrans Street has no signalized access. Traffic signals provided at Roosevelt Street and Womble Road provide for controlled access for the east side of the street only.

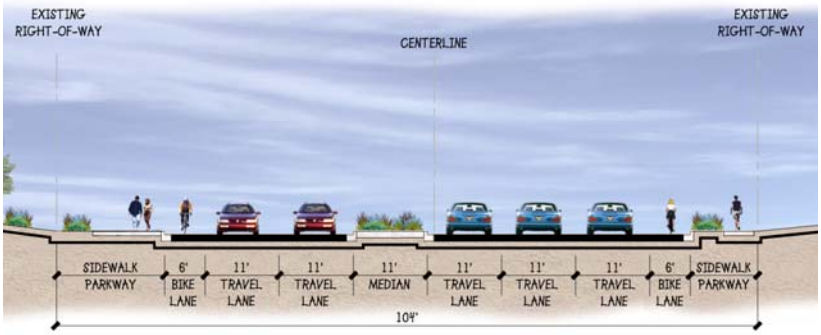
The Recommended Concept Plan includes signalization of the west side of Rosecrans Street by offsetting the intersection at Roosevelt to include Dumas Street and offsetting Womble Road to include Zola Street. Although this may add some delay to Rosecrans Street due to the longer green time for the side street, it will improve the overall access for pedestrian, vehicles and access to the nearby transit stops.

Improvement G: Intermittent Medians with Northbound Left Turn Access

Through Area 2, most side street connections between Lytton Street and Freeman Street allow left turns both onto and off of Rosecrans Street. Existing traffic speeds and traffic volumes along Rosecrans Street make it difficult at best to turn from the side streets onto Rosecrans Street. Overall, the side street traffic volume through this section is low (10 to 20 vehicles in the peak hour), but the delay and potential risk of severe accidents is high.

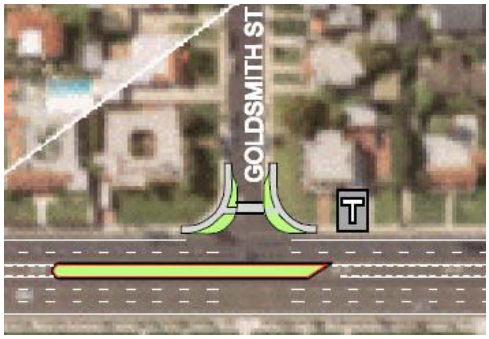
The Recommended Concept Plan includes consolidating the number of access points by constructing a raised, landscaped median. This improvement would help traffic flow and reduce the potential for accidents through this section. Landscaped medians would match the existing aesthetic fronting NTC.

Improvement H: Widen Bicycle Lanes on Rosecrans Street (Area 2)



The existing bike lanes between Lytton and Roosevelt are four feet wide and include the gutter. Bicyclists who travel through this section ride very close to vehicular traffic with a posted speed limit of 35 mph. In many cases, bicycles have been observed on the sidewalk to avoid traveling with traffic. In addition, the proximity of traffic to the sidewalk makes for an uncomfortable pedestrian environment. By narrowing the width of the existing 12 to 14 foot striped median to 10 feet and modifying the location and length of raised medians through this section, an additional two feet can be added to the bicycle lane on the west side of the street.

Improvement I: Side street Curb Extensions (Area 2)



In Area 2, the parkway on the west side of Rosecrans has no buffer from the adjacent vehicular traffic. The walk audits conducted for this project indicated that pedestrians do not feel safe walking on the west side of the street and many residents commented on the frequency of accidents that run up the curb and onto the sidewalk. Extending the curbs at intermittent corners will provide reduced crossing distance for pedestrians and will reduce the turning speeds of motorists at such intersections.

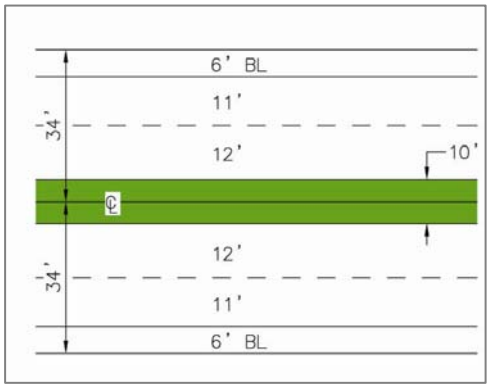
The Recommended Concept Plan includes curb extensions a total of three locations through Area 2. These three locations correspond to the locations of the proposed medians in Improvement H (Elliott Street, Goldsmith Street, Ibsen Street). If the community determines this improvement to be a high priority, the implementation of the curb extensions should involve community support for the traffic calming device. The quantity of the curb extensions and the location may be determined based on additional community input that should be conducted in this next phase of this project.

Improvement J: Consolidation of Transit Stops (Area 2)

Some existing transit stops along Rosecrans are placed mid-block, which may encourage illegal and unsafe pedestrian crossings. Some existing transit stops are minimally used and located near other stops. The Recommended Concept Plan consolidates and relocates transit stops to coincide with crosswalks at signalized intersections.

Improvement K: Restripe Rosecrans Street to Include Bicycle Lanes (Area 3)

Class II bicycle lanes are provided in Areas 2 and 4 but are not provided in Areas 1 or 3, creating a discontinuous bicycle route through the study area. Through Area 3 it is feasible to restripe the road to provide Class II bicycle lanes within the existing right-of-way. This can be accomplished by narrowing the center left-turn lane and travel lanes. Narrowing and re-striping the existing travel lanes would provide six-foot bike lanes through Area 3.



Improvement L: Construct Landscaped Medians in Area 3

Through Area 3 left turns are permitted to and from Rosecrans from all unsignalized intersection. Level of service analysis of the unsignalized intersections showed that delays to side street vehicles typically exceed the acceptable LOS E threshold (more than 50 seconds per vehicle). Because the blocks are short, most blocks do not have a center median requiring vehicles to cross both directions of traffic during available gaps.

The Recommended Concept Plan includes constructing a landscaped raised median through Area 3. By consolidating the number of access points, traffic flow can be improved, delays on the side streets can be reduced, and the potential for accidents through this section is reduced. Peak hour side street traffic is less than 100 vehicles per hour on most connecting streets. Therefore, there may be some diversion of traffic through out the village with this change. However, parallel routes are available for traffic to circulate within a block of Rosecrans Street. Sufficient capacity is provided along the parallel streets to accommodate the potential changes in traffic patterns.

In addition to improving traffic conditions, the raised medians will also help to channelize pedestrian traffic and provide for a refuge area mid-crossing distance for pedestrians. The medians can be used to enhance the aesthetics of the corridor through landscape and provides opportunities for public art.

Improvement M: New Traffic Signal at Emerson Street

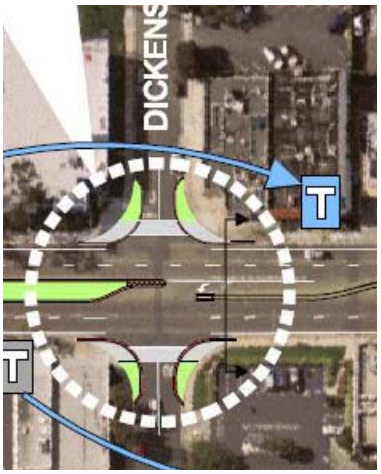
The lack of crosswalks or signalized intersections between Byron Street and North Harbor Drive results in illegal and unsafe pedestrian crossings. This section of Rosecrans is primarily commercial and has the potential to generate high pedestrian activity both around transit stops and along the many shops that front Rosecrans Street.

Due to the lack of traffic signals, vehicle traffic can flow uninterrupted through most of Area 3. This creates an environment focused on the automobile and creates a barrier between the east and west sides of Rosecrans Street. When traffic volumes are low, this lack of interruption can lead to speeding.

The Recommended Concept Plan includes the installation of a traffic signal midway between Byron Street and North Harbor Drive. The new signal at Emerson Street would provide a striped crosswalk for pedestrians, improved curb extensions, count down timers and audible push buttons.

Improvement N: Side Street Curb Extensions (Area 3)

This section of Rosecrans contains pedestrian generators, including commercial uses, motels, and proximity to the marina village. The roadway is currently four lanes with a center turn lane and a posted speed limit of 40 miles per hour. The land uses in this area are pedestrian-oriented but the streetscape lacks pedestrian amenities.



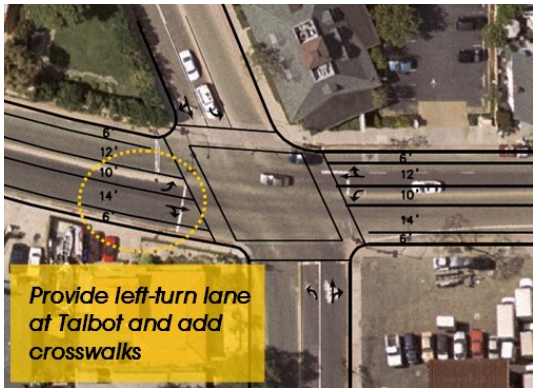
The Recommended Concept Plan includes the installation of curb extensions at three locations. The curb extensions would improve the visibility of pedestrians, reduce the pedestrian crossing distance and exposure in the street and provide opportunities to improve the aesthetic quality along the corridor through landscaping.

Improvement O: Relocation of Transit Stops (Area 3)

Existing transit stops along Rosecrans Street in Area 3 are placed mid-block, which has been observed to result in unsafe pedestrian crossings. Transit ridership data indicates that many of the existing transit stops through Area 3 are minimally used and located near other stops.

To improve transit operations and flow and improve the safety of pedestrians around the transit stop, the Recommended Concept Plan proposes to consolidate and relocate transit stops. In most cases, the relocation or consolidation places the transit stop closer to and existing crosswalk at a signalized intersection. This includes relocating transit stops closer to the proposed signal at Emerson (Improvement M).

Improvement P: Restripe Intersection of Rosecrans Street & Talbot Street



The intersection of Rosecrans at Talbot is currently striped to provide a shared northbound left-through-right turn lane. Vehicles heading northbound on Rosecrans often go around motorists waiting to make the northbound left turn onto Talbot, creating a weaving pattern. The southbound direction has two lanes (one through lane and one shared through-right turn lane), but only has one receiving lane, requiring vehicles to quickly merge at the receiving end of the intersection. To resolve these issues, the proposed improvement is to re-stripe the intersection to provide two northbound lanes, one left turn and one shared through-right turn lane, and re-stripe the southbound leg to contain one left-turn lane and one shared through-right turn lane. The existing crosswalks are also proposed to be re-striped to match the proposed lane configurations.

Improvement Q: Complete Sidewalks on West Side of Rosecrans Street (Area 4)

The southernmost portion of the Rosecrans corridor is primarily residential. Sidewalks are intermittent on both sides of the street and provide a discontinuous pedestrian path. In areas where sidewalks are missing, pedestrians must walk in either the bicycle lane or travel lane with no separation from vehicular traffic. Community outreach efforts have revealed that many residents prefer not to have sidewalks on both sides of the street, particularly on the east side of the street where several resident driveways front the road.

The Recommended Concept Plan includes installation of sidewalks on the west side of Rosecrans Street only. In completing the sidewalks on the west side of the street, a continuous pedestrian path that meets current ADA requirements will be provided for residents and guests of this community. This improvement may have minimal impacts on right of way, parking or bicycle access, but will greatly improve pedestrian access through this area.

Improvements R, T &U: Traffic Calming in Area 4

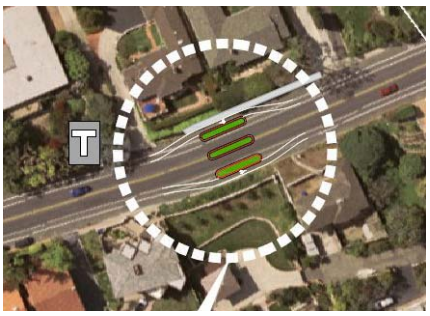
The southernmost portion of Rosecrans is primarily residential and provides access to the Navy Sub Base as well as local beach access. The roadway is currently two lanes with a posted speed limit of 30 miles per hour and intermittent sidewalks. Community outreach efforts have revealed that some residents feel that speeding is an issue through this section of the corridor. Therefore, traffic calming devices were identified for Area 4 to address the speeding issue. Three improvements comprise the total traffic calming plan developed:

Improvement R: Curb Extensions at Owens & at Bessemer

Curb extensions would reduce the pedestrian crossing distance and exposure in the street and would serve as a traffic calming device to reduce speeds through the residential area. Curb extensions are proposed at two locations, Owen and Bessemer, due to studies that show traffic calming devices to reduce speed work best in sequence. In addition, curb extensions would improve visibility of pedestrians to motorists.

Improvement T: Choker at Qualthrough and Kona

Mid-block chokers would neck down the roadway and serve as a traffic calming device to reduce speeds through the area. Chokers near Qualtrough and Kona are proposed in addition to the previously mentioned curb extensions, due to studies that show traffic calming devices to reduce speed work best in sequence.

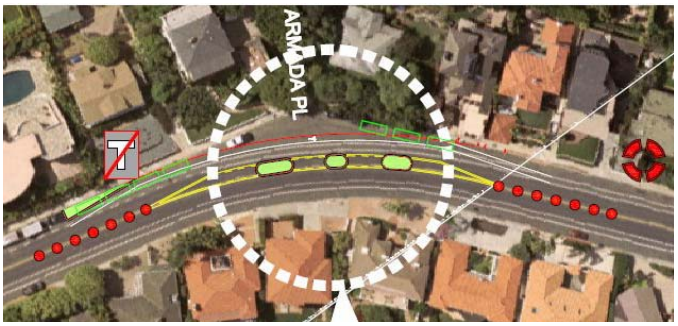


Improvement U: Mini Roundabout at McCall

A mini roundabout at McCall would neck down the roadway and serve as a traffic calming device to reduce speeds through the intersection. The proposed roundabout would require motorists to maneuver around the roundabout and be cautious of others entering the intersection. The design of the roundabout would provide curb extensions at each of the corners, thereby reducing the crossing distance for pedestrians and improving visibility of pedestrians to motorists. The roundabout is proposed at McCall because it provides east-west access to and from the beach, which is a pedestrian generator. On-street parking would not be removed as the curb extensions would be placed where there is existing red curb.

Improvements S: Median Islands at McCall

Rosecrans curves at Armada Place within the southern portion of the corridor. The roadway is currently two lanes with bike lanes and on-street parking. The posted speed limit is 30 miles per hour. Speed surveys show the 85th percentile at 35 mph northbound and 38 mph southbound. Accident reports show that most accidents occur on the southbound approach adjacent to the intersection of Kona Way. The cause of the accidents is most typically associated with hitting fixed objects, hitting parked vehicles or running off the road.



Residents have expressed concern about speeding through this particular section of the corridor. Therefore, the Recommended Concept Plan includes the installation of medians and highly reflective striping to help control traffic and reduce speeds as motorists travel through the curve. Median breaks are also proposed to maintain access to the surrounding residential driveways.

Improvements T: Consolidation of Transit Stops (Area 4)

Some transit stops along Rosecrans are underutilized with only a few riders per stop per day. The proposed improvement is to consolidate transit stops at locations with higher ridership to increase utilization of the transit stops.

OPERATIONAL ASSESSMENT OF ROSECRANS CORRIDOR

Intersection operations, roadway segment operations, signal timing improvements, travel time analysis, queue analysis and signal warrants were conducted to evaluate the vehicular benefits associated with the proposed elements of the Recommended Concept Plan. The analysis conducted assumed all of the improvements included in the Recommended Concept Plan are constructed as defined in the previous section. Benefits associated with implementing the elements of the plan individually may vary and may need to be evaluated further prior to design and implementation to achieve the optimal results for each improvement.

The following tables summarize the results of the technical analysis conducted for the overall operations of the corridor:

- Table ES-3: Intersection operating conditions
- Table ES-4: Roadway segment operational analysis
- Table ES-5: Travel time assessment

Intersection Operational Analysis Summary

Results of the intersection level of service analysis demonstrated that most intersections in the study corridor will operate at LOS D or better through year 2030. Implementation of the elements of the Recommended Concept Plan results in improved intersection operations at the following intersections when the 2030 No Build conditions are compared to the 2030 with Recommended Concept Plan:

- Camino del Rio West / Moore St. – Improvement A (median closure): LOS F to LOS E
- Rosecrans St. / Pacific Highway – Improvement B (signal timing improvement): LOS E to LOS D
- Rosecrans St. / Sports Arena Blvd. – Improvement C (geometric improvements): LOS E to LOS C
- Rosecran St. / Midway Dr. – Improvement D (geometric improvements): LOS E to LOS D
- Rosecrans St. / Garrison St. – Improvements L and M (landscape medians and traffic signal at Emerson): LOS F to LOS B
- Rosecrans St. / Carleton St. – Improvements L and M (landscape medians and traffic signal at Emerson): LOS F to LOS B

Although a number of intersections will benefit from the improvements identified in the Recommended Concept Plan, some intersections will continue to operate at LOS E or F by year 2030. In all cases, significant widening would be needed, which includes acquisition of residential and commercial right-of-way in highly constrained areas. Improvements that would significantly impact right-of-way in residential areas or would affect existing structures were not considered as feasible improvements within the timeframe associated with this Mobility Study. Long term improvements should continue to be considered in the Community Plan and be considered with land use changes or redevelopment along the corridor.

Roadway Segment Operational Analysis Summary

Results of the roadway segment analysis showed that improvements identified in the Recommended Concept Plan do not directly improve the roadway segment operations based on the volume-to-capacity ratio methodology adopted by the City of San Diego. Similarly, the improvements do not negatively impact the roadway operations.

Improving the identified deficient segments to acceptable LOS D or better based on the volume-to-capacity ratio methodology requires widening to provide additional travel lanes. The Midway Community Plan includes improving Rosecrans Street from six lanes to eight lanes through portions of the corridor. Although this would resolve the deficient levels of service, such widening would have a negative impact on the existing land uses along the corridor. Due to right-of-way constraints and the extraordinary cost of widening the deficient roadway segments, adding capacity to improve daily roadway segment level of service is not included in the Recommended Concept Plan. Consideration for widening through Area 1 (North Bay – Midway) should be considered with potential redevelopment along the corridor as the right-of-way impacts would affect residents and businesses that front the corridor.

Due to the level of congestion and the traffic flow characteristics, the improvements along the corridor focused on improving the capacity at key signalized intersections. Field investigations showed that the source of congestion along the corridor is both due to volume of traffic through the intersections and the signal timing. If key improvements are made along the corridor to improve traffic flow (Midway/Rosecrans and Sports Arena/Rosecrans), the capacity of the existing roadway would significantly improve and improve the operations of the roadway segments. The benefits of these operational improvements are demonstrated in the discussion of the travel time assessment.

Long Range Recommendations for Corridor Circulation

The Project Working Group recommended that an “off-site” parking structure be provided that would help offset the traffic volumes coming into the Rosecrans Corridor Study Area. Combining this off-site parking lot with a Transportation Demand Strategy that integrates carpooling/vanpooling and shuttles to major traffic generators in the study area would help to reduce the overall traffic volume in the area. Coupling this type of improvement with improved access to transit and improved transit service and improved bicycle and pedestrian facilities will help to reduce the reliability on the passenger vehicle and reduce the overall traffic flow along the corridor.

Table ES- 3
Intersection Operational Analysis Summary

Intersection		Traffic Control (1)	Existing (2009)				2030 No Build				2030 With Recommended Plan			
			AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
2)	Rosecrans-Taylor St. / Pacific Highway	S	22.8	C	25.1	C	31.6	C	**57.1**	E	31.6	C	52.3	D
3)	Rosecrans St. / Jefferson St.	O	10.9	B	12.1	B	12.5	B	15.7	C	12.4	B	15.3	C
4)	Rosecrans St. / Moore St.	O	11.7	B	11.9	B	14.4	B	15.8	C	11.8	B	14.2	B
5)	Rosecrans St. / Hancock St.	(2)	8.6	A	9.4	A	11.7	B	17.0	C	20.6	C	11.9	B
6)	Rosecrans St. / Kurtz St.	S	15.3	B	25.4	C	20.4	C	52.3	D	25.3	C	38.1	D
7)	Rosecrans/Sports Arena/Camino D. Rio	S	23.3	C	35.5	D	43.0	D	**62.9**	E	17.2	B	26.6	C
8)	Rosecrans St. / Midway Dr.	S	37.0	D	60.0	E	41.5	D	**68.2**	E	30.7	C	44.0	D
9)	Rosecrans St. / N. Evergreen St.	S	15.9	B	30.3	C	20.7	C	30.7	C	13.7	B	18.6	B
10)	Rosecrans St. / Lytton St.	S	47.9	D	51.7	D	77.2	E	**69.2**	E	**67.4**	E	**55.0**	E
11)	Rosecrans St. / Roosevelt Rd.	S	10.3	B	13.3	B	11.3	B	16.2	B	20.7	C	23.2	C
12)	Rosecrans St. / Curtis St.	O	20.5	C	15.5	C	17.2	C	14.6	B	14.7	B	10.0	A
13)	Rosecrans St. / Womble Rd.	S	18.8	B	17.9	B	20.6	C	20.3	C	16.0	B	30.6	C
14)	Rosecrans St. / Xenophon St.	O	13.6	B	12.1	B	13.3	B	12.7	B	10.0	B	10.7	B
15)	Rosecrans St. / Farragut - Voltaire St.	S	20.7	C	18.1	B	23.5	C	21.8	C	23.9	C	19.1	B
16)	Rosecrans St. / Russell - Laning Rd.	S	17.0	B	23.2	C	18.1	B	25.9	C	16.5	B	18.5	B
17)	Rosecrans St. / Oliphant St.	O	22.6	C	14.1	B	28.2	D	19.7	C	28.1	D	19.7	C
18)	Rosecrans St. / Macaulay St.	T - LTR	12.0	B	13.0	B	13.2	B	14.2	B	13.2	B	14.2	B

Note: Deficient intersection operation indicated in bold.

(1) S = Signalized, A = All-Way Stop, T = Two-Way Stop, O = One-Way Stop, LTR = Left Turn Restriction

Table ES-3 (continued)
Intersection Operational Analysis Summary

Intersection		Traffic Control (1)	Existing (2009)				2030 No Build				2030 With Recommended Plan			
			AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
19)	Rosecrans St. / Nimitz Blvd.	S	40.8	D	59.3	E	113.5	F	184.3	F	116.3	F	190.0	F
20)	Rosecrans St. / Jarvis St.	T	16.3	C	30.9	D	22.2	C	14.8	B	10.2	B	10.7	B
21)	Rosecrans St. / N. Harbor Dr.-Hugo St.	S	15.0	B	18.0	B	29.7	C	34.9	C	30.4	C	35.3	D
22)	Rosecrans St. / Garrison St.	T	79.6	F	133.6	F	185.4	F	305.7	F	11.1	B	9.8	A
23)	Rosecrans St. / Emerson St.	T	NA	NA	NA	NA	NA	NA	NA	NA	12.0	B	15.0	B
24)	Rosecrans St. / Carleton St.	T	146.6	F	252.0	F	322.4	F	>1000	F	10.1	B	11.2	B
25)	Rosecrans St. / Shelter Island - Byron	S	13.3	B	16.7	B	10.3	B	15.4	B	11.3	B	23.5	C
26)	Rosecrans St. / Canon St.	S	23.0	C	20.1	C	33.5	C	45.7	D	42.3	D	38.1	D
27)	Rosecrans St. / Talbot St.	S	22.1	C	12.5	B	19.2	B	15.0	B	21.8	C	24.1	C
28)	Camino del Rio W. / Moore St.	T - LTR	31.5	D	30.6	D	71.3	F	65.0	F	35.8	E	24.4	C
29)	Camino del Rio W. / Hancock St.	S	10.9	B	13.2	B	29.2	C	31.4	C	29.7	C	35.2	D
30)	Camino del Rio W. / Kurtz St.	S	8.5	A	13.8	B	11.6	B	20.3	C	12.1	B	17.2	B

Note: Deficient intersection operation indicated in **bold**. NA = Not Available.

(1) S = Signalized, A = All-Way Stop, T = Two-Way Stop, O = One-Way Stop, LTR = Left Turn Restriction

(2) There is currently no stop control since Hancock Street is one-way westbound, away from Rosecrans Street. This intersection is proposed to be signalized under 2030 conditions with the Recommended Concept Plan.

Table ES-4
Roadway Segment Analysis Summary

Roadway	Segment	Class	Lanes	LOS E Capacity	Existing Conditions			2030 No Build			2030 With Recommended Plan		
					ADT	V/C	LOS	ADT	V/C	LOS	ADT	V/C	LOS
Rosecrans Street	From Pacific Highway to Sports Arena Blvd.	Major	4	40,000	15,503	0.39	B	28,300	0.71	C	28,000	0.70	C
	From Sports Arena Blvd. to Midway Dr.	Major	6	50,000	59,120	1.18	F	66,700	1.33	F	65,600	1.31	F
	From Midway Dr. to Lytton St.	Major	6	50,000	46,384	0.93	E	49,200	0.98	E	48,900	0.98	E
	From Lytton St. to Roosevelt Rd.	Major	5	45,000	42,513	0.94	E	49,500	1.10	F	49,500	1.10	F
	From Roosevelt Rd. to Laning Rd.	Major	5	45,000	37,950	0.84	D	46,100	1.02	F	46,100	1.02	F
	From Laning Rd. to Nimitz Blvd.	Major	4	40,000	34,259	0.86	D	43,100	1.08	F	43,100	1.08	F
	From Nimitz Blvd. to N. Harbor Dr.	Major	4	40,000	36,450	0.91	E	44,300	1.11	F	44,100	1.10	F
	From N. Harbor Dr. to Canon St.	Major	4	40,000	34,390	0.86	D	37,100	0.93	E	37,100	0.93	E
	From Canon St. to Talbot St.	Major (1)	2	27,000	17,850	0.66	C	18,600	0.69	C	18,600	0.69	C
	From Talbot St. to Kellogg St.	Major (1)	2	27,000	15,200	0.56	B	21,000	0.78	D	21,000	0.78	D
Camino Del Rio	North of Hancock St.	Prime	7	70,000	55,300	0.79	C	77,300	1.10	F	77,300	1.10	F
	Hancock St. to Kurtz St.	Prime	7	70,000	54,400	0.78	C	71,600	1.02	F	73,200	1.05	F
	Kurtz St. to Sports Arena Blvd.	Prime	7	70,000	50,700	0.72	C	67,600	0.97	E	69,700	1.00	E
Pacific Highway	North of Rosecrans St.	Major (2)	2	20,000	5,818	0.29	A	13,400	0.67	C	13,400	0.67	C
	South of Rosecrans St.	Prime	6	60,000	13,070	0.22	A	27,100	0.45	B	27,100	0.45	B
Sports Arena Blvd.	Northwest of Rosecrans St.	Major	5	45,000	26,780	0.60	C	35,200	0.78	D	35,200	0.78	D

Note: Deficient roadway segment operation indicated in **bold**.

(1) LOS E Capacity has been estimated based on results of the Highway Capacity Manual Urban Street Methodology.

Table ES-4 (continued)
Roadway Segment Analysis Summary

Roadway	Segment	Class	Lanes	LOS E Capacity	Existing Conditions			2030 No Build			2030 With Recommended Plan		
					ADT	V/C	LOS	ADT	V/C	LOS	ADT	V/C	LOS
Midway Drive	Northwest of Rosecrans St.	Major	4	40,000	27,130	0.68	C	32,300	0.81	D	33,100	0.83	D
	Southeast of Rosecrans St.	Major	4	40,000	29,440	0.74	C	32,200	0.81	D	32,200	0.81	D
Lytton Street	Northwest of Rosecrans St.	Major (2)	2	20,000	11,797	0.59	C	15,300	0.77	D	15,600	0.78	D
	Southeast of Rosecrans St.	Major	4	40,000	19,650	0.49	B	25,600	0.64	C	25,600	0.64	C
Nimitz Boulevard	Northwest of Rosecrans St.	Major	4	40,000	17,264	0.43	B	34,300	0.86	D	34,300	0.86	D
	Southeast of Rosecrans St.	Major	4	40,000	12,020	0.30	A	44,100	1.10	F	44,300	1.11	F
North Harbor Drive	Rosecrans St. to Scott Rd.	Major	4	40,000	6,321	0.16	A	14,000	0.35	A	14,700	0.37	A
Canon Street	Northwest of Rosecrans St.	Collector	2	15,000	12,870	0.86	D	22,000	1.47	F	22,000	1.47	F
Talbot Street	Northwest of Rosecrans St.	Collector	2	8,000	5,950	0.74	D	8,800	1.10	F	8,800	1.10	F

Note: Deficient roadway segment operation indicated in **bold**.

(1) LOS E Capacity has been estimated based on results of the Highway Capacity Manual Urban Street Methodology.

(2) Since a published standard capacity for a 2-Lane Major does not exist, capacity is assumed to be half of a 4-Lane Major.

In addition, major infrastructure will be needed to better distribute the traffic throughout the area. Caltrans has identified a number of long term improvements that will improve access to Lindberg Field, access to major transit facilities and freeway connection improvements. All these improvements will aid in reducing the passenger vehicle demand along the Rosecrans Corridor. However, the future of these improvements is uncertain as funding was unknown at the time this report was prepared. Therefore, the improvements suggested by Caltrans for the Horizon Year were not included in this analysis unless specifically in the Regional Transportation Plan.

In 2010, SANDAG will be revisiting the Regional Transportation Plan and identify projects through the year 2050. It is recommended that the City and Community work closely with SANDAG in this effort to identify these future deficiencies in the study area. Regional improvements to the I-5/I-8 interchange, connections to the freeway from Jefferson and connections to the I-8 from Kurtz will all provide congestion relief to Rosecrans Street.

Without this traffic relief, the operations along the corridor will continue to operate at LOS E/F conditions. The North Bay/Midway Community Plan should look closely as these segments and discuss the need to maintain the plan for eight lanes on Rosecrans Street. Long term redevelopment plans should consider the long term benefits of mix-use development in the area to address the traffic related issues.

Travel Time Analysis Summary

The improvements associated with the Recommended Concept Plan are forecast to result in a decrease in travel time along the corridor by as much as three minutes from Lytton Street to Taylor Street. This is primarily due to improved signal timing between intersections to reflect the year 2030 traffic volumes and the reduction in weaving between the intersections of Rosecrans/Sports Arena and Rosecrans/Kurtz. Between Lytton Street and I-8 freeway connectors, travel time is reduced by nearly four (4) minutes in the northbound direction. This is due to improved signal timing along the corridor and geometric improvements between Midway and Rosecrans. Overall, the improvements included in the Recommended Concept Plan are forecast to improve the travel times to near existing conditions travel times.

Table ES-5
Summary of Area One Travel Time Analysis (VISSIM Simulated for All Conditions)

Travel Time	Direction of Travel	Existing Conditions	2030 No Build	2030 With Recommended Plan	Difference RCP-NB (seconds)
Rosecrans: Lytton to Taylor Street	NB	5:45	9:32	5:56	-3:36
	SB	6:28	8:26	5:34	-2:52
Rosecrans: Lytton to Camino del Rio/ I-8	NB	4:34	9:23	4:26	-3:57
	SB	4:51	6:58	4:18	-2:40

Note: NB = No Build; RCP = Recommended Concept Plan

Traffic Signal Warrant Assessment

Two new traffic signals are included in the Recommended Concept Plan (Improvement B & Improvement M). Operationally, the traffic signals offset the side street delay and provide for controlled pedestrian access in areas where limited pedestrian access is currently available.

Operationally, the stop controlled or yield (left turn) movements at the intersections are forecast to operate at deficient conditions by the year 2030 if no improvements are made. Signalization of the intersections would reduce delay, in particular to the side street movements, to acceptable levels (LOS D or better). To complete the analysis of the proposed new traffic signals, a traffic signal warrant analysis was conducted for the intersections of Rosecrans Street / Hancock Street (Improvement B) and Rosecrans Street / Emerson Street (Improvement M). The traffic signal warrants were conducted in accordance with the guidelines published in the Manual on Uniform Traffic Control Devices (MUTCD – 2006 Edition). The individual traffic signal warrants analyzed in this study include:

- Warrant 2 - Four-Hour Vehicular Volume.
- Warrant 3 - Peak Hour.
- Warrant 4 - Pedestrian Volume.
- Warrant 7 - Crash Experience.
- Table 4C-101 from MUTCD (2006) – ADT Estimate Form

Results of the traffic signal warrant analysis show that the intersections do not currently meet the minimum thresholds established in the MUTCD. By year 2030, as the traffic along the corridor increases, the thresholds are exceeded at both locations.

Table ES-6
Summary of Traffic Signal Warrant Analysis

Intersection	Warrant				
	2	3	4	7	Table 4C-101
Existing Conditions					
Rosecrans St. / Hancock St.					
Rosecrans St. / Emerson St.					
Year 2030 with Recommended Concept Plan					
Rosecrans St. / Hancock St.		✓			✓
Rosecrans St. / Emerson St.		✓			

✓ = Warrant Satisfied

PEDESTRIAN AND BICYCLE BENEFITS AND IMPROVEMENTS

Pedestrian and bicycle activity along the Rosecrans Corridor varies. In Area 1, high volume of pedestrian and bicycle traffic is directly related to the proximity to the Old Town Transit Center. In Area 2, there is a high volume of pedestrian activity near the Rock Church and High Tech High, both located with Liberty Station. Through the Village (Area 3), the potential for pedestrian traffic is high, but lack of connections between the east and west side of Rosecrans Street affects the level of pedestrian activity through this area. In Area 4, most pedestrian activity is recreational. Regardless of the source of pedestrian or bicycle activity, there are people out and about along the corridor on a daily basis. Many of the participants of the walk audits and community workshops stated that they felt it is unsafe to walk or bicycle along Rosecrans Street. Some stated that they would consider walking if the environment for walking was improved.

The mobility study looked at existing conditions along the corridor and identified projects that would improve the overall pedestrian and bicycling environment.

Pedestrians

Based on 2009 pedestrian data, approximately 1,525 pedestrian crossings occur during the a.m. peak period (7:00 to 9:00 a.m.) and 2,105 occur during the p.m. peak period along the Rosecrans Corridor. By the year 2030, pedestrian activity is forecast to increase to 2,311 pedestrian crossings in the a.m. peak and 2,808 in the p.m. peak periods. The increase in pedestrian activity warranted evaluation of the existing pedestrian facilities to ensure that pedestrian capacity on sidewalks is being met.

Analysis of the corridor showed that there are numerous gaps and multiple obstructions along the corridor. In addition, curb ramps at intersections did not meet the current ADA requirements. Therefore, the Rosecrans Corridor Mobility Study looked to improve accessibility for pedestrians by completing the sidewalks, providing curb extensions and removing obstructions where feasible. Approximately 30,800 linear feet of sidewalks are currently provided along the entire study corridor, which includes both Rosecrans Street and Camino Del Rio. The Recommended Concept Plan proposes to provide an additional 2,100 linear feet of new sidewalks in locations with currently discontinuous sidewalks, which does not include the sidewalks that will need to be reconstructed or replaced. The Recommended Concept Plan will increase the total linear feet of sidewalks along the corridor to approximately 32,900 feet. Other pedestrian improvements proposed with the Recommended Concept Plan include 71 new curb ramps and 39 new crosswalks along the corridor.

Bicycles

Based on 2009 bicycle data, approximately 476 bicyclists were observed during the a.m. peak period (7:00 to 9:00 a.m.) and 687 were observed during the p.m. peak period along the Rosecrans Corridor. By the year 2030, bicycle activity is forecast to increase to 788 bicycle trips along the corridor in the a.m. peak and 1,091 in the p.m. peak periods.

It should be noted that the highest bicycle activity along the corridor occurs in Area 1 along Rosecrans Street between the Old Town Transit Center and Sports Arena Boulevard. Through this section, there are currently no bicycle lanes and many of the sidewalks are discontinuous.

Community members shared their concerns about mixing bicycle traffic and passenger vehicle traffic along Rosecrans Street. To address this concern, multiple alternatives were considered to provide Class I bicycle facilities (bicycle paths) along Rosecrans Street as part of this study and presented to both the project technical team and the Project Working Group. Results of this analysis showed that right-of-way constraints, existing curb cuts/driveways and the spacing between major intersections resulted in unfavorable conditions for providing such a facility. Therefore, this study recommends maintaining the Class II bicycle facilities and completing the network by adding new facilities in Areas 1 and 3.

The Rosecrans Corridor Mobility Study aimed to complete the bicycle network along the corridor by completing the gaps in the Class II bicycle lanes that occur in Area 1 and in Area 3. The study corridor currently includes approximately 21,000 feet of Class II bicycle lanes. The Recommended Concept Plan proposes to provide an additional 20,000 feet of Class Two bike lanes, which increases the total length of bike lanes along the study corridor to approximately 41,000 feet. The Recommended Concept Plan also includes recommendations for future consideration of Bicycle Boulevards parallel to Rosecrans Street to provide recreational cyclists an alternate, slower speed route through the study area.

TRANSIT OPERATIONAL BENEFITS AND IMPROVEMENTS

Based on SANDAG 2009 ridership data, the Rosecrans Corridor is responsible for 2,571 trips ends per day. By year 2030, the number of trip ends is anticipated to increase to 5,557 trip ends per day. The greatest increase is forecast to occur along Route 35, where trips ends are expected to increase by over 660%. The breakdown in trip ends by Route through year 2030 is summarized in Table 4-6.

Table ES-7.
Forecast Year 2030 Trip Ends

Route	Existing FY 09 Trip Ends	Projected 2030 Trip Ends	%Change
8/9	103	196	90%
28	1,654	2,227	35%
35	260	2,000	669%
84	369	0	-100%
923	185	1,134	513%
Total	2,571	5,557	116%

As summarized in the previous section of this document, ten segments along the Rosecrans corridor are forecast to operate at LOS E or F by the year 2030 according to the roadway segment operating conditions analysis. Similarly, by the year 2030, the number of intersections forecast to operate at deficient LOS increase from four to seven in the p.m. peak. These changes to traffic operations will have a direct impact on the operations of transit operations along the corridors. Slower run times and longer wait times for buses will result in impacts to bus on-time performance.

The Rosecrans Corridor Mobility Study focused on improving pedestrian access to transit and improving corridor flows to maintain or improve transit on-time performance. There are 42 transit stops currently provided along the Rosecrans corridor. Intersections with the highest delay and associated highest transit ridership were identified as key intersections in the transit study, which include:

- Rosecrans St / Taylor Street
- Rosecrans St. / Sports Arena / Camino Del Rio
- Rosecrans St. / Midway St.
- Rosecrans St. / Lytton St.
- Rosecrans St. / Nimitz Blvd. (LOS F in a.m. & p.m. peaks)

Operational Improvements

Intersection improvements planned for the intersections of Rosecrans St. /Sports Arena Blvd. and Rosecrans St. / Midway Dr. improve the traffic operating conditions to LOS D or better. By reducing the delay and queue length, transit operating conditions through the intersection. According to the travel time analysis conducted, the Recommended Concept Plan is likely to reduce transit travel time by as much as three minutes through Area 1. Additional improvements such as signal priority and queue jump lanes would further improve the operating conditions for transit vehicles.

Queue jump lanes are included in the Recommended Concept Plan at two locations. At the Rosecrans St. /Midway Dr. intersection, a new queue jump lane is planned that will reduce the transit wait time at the intersection. This will allow transit vehicles to bypass queues along the right shoulder in order to reach the proposed transit stop on the far side of the intersection on the southbound approach. Due to right-of-way constraints, this improvement is included in the long-term improvements for the intersection.

The existing queue jump lane at Rosecrans/Pacific Highway is also proposed to be extended to improve the transit vehicle access approaching the Old Town Transit Center (Improvement B). The extension of this queue jump lane can be accomplished through a re-stripe of Rosecrans Street, but may result in a restriction in left turn access at Jefferson Street.

Transit Stop Modifications

There are 42 transit stops currently provided along the Rosecrans Corridor. To improve transit operations and pedestrian access to the stops, spacing between stops and daily riderships at each stop was evaluated. The plan includes the removal of eight existing transit stops. These stops are either located close to an existing stop or have very low (less than 10 boardings and alightings per day). In addition, seven transit stops are proposed to be relocated to near signalized intersections and other locations with safer pedestrian access, and one new transit stop is proposed to be added to the study corridor. The Recommended Concept Plan proposes a total of 35 transit stops to be provided on the Rosecrans corridor.

COST AND IMPLEMENTATION

Cost estimates were prepared for the 22 individual projects identified in the Recommended Concept Plan. Both construction cost (with contingency) and overhead costs (design, environmental review, bonding, etc) were considered in developing the preliminary estimates for the projects.

In total, the project is estimated to cost over $13.3 million (in 2010 dollars). Additional costs that should be anticipated, but not included in this estimate include right-of-way and utility relocation. Detail cost estimates are provided in Chapter 9 along with conceptual design of the proposed improvements for each of the 22 elements of the Recommended Concept Plan. In many cases detailed environmental analysis may be necessary for implementation of the proposed improvements. In other cases, additional community outreach may be necessary.

Several projects identified for the Long Term or Beyond 20 year horizon do not include cost estimates. For example, the Project Working Group recommended further investigation of a parking structure to help offset the traffic impacts along the corridor. The location of the off-site lot will impact the cost associated with potential property acquisition and construction costs. Such long-term improvements will need to be re-evaluated for both cost and feasibility when the City determines such opportunities are available or if a funding source to conduct further evaluation becomes available.

With over $13.3 million in improvements, the elements of the project will need to be implemented in a series of phases. Projects that require minimal right-of-way, have little to no environmental or community outreach needed and could be funded through available city or grant funds were identified as short-term (0-5 year) improvements. Projects that require environmental documentation, are more costly and/or need further input from the community were identified as medium (5-10 year) improvements. Higher cost projects that will require additional design, extensive environmental analysis or require substantial right-of-way acquisition were identified for the long term (10-20 years). Project receiving lower community and/or Project Working Group support and require additional community outreach were identified as beyond 20 years.

Using the general categories listed above, the projects were identified as short, medium and long term projects. However, with community support and available funding, medium and/or long term projects could be considered in an earlier phase. Likewise, lack of funding or additional constraints that could arise during final engineering could result in short term projects occurring in the medium or long term. The purpose of the project phasing plan is to distribute

the projects over several years and provide the City with guidance in allocating funds for future improvements along the corridor.

To further assist the City in identifying priorities in the study area, each of the projects identified were ranked in accordance with the criteria established in Council Policy 800-14. The 22 elements of the Recommended Concept Plan were allocated points based on Health and Safety (25%), Capacity and Mobility (20%), Cost and Potential for Funding (20%), Revitalization and Community Support (15%), Multiple Category Benefits (10%), Project Recurring Cost (5%) and Project Readiness (5%). Details of this ranking process and implementation plan are summarized in Chapter 10.

Projects that serve multiple modes, qualified for potential grant funding programs and required minimal environmental analysis naturally ranked higher than projects that were higher in cost, required additional environmental clearance and served only a single mode. Bicycle lanes and pedestrian improvements were amongst the highest ranking projects based on the scoring criteria established in Council Policy 800-14 and the elements of the project identified in the Mobility Study.

HOW THIS STUDY CAN BE USED

This study should be used as the guiding document for improvements with the study area. There are many steps that will need to occur before any of the 22 improvements identified in the Recommended Concept Plan can be constructed. This document or portions of this document will be helpful in completing many of the steps required before design or construction can begin, as well as pursuing funding for future phases of implementation.

Integration into the Community Plan Update and Capital Improvement Program: As local Community Plans undergo the process of updating the Mobility Elements, the elements of this plan should be considered by the community and integrated, as appropriate, into the respective North Bay/Pacific Highway, Old Town and Peninsula Community Plans. Based on the prioritization of projects and the funding sources available, short term projects should be considered for the City's Capital Improvement Program (CIP).

Environmental Documentation: Traffic operational analysis conducted for this report is consistent with the traffic study requirements established for the City of San Diego. Therefore operational analysis of the key intersection can be used in the development of environmental documents to support elements of the project. Traffic signal warrants can also be used to justify the implementation of new traffic signals.

Grant Application Materials: Conceptual design plans and cost estimates are effective tools that the City can use to pursue grant funding opportunities that will lead environmental documents, final design and construction. Digital files of the conceptual engineering and cost estimates as well as the traffic operational analysis files were provided with this document to the City for use in future phases of the project.

There are many ways the City and the community can utilize the analysis prepared as part of this project. Community planning groups have the technical information necessary to identify high-priority projects and work with the local government in seeking funding to complete those elements that will resolve current mobility issues.

SUMMARY AND CONCLUSION

The Technical Project Team would like to thank all the volunteers and community members who participated in the development of this plan. The countless hours of meeting attended by the Project Working Group, the active participation by the community at the workshops and the hard work by the technical team resulted in a plan that identifies feasible solutions for the Rosecrans Corridor. Many of the elements that received mixed community opinions will require additional community outreach before a final resolution many be met. The concepts identified in this study area are a starting point and can be used to attract both potential funding sources as well as community support for much needed mobility improvements along the corridor.