Vallejo Transportation and Mare Island Access Study
Multimodal Facility Location and Design Study

Executive Summary

Prepared by

Korve Engineering

Prepared for

City of Vallejo

January 2001

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Background and Inception of Study

The Mare Island Access Study and Multimodal Facility Location and Design Study has been commissioned by the City of Vallejo to develop a city-wide comprehensive plan intended to ease the integration of Mare Island, as a civilian housing and employment center, into the fabric of the City of Vallejo as a whole. Additionally, the study considers the waterfront development plan and downtown redevelopment in conjunction with the Mare Island needs, in establishing a comprehensive transportation plan for the City of Vallejo.

The study is a follow-on to transportation evaluation conducted during the process of closing Mare Island as a military facility and turning it over to the City for disposal and reuse. It focuses on short-range (5 years) and longer range (20 years and beyond) needs and opportunities for enhancing transportation services on and to the island as well as to the development of the waterfront and downtown areas.

Study Objectives

At the outset of the study, the following objectives and principles were discussed and agreed to:

- Define Transportation Infrastructure Needed to Support Economic Development – The study defines all of the transportation infrastructure needed to support the development objectives of the City. The development objectives include traditional commercial and housing development as well as civic facilities, and the attraction of recreational and tourist activity to the Mare Island Historic District, as well as other parts of the island and Downtown / Waterfront areas. The study considers the inter-relationship between the costs and benefits of transportation improvements and proposed land development.

- Evaluate Access and Circulation Options for Mare Island – Prior studies of Mare Island re-use identified the need for a "Southern Crossing" bridge connection between the southern portion of Mare Island and Vallejo proper. The study evaluates the need for such a facility as well as the overall access capacity of the existing network, resulting is specific recommendations with regard to the Route 37 interchange, the Mare Island Causeway and its approaches.

- Evaluate Mare Island Way Alignment and Configuration – The study examined a wide range of options for Mare Island Way, including two and four through lanes, curved and straight alignments, and accommodation of transit, parking and pedestrian needs.

- Develop Multimodal Transportation Plan – The study addresses sites for expanded ferry services as well as alternatives to the existing downtown local bus timed transfer center. The study also addresses issues and needs for rail service to Mare Island and truck access.

- Identify Implementation Plan with Funding Strategy – The study provides an implementation plan with a companion funding strategy. The implementation plan addresses the need and timing of the proposed improvements, along with possible funding sources and the recommended environmental clearance process.

STUDY PROCESS

In order to respond to all of the planning requirements, a four step planning process was utilized (See Exhibit 1):

- Objectives & Options – At the study inception, study objectives and planning principles were identified. Transportation opportunities were identified and developed as design options, site options, or operational strategies for transportation improvements.

- Initial Screening – The initial screening was accomplished to focus the transportation planning effort on the most promising options and strategies. Constraints were identified and the transportation options were evaluated based upon a number of initial considerations including: potential environmental or land use impact, potential relative cost versus possible benefit to adjoining land uses, fundability, and likely transportation service levels.

- Alternatives Analysis –A formal evaluation of the most promising alternatives was accomplished. The alternatives analysis focused on a number of specific quantitative parameters, including: capacity in relationship to projected transportation demand level, travel time and quality of transportation service, capital and operational cost range, and specific environmental issues needing further analysis.

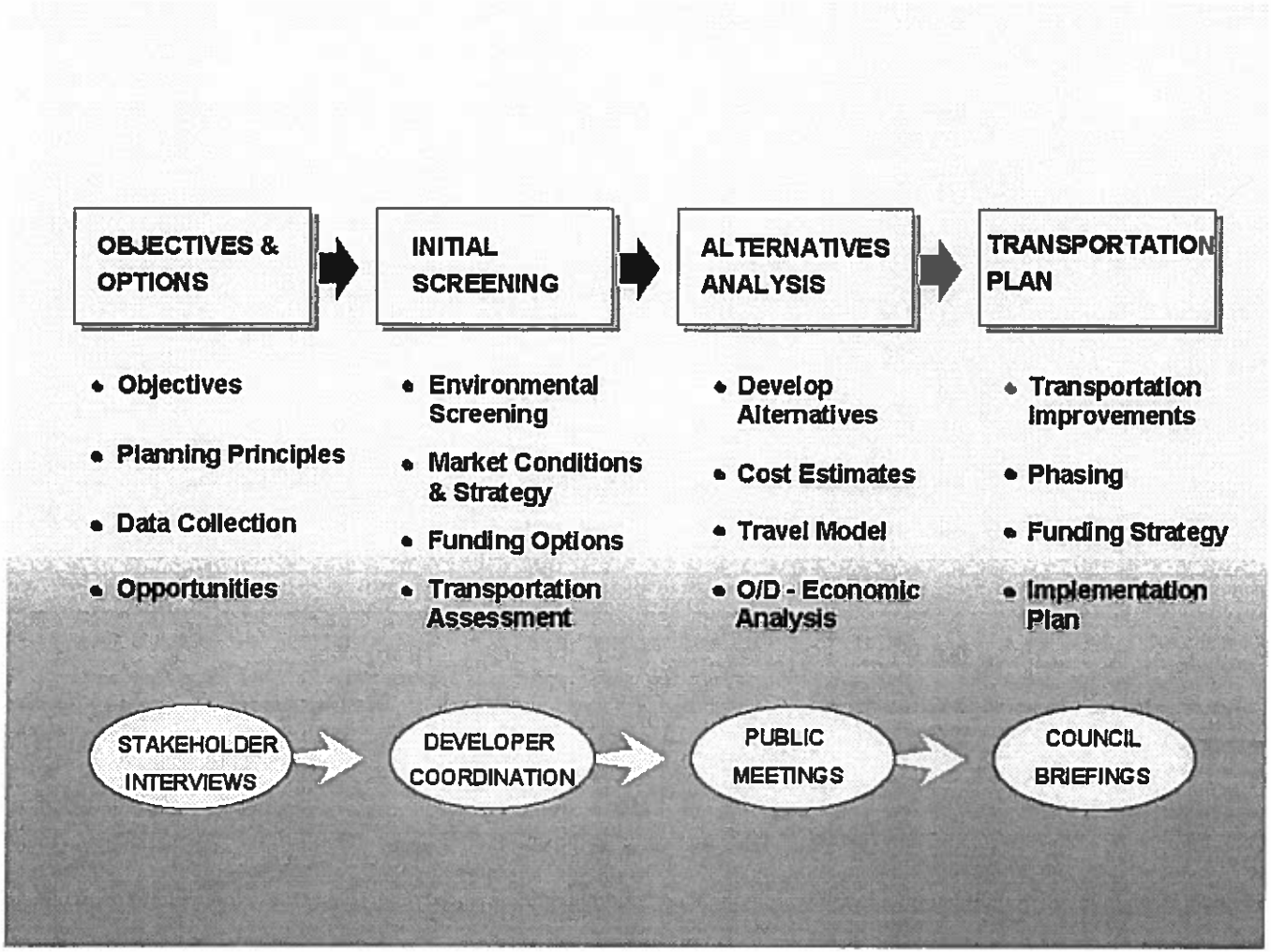
- Transportation Plan – Based upon the formal evaluation, the Transportation Plan was developed by assembling the improvements deemed necessary and appropriate to address the transportation requirements. In conjunction with the transportation plan, an implementation strategy was developed which considered the relative need and/or phasing (from an overall transportation planning perspective) and funding opportunities for the proposed projects.

PUBLIC OUTREACH PROCESS

The four major planning activities were accomplished in parallel with a major public outreach effort which included "stakeholder" meetings with potentially affected residents and business, developer coordination, public meetings, and Planning Commission / City Council study sessions.

The refinement and screening of the options and strategies was conducted in parallel with "stakeholder" meetings with potentially affected residents and business as well as with developer coordination so that options were discarded, added, or modified subject to on-going input. The public outreach effort continued during the alternatives analysis phase including a public meeting to present the elements under consideration for the transportation plan as well as initial evaluations of potential plan options.

Exhibit 1 – Study Process



TRAVEL FORECAST MODEL

As part of the alternatives analysis, a citywide travel demand forecast model, with a sub-regional model zone extending into Solano County was developed. The travel forecast model incorporates an up-to-date assessment of existing commercial occupancies as well as allowable future land uses in Vallejo and beyond and planned roadway improvements. The model was used to "test" the viability of proposed improvements such as the Southern Crossing bridge, the required number of through lanes on Mare Island Way, and the access constraints of Mare Island. The travel forecast model is available for use as an on-going planning tool to continue to test development proposals and transportation improvements as the City develops.

ROUTE 37 PROJECT STUDY REPORT

At the study outset, it was recognized that improvements to the Route 37 interchange could provide the most cost-effective means of increasing the access capacity to Mare Island. Accordingly, the study includes a Project Study Report (PSR), which is documentation required by Caltrans to approve of improvements to state highway facilities. The PSR specifically provides for needed near-term improvements to modify the existing interchange to connect to the proposed local roadway system at the north end of Mare Island and also defines a low-cost method of providing two-lane on and off ramps to and from the east.

WHITE PAPER

As part of the alternatives analysis, a transportation and land use "white paper" was prepared to explore the relationships between sub-regional travel demand, possible major transportation investments, and land use benefits. The white paper identifies the appropriate context for the Southern Crossing bridge and other major improvements.

IMPROVEMENTS CONSIDERED

This study has investigated a wide range of highway and transit options, both for Mare Island access and circulation, as well as for the waterfront, downtown, and beyond:

Mare Island

- Improvements to State Route 37 Interchange
- Modifications to Causeway Bridge and Approaches
- Improvements to On-Island Roadway System
- Truck Access and Rail Service to Mare Island
- Southern Crossing Bridge

Waterfront, Downtown and Beyond

- Modifications to Mare Island Way
- Extending Roadways to Waterfront

- Parking and Bus Facilities needed for Expanded Ferry Service
- Construction of New Ferry Terminal South of Downtown
- Relocation of Downtown Vallejo Transit Transfer Center
- Interstate 80 Corridor Improvements
- Arterial Roadway Improvements

PRINCIPAL STUDY RECOMMENDATIONS

The study process has lead to the development of ten key recommendations. These recommendations were developed as a result of a comprehensive transportation planning process which included evaluation of long-term transportation demand, engineering feasibility, environmental constraints, and community input.

1. A Southern Crossing Bridge Is Not Needed until Beyond Year 2020

2. The Ferry Service Should Remain at the Existing Vallejo Downtown Location

3. Improvements to State Route 37 Interchange Are a High Priority for Mare Island

4. The Causeway and Mare Island Roadways Can Accommodate Re-Use Traffic

5. A Local Bus Connection Will Provide the Best Transit Link to Mare Island

6. Maintain Provisions for Rail and Truck Service to Mare Island

7. Provide 4 Peak Hour Lanes on Mare Island Way by Year 2010

8. Relocate the Downtown Bus Transfer Center

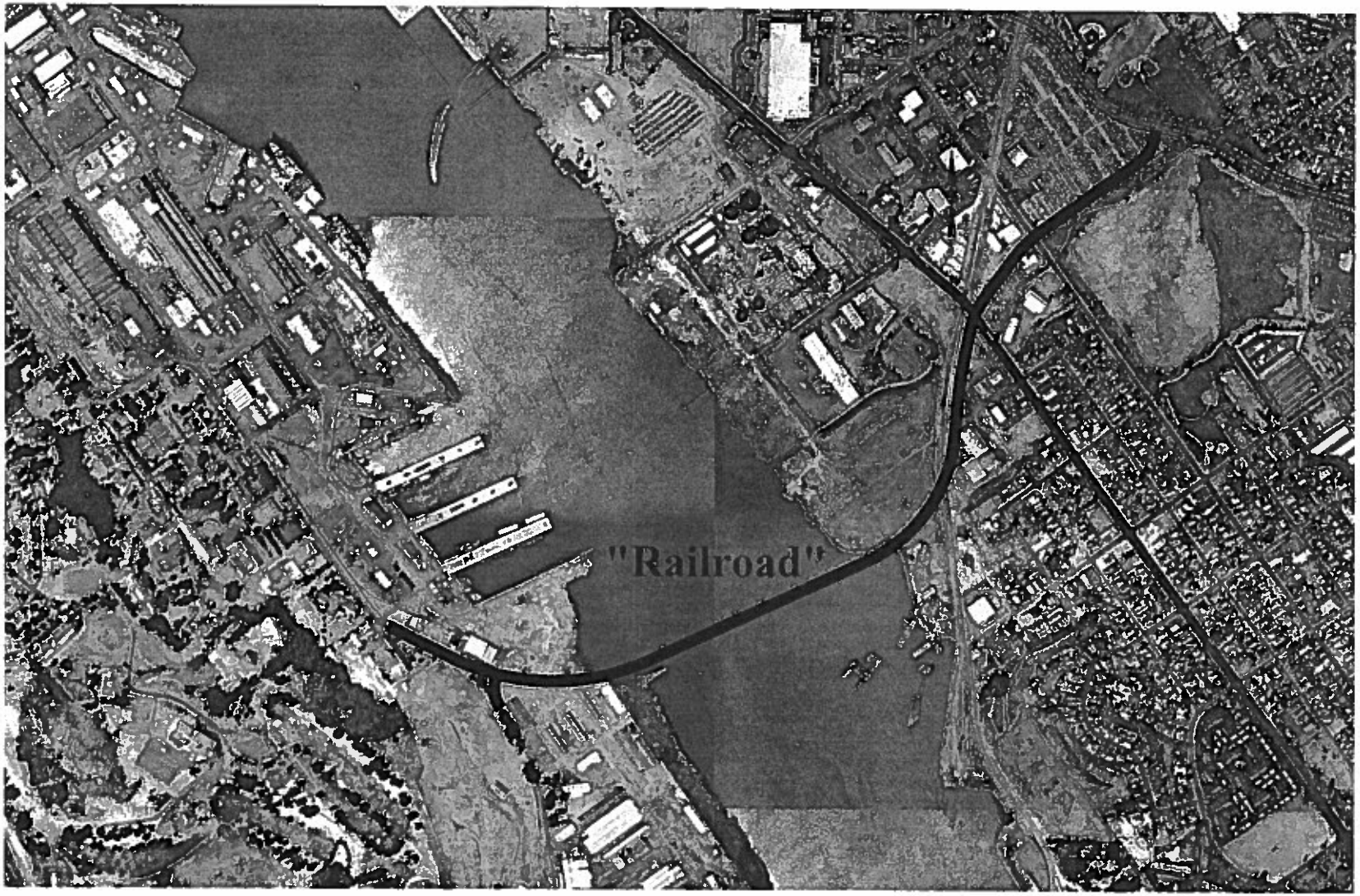
9. The Interstate 80 Interchanges Can Accommodate Proposed Development

10. Continue to Develop Transportation In Support of Economic Development

A summary discussion of the rationale for each of these points is provided below:

- ❑ A Southern Crossing Bridge Is Not Needed until Beyond Year 2020 – The travel forecast model indicated that the two existing Mare Island access points, the causeway and the Route 37 interchange, would be approaching, but would not exceed capacity in the horizon year of 2020. Other benefits of a new bridge would be relief of Mare Island Way and travel time savings to the south end of the island. The overall conclusion is that a new bridge, which would cost about $75-million, should be tied to development levels on Mare Island which significantly exceed those considered in this study. The study resulted in the development of a promising feasible alignment for the bridge crossing. (See Exhibit 2, which illustrates the most promising "Railroad" alignment.)

Exhibit 2 - Most Promising Southern Crossing Alignment



- The Ferry Service Should Remain at the Existing Vallejo Downtown Location – The study team considered a range of site locations south of the existing terminal along the Mare Island Strait and also considered splitting the service between the existing terminal and a new terminal further south. It is recommended that the ferry service remain at the downtown location with development of a mixed-use project including parking and ancillary residential and commercial uses (see Exhibit 3 for examples) for a number of critical reasons: 1) The cost of a new terminal at an alternate site with surface parking sized to meet the needs with the planned service expansion to four boats would be at least $23 million, not including right-of-way – this is a very large expenditure which would largely be spent to replace the existing facilities; 2) As the waterfront develops, attainment of highest and best use would probably require construction of structured parking at the alternative site – however a large parking structure at an alternative site would not provide secondary benefits for the downtown; 3) Time advantages of moving the ferry terminal further south along the waterfront would be marginal unless the ferry were moved to the vicinity of Lemon Street, however, a terminal at Lemon Street would be difficult to serve with local feeder buses since it is not centrally located; 4) Newer vessels would reduce travel times resulting in greater schedule reliability and modal attractiveness even with the existing terminal location; and 5) splitting the service would not be practical from the point of view of the ferry operating plan nor from a local access perspective.

- Improvements to State Route 37 Interchange Are a High Priority for Mare Island – The study team verified that the local roadway system proposed for the northern end of Mare Island would be adequate, however, modifications would be required within the state right-of-way to connect Railroad Avenue as a two-way facility. The study team identified a low-cost method of providing two-lane on and off ramps to and from the east on Route 37 and is therefore proposing these as a near term improvement which could increase the capacity of access to Mare Island. Exhibit 4 shows the mid range Phase B project as presented in the draft Project Study Report which would result in two lane ramps without need to widen the high bridge.

- The Causeway and Mare Island Roadways Can Accommodate Re-Use Traffic – The peak hour volumes forecast on the Causeway would approach, but not exceed the mid-block capacity of a single lane (1,800 - 2,000 vehicles per hour). Additionally, the intersections at Railroad Avenue and Tennessee Street on either end of the Causeway would operate at LOS C or D with the improvements proposed at Route 37, even without a Southern Crossing bridge. Therefore, no additional capacity would be required in the vicinity of the Causeway to serve Mare Island. The study team is also recommending re-striping the Causeway bridge to provide two 15-foot wide lanes. These lanes would be wide enough to increase driver comfort and allow cars to pass bicycles which could remain on-street across the causeway. (The sidewalk would remain for pedestrian traffic and cyclists not choosing to use the roadway, which would improve pedestrian conditions.) Rail traffic would remain on the bridge, but only at restricted hours of operation and not concurrent with roadway traffic. On-island roadways needed to accommodate development would include provision of 6 lanes plus a center turn lane on Railroad Avenue north of the Causeway, reconfiguration of Railroad Avenue to five lanes with a railroad spur shared with a center turn lane from the Causeway to south of the Historic District, and provision of four through lanes on Cedar and G Streets.

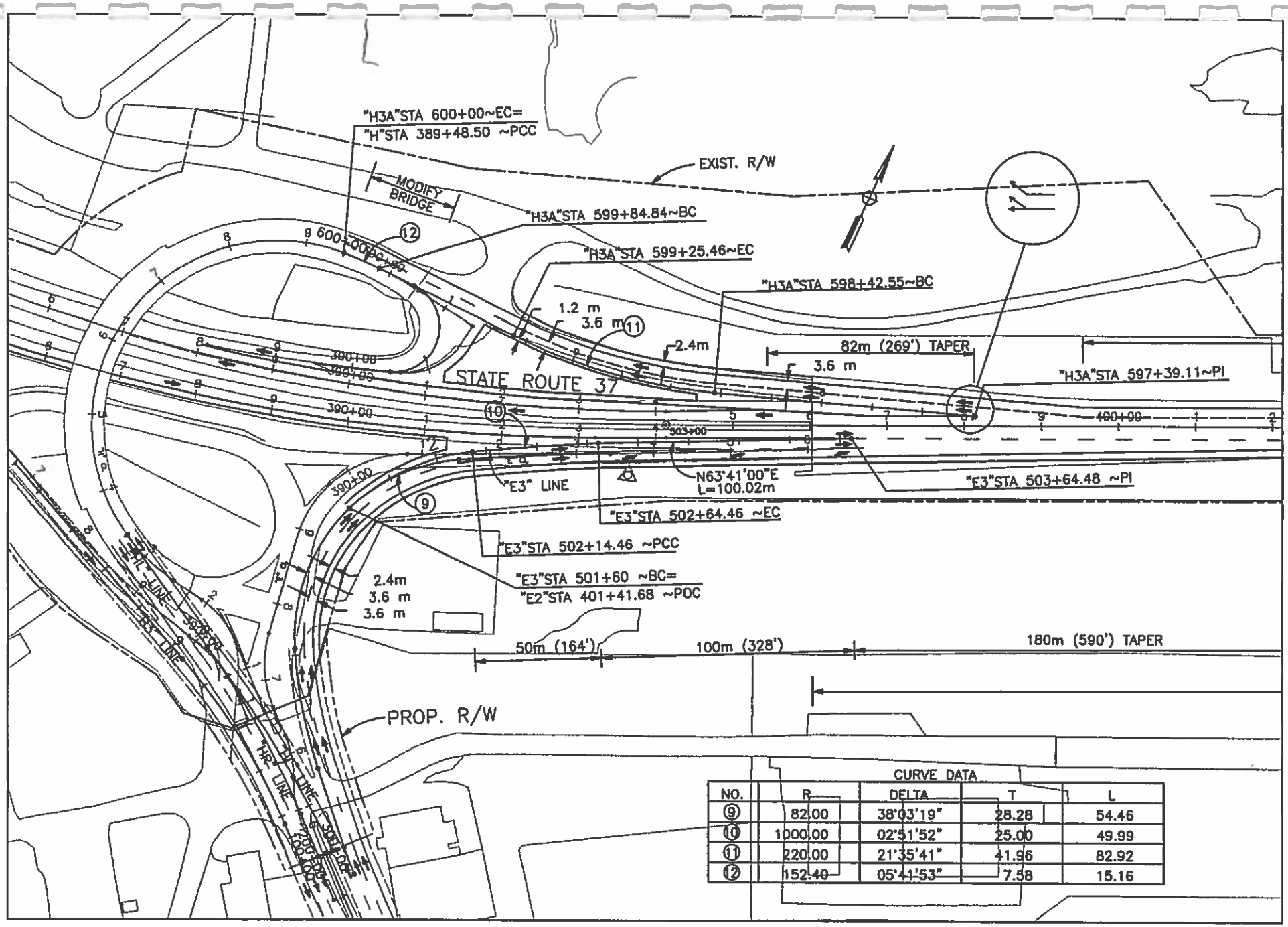
Exhibit 3 – Mixed Use Project Examples

Clockwise, from upper left:

Retail/Office with Ferry beyond, Restaurant/Parking, Parking Entrance, Plaza/Retail/Parking (Jack London Square, Oakland)

Residential/Office/Retail/Underground Parking (Chinatown, Oakland)

Bus Transfer/Office/Parking and Retail/Office/Parking (Riverside)



CURVE DATA

NO.	R	DELTA	T	L
⑨	82.00	38°03'19"	28.28	54.46
⑩	1000.00	02°51'52"	25.00	49.99
⑪	220.00	21°35'41"	41.96	82.92
⑫	152.40	05°41'53"	7.58	15.16

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EXHIBIT 4

2-LANE WB ON-RAMP. ONE THRU LANE ON SR37

STATE ROUTE 37/MARE ISLAND INTERCHANGE - ALT. 2 - PHASE B

- A Local Bus Connection Will Provide the Best Transit Link to Mare Island – The study team considered a variety of means of providing transit service to Mare Island and concluded that provision of a new bus route from the Downtown transit center, with stops at the ferry terminal, would be the best solution. The new route is proposed as a two-way loop on Mare Island: The two-way loop would provide for bi-directional on-island circulation along Cedar and Railroad, providing bus transit coverage for both access and circulation for most of the developed areas of the island. The capital cost of the service expansion has been included in the transportation plan, however, the study team was not able to identify a source of funds for the annual operations cost, which is estimated at $640,000 for phase one (recommended for implementation with hourly service by Year 2005) and $1.6-million for a phase two service plan (recommended for implementation with 30-minute headways by Year 2010). Exhibit 5 shows the proposed bus route.

- Maintain Provisions for Rail and Truck Service to Mare Island – Mare Island has an existing rail network which is used by a number of shippers. The study team identified improvements to the on-island rail lines to be made in conjunction with reconfiguration of the causeway, its approaches, and island roadways to accommodate on-going rail access with minimal impact to traffic. It is anticipated that most goods movement to and from Mare Island will continue to be by truck, using either the Route 37 interchange or Mare Island Causeway. As a principal access route from the south, Mare Island Way would be expected to have a "typical" percentage of trucks for an arterial roadway, ranging from five to ten percent. Most of these trucks would be smaller vehicles, however, there would be a proportion of larger vehicles. If the City decides to limit trucks on Mare Island Way, it could set a 5 ton limit which would allow the smaller trucks and delivery vans to continue to use the roadway while diverting larger vehicles to Sonoma/Tennessee or I-80/Route 37.

- Provide 4 Peak Hour Lanes on Mare Island Way by Year 2010 – The travel forecast model indicated that Year 2020 peak hour volumes would approach 1,500 vehicles/hour, which would require a four lane roadway (the capacity of a signalized roadway lane is typically 500 to 800 vehicles per hour). Assuming a uniform rate of development, it is likely that four peak hour lanes will be required by Year 2010. It is also likely that, by year 2020, four peak hour lanes would be needed mid-day as well. In view of these findings, it is recommended that the existing roadway should be re-striped, retaining the existing four travel lanes, and providing a wide outside lane to accommodate on-street bicycles, with the shoulder area devoted to right-turn lanes approaching the intersections, a parking zone mid-block, and a bus stop downstream from the intersections. On street parking along Mare Island Way could potentially reduce the number of costly structured parking stalls needed to support the expansion of the ferry service. Provision of wide sidewalks and on-street parking are consistent with the Waterfront urban design plan, which calls for pedestrian-friendly enhancements. In addition, by providing a four lane roadway, the vehicle queues can be cleared with less green time, which would allow shorter waits for pedestrians to cross the street. Wider sidewalks would be provided by expanding into existing right-of-way to the outside. Exhibit 6 shows a prototypical plan.

Exhibit 5 – Mare Island Bus Route

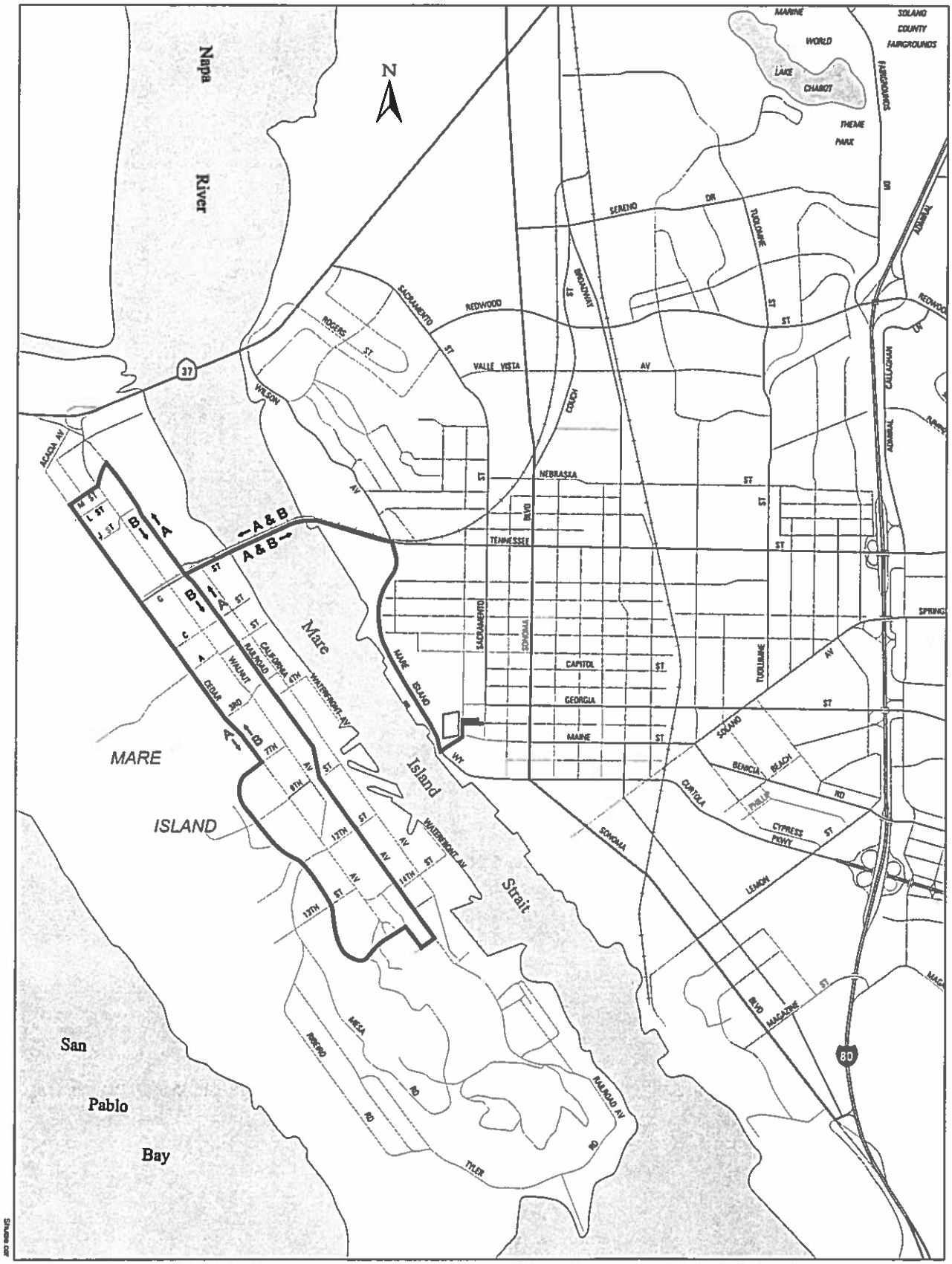
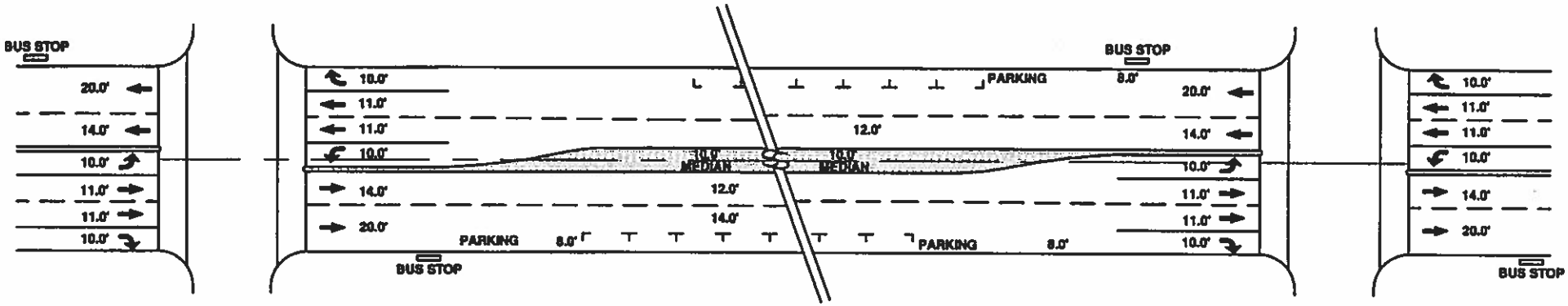
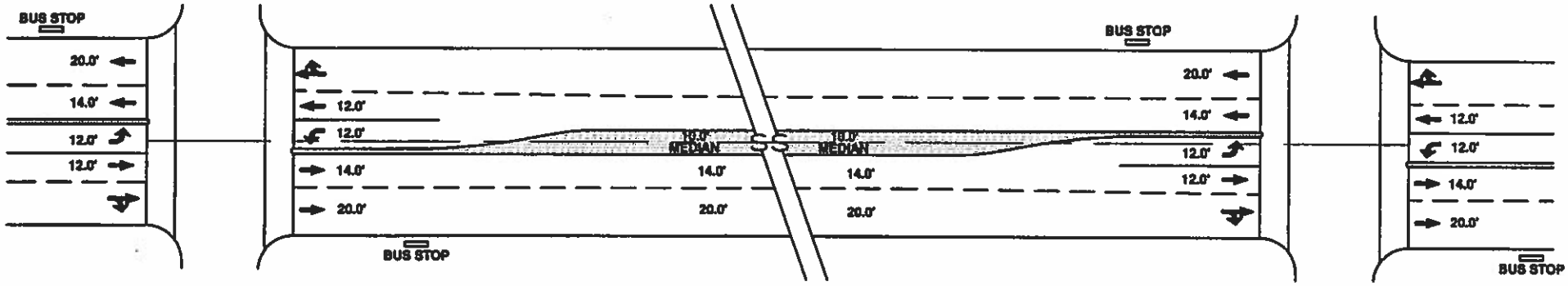


Exhibit 6 – Mare Island Way Prototypical Plan



MARE ISLAND WAY - SHORT TERM IMPROVEMENTS



MARE ISLAND WAY - EXISTING CONDITIONS

- Relocate the Downtown Bus Transfer Center – The existing bus transfer center at York and Marin Streets serves two purposes: It allows for patrons to transfer between routes easily since many buses arrive and depart at the same time ("pulse mode") and it also provides convenient access to many Downtown destinations. (Vallejo's current bus headways are such that it is not practical for a patron to make more than one transfer between routes on a single trip between two points.) An attractive, more secure facility could be provided by moving to an off-street site at an alternate location. The study team identified a mid-block location between Santa Clara and Sacramento Streets, along what would be a westerly extension of York Street, where an off-street transfer center could be constructed through existing public parking areas. This location would continue to serve downtown but would be closer to the ferry terminal. Exhibit 7 shows examples of similar off-street bus transfer centers in California.

- The Interstate 80 Interchanges Can Accommodate Proposed Development – The study team evaluated the interchanges along I-80, with a focus on the area from Tennessee to Georgia, which serves the heart of the Downtown area. The analysis confirmed that there could be mainline capacity issues in the long term, but that development levels and improvements proposed in the Waterfront and Mare Island areas have little impact on conditions along I-80. Studies of options to bring some of the existing interchanges up to current standards indicated that considerable impacts would occur to adjoining properties. Therefore this study recommends certain "spot" operational improvements and further recommends that the City pursue with Caltrans a thorough review of the issues and options for updating the interchanges along the freeway.

- Continue to Develop Transportation In Support of Economic Development – Investment in transportation capacity can, in the long run, allow for much greater development intensities than might be accommodated by existing facilities and in that context is considered a prudent investment. However, transportation improvements, as with any required infrastructure, represent a cost to development and do not in and of themselves enhance the financial feasibility or projected cash flows. Therefore, the City is encouraged to allow the maximum amount of development at each phase of development, with commensurate transportation improvements. This study identified that the proposed Mare Island land use plan was approximately in balance with the access capacity to the island. As the island build-out occurs, a variety of techniques can be considered to allow deferment of transportation investments and/or higher land use intensities than previously considered. These techniques include, but are not limited to: provision of higher levels of transit services, application of Transportation Demand Management techniques (TDM) such as flextime, car- and van-pooling, and re-evaluation of actual traffic levels and trip generation characteristics of the existing land uses. To this end, it is recommended that the City establish a "traffic monitoring" program for the island to provide a baseline for assessing an on-going review of travel demand and appropriate responses.

Exhibit 7 – Bus Transfer Center Examples

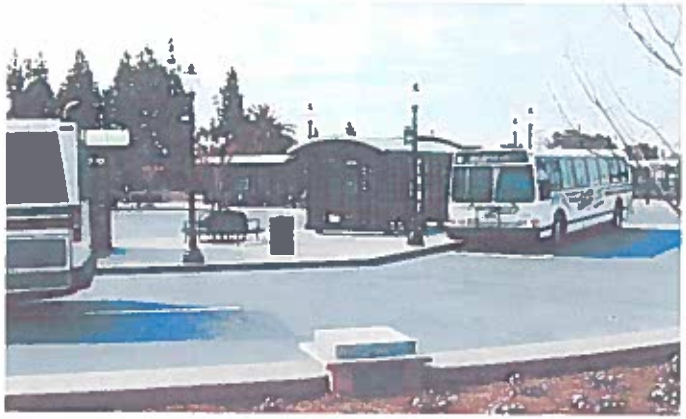
Clockwise, from upper right:

Santa Cruz Metropolitan Transit District, Scotts Valley

Valley Transportation Authority, Mountain View (3 views)

Golden Gate Transit District, San Rafael

MAX Transit, Modesto (2 views)



PROPOSED TRANSPORTATION IMPROVEMENTS

The travel forecast evaluation indicated that the roadway level of service would generally remain acceptable with projected future land use plan. In other words, while the travel demand forecast for Year 2020 does show increases in traffic, the existing roadway systems generally have enough capacity to accommodate the projected traffic increases without developing unacceptable levels of congestion during the peak period, assuming a number of minor improvements identified in the transportation plan are accomplished. Furthermore, the roadway improvements proposed in the development plans for Mare Island are generally adequate to accommodate the future demand on Mare Island with the identified Mare Island land use plans and the through lane configurations shown in this transportation plan.

The assessment of transit services confirmed the near term need for a parking structure to accommodate both the planned expansion of ferry services as well as the proposed waterfront developments. Additional transit needs which were identified included provision of improved transit access to Mare Island, and development of a local bus transfer center at an alternative downtown location.

The following specific improvements are identified in the Transportation Plan, as shown in Exhibits 8 and 9. These proposals cover a wide range of major highway and transit options which were considered to support the re-use of Mare Island and on-going development of downtown and the waterfront.

Proposed Roadway Improvements

1. State Route 37 Interchange Improvements – Includes provisions to provide satisfactory integration of interchange with proposed on-island roadway system as well as provisions to provide two-lane westbound-off and eastbound-on ramps

2. Causeway Bridge and Approach Improvements – Includes modifications to lane configuration of causeway and approach roadways, railroad grade crossing improvements and traffic management system to facilitate flow of all modes of travel across causeway

3. Mare Island Way Modifications – Includes modifications to Mare Island Way to accommodate traffic, parking, bicycles and pedestrians

4. Georgia Street Extension – Extension of principal downtown roadway to connect with Mare Island Way at Waterfront

5. Capitol Street Extension – Extension of downtown collector roadway to connect with Mare Island Way at Waterfront

6. Wilson Avenue Improvements – Urban design improvements to collector roadway segment

7. Railroad Avenue Improvements – Modify principal arterial roadway to accommodate increased roadway traffic and retain railway lead track for service to industries

Exhibit 8 – Proposed Roadway Improvements

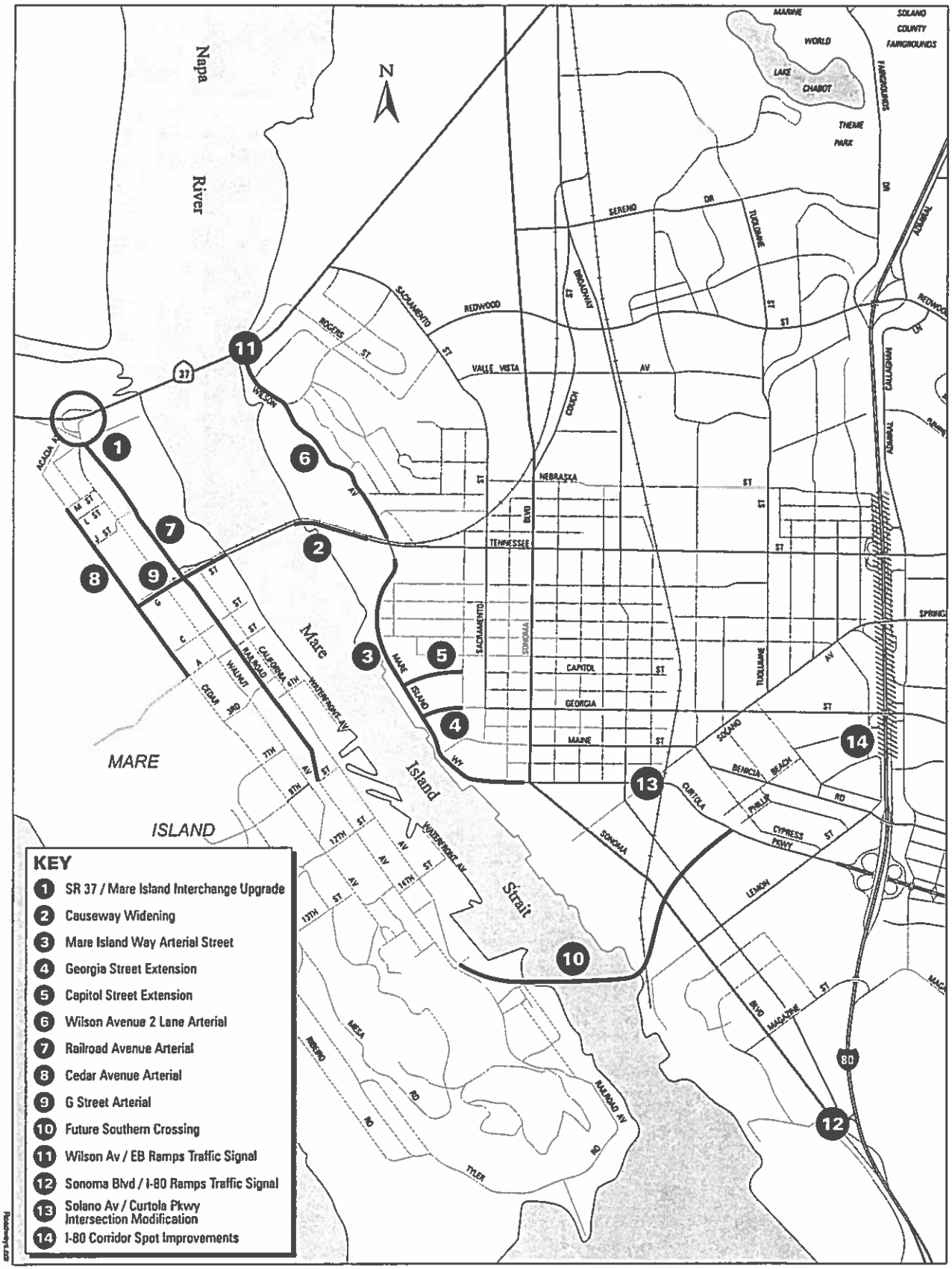
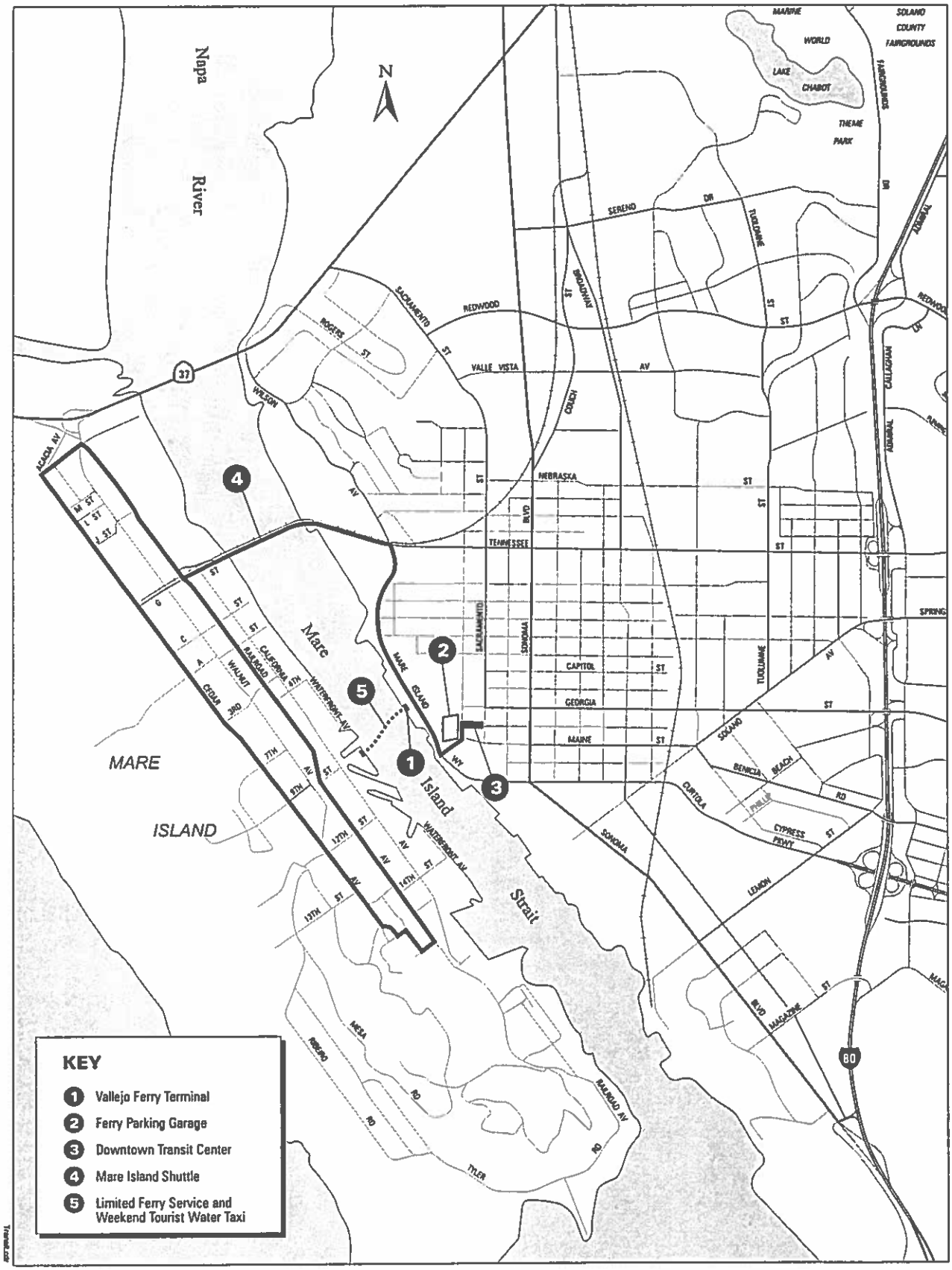


Exhibit 9 – Proposed Transit Improvements



8. Cedar Avenue Improvements – Reconfiguration of Mare Island arterial roadway to accommodate increased roadway traffic and retain railway lead track for service to industries

9. G Street Improvements – Reconfiguration of principal East-West island roadway to handle traffic to and from the Causeway bridge

10. Southern Crossing Bridge – Potential long-term improvement to provide better access to southern portion of Mare Island

11. Wilson Avenue / State Route 37 Eastbound Ramps Traffic Signal – Traffic signal required over the long term to maintain adequate level of service

12. Solano Avenue / Interstate 80 Ramps Traffic Signal – Traffic signal required over the long term to maintain adequate level of service

13. Solano Avenue / Curtola Parkway Intersection Improvements – Intersection spot improvements needed over the long term to maintain adequate level of service

14. Interstate 80 Corridor Improvements – Near term spot improvements and possible long term improvements to provide better traffic operations along the I-80 corridor

Proposed Transit Improvements

1. Existing Ferry Terminal Improvements – Ferry service to remain at existing terminal with acquisition of new vessels; reconfiguration of local roadways to retain regional bus connection

2. Shared Ferry Parking Structure – Parking to serve additional ferry service demand and to create opportunities for Waterfront development provided in conjunction with ferry expansion as multimodal center

3. Downtown Bus Transfer Center – Eliminate existing on-street transfer point and provide improved, off-street center within walking radius of Downtown and ferry terminal

4. Mare Island Bus Service – Provide new route to serve Mare Island connecting to ferry terminal and new Downtown bus center

5. Mare Island Ferry and Water Taxi Service – Limited service by San Francisco ferry on "back leg" of journey to Mare Island Historic District supplemented by privately-funded weekend tourist water taxi

IMPLEMENTATION PLAN

An implementation plan has been developed to guide the funding and further project development of the improvements proposed in the transportation plan. The implementation plan, which incorporates input an analysis provided by consultant team, City staff, project area developers, and the community, envisions phased delivery of the improvements in accordance with need and funding strategies. The following principal concerns were considered in developing the implementation plan:

- Project Selection and Phasing – The range and timing of transportation improvements included in the implementation strategy is based on an analysis of the travel demand characteristics of the land use programs anticipated for the Waterfront/Downtown and Mare Island. The list of priority transportation projects also incorporates input from the City and community regarding overall development and transportation objectives. The project list is consistent with project priorities specified in the City of Vallejo's Five-Year Capital Improvement Program (Fiscal Years 2000-01 through 2004-05).

- Project Costs – The cost estimates for the prioritized transportation projects reflect engineering analysis performed by the consultant team based on the best information available at the time, and includes the cost of engineering work plus a contingency amount. This cost analysis has also influenced the selection and phasing of the transportation projects.

- Funding Availability – The financing strategy presented in this paper is based on an analysis of the scope and availability of revenue sources typically used to finance transportation improvements. The analysis has considered the full range of potential funding opportunities including City, State, and Federal sources, as well as developer and land-based financing.

The project phasing plan includes about $140 million in improvements to be provided over a twenty year planning horizon. Exhibit 10 summarizes the entire program of improvements by geographic area and time frame. The total capital cost by time period is as follows:

- Short Range (2000-2005) - $67 million
- Mid-Range (2006-2010) - $36 million
- Long Range (2011-2020) - $37 million

The future need and timing for project improvements is based on traffic projections from existing and approved development. The projects shown in the phasing plan address needs associated with all currently approved development. If land use is intensified, future traffic projections will also increase, and required project improvements may change in scope, number, and timing based on the increased demand, potentially resulting in higher infrastructure cost and need for additional funding. Specific project implementation dates should be specified based upon regular re-evaluation of daily and peak period traffic levels, as noted below.

Exhibit 10
Project Costs and Recommended Phasing
Cost in $ 1,000's

Time Period	Projects by Vallejo Area				
	Waterfront/Downtown		Mare Island		I-80 Corridor
	Roadway	Transit	Roadway	Transit	Roadway
Short Range (2000- 2005) **$66,806**	▸ Georgia Street Extension $1,538 ▸ Mare Island Way Improvements (Phase 1) [a] $253 ▸ Wilson Avenue Improvements $8,750	▸ Ferry Service Expansion (Phase 1) [b] $10,000* ▸ Intermodal Parking Structure and Bus Transfer Center $25,735	▸ Rt. 37/Mare Island Interchange (Phase A) [c] $4,206 ▸ Causeway Bridge and Approach Roadway Improvements $3,589 ▸ Causeway Railroad Grade Crossing Improvements $1,750 ▸ Mare Island Arterials (Phase 1) [d] $5,045	▸ Mare Island Bus Service (Phase 1) [e] $940** ▸ Ferry Maintenance Facility on Mare Island $5,000	
Mid Range (2006- 2010) **$35,739**	▸ Capitol Street Extension $1,864 ▸ Mare Island Way Improvements (Phase 2) [a] $740	▸ Ferry Service Expansion (Phase 2) [b] $10,000*	▸ Mare Island Arterials (Phase 2) [d] $20,371 ▸ Rt. 37/Mare Island Interchange (Phase B) [c] $104	▸ Mare Island Bus Service (Phase 2) [e] $860**	▸ I-80 Spot Improvements $1,800
Long Range (2011- 2020) **$37,270**	▸ Intersection spot Improvements at Solano Ave./ Curtola Parkway $375 ▸ Traffic Signal at Wilson Ave./ Rt. 37 EB Ramps $187.5		▸ Rt. 37/Mare Island Interchange (Phase C) [c] $36,395		▸ Traffic Signal at Sonoma Blvd./I-80 WB Ramps $312.5

Exhibit 10
Project Costs and Recommended Phasing
Notes

Notes:

Projects within each time period are not prioritized

* - Includes vessel cost but does not include operating cost

** - Includes capital cost; does not include operating cost

Project Phases:

(a) Mare Island Way Improvements: Phase 1 – Re-striping of existing roadway from Maine to Tennessee with associated traffic control and construction of bus pads Signing, Striping and Traffic Signal Improvements; Phase 2 – Sidewalk Improvements.

(b) Ferry Service Expansion: Phase 1 – Expansion of ferry service with third ferry boat in revenue service; Phase 2 – Expansion of ferry service with fourth ferry boat in revenue service

(c) Rt. 37 / Mare Island Interchange: Phase A – Reconfigure interchange to conform to proposed on-island roadway system and modify existing eastbound-on and westbound-off ramps to accommodate future striping as two lane ramps (without widening of Napa River bridge); Phase B – Re-stripe ramps widened in Phase A to provide two lane eastbound-on and westbound-off ramps; Phase C – Modifications to the Route 37 interchange ramps including widening of Napa River Bridge to accommodate two-lane westbound-off and eastbound-on ramps with an ultimate 4-lane Route 37 expressway facility extending west to Marin County

(d) Mare Island Arterials: Phase 1 – Widen Railroad Avenue to 6 lanes between Route 37 interchange and Causeway / G Street intersection, improve & signalize Railroad/Causeway/G Street intersection, improve & signalize Cedar/Railroad intersection; Phase 2 – Widen Railroad to 4 through lanes with railroad track in median left turn lane between Causeway and 3rd Street and to 2 through lanes with railroad track in median left turn lane between 3rd Street and Lemon Street; widen Cedar to 5 lanes from Railroad to 500 feet south of G Street; relocate side-running railroad track to west of Cedar; provide off-street rail yard and run-around trackage

Note: Widening of G Street and the Causeway approaches are included in "Causeway Bridge and Approach Roadway Improvements"

(e) Mare Island Bus Service: Phase 1 – Four buses, shelters, signing and bus pads to provide 15-minute headways on a new Mare Island - downtown bus route; Phase 2 – Addition of four buses for expanded local service every 8 minutes on Mare Island - downtown bus route with provisions for additional stops including bus signs and poles, shelters, and pads

PROJECT THRESHOLDS

As the island build-out occurs, a variety of techniques can be considered to allow deferment of transportation investments and/or higher land use intensities than previously considered. These techniques include, but are not limited to: provision of higher levels of transit services, application of Transportation Demand Management techniques (TDM) such as flextime, car- and van-pooling, and re-evaluation of actual traffic levels and trip generation characteristics of the existing land uses.

Some of the projects that border on this "threshold" include:

- Mare Island Arterials (Phase 2)
- Causeway Bridge and Approach Roadway Improvements
- Mare Island Bus Service (Phase 2)
- Rt. 37 Mare Island I/C (Phase B and C)
- Southern Crossing

The final report recommends thresholds for implementing these improvements, and also recommends development of a traffic monitoring program for Mare Island which can be used to determine specific project timing as well as facilitate development of a Transportation Demand Management plan as the island attains higher levels of development.

It should be noted that the roadway capacity assessment which was used to assess the adequacy and need for proposed improvements was primarily based upon evaluation of the roadway Level of Service (LOS) at key intersections and selected mid-block segments or freeway on-ramps resulting under projected Year 2020 pm peak hour traffic conditions. Factors which affect the LOS assessment include:

- Land Uses – Additional development would result in higher traffic levels and greater levels of congestion

- Employee Densities and Specific Development Prototypes – The trip generation rates were based upon standard employee densities for trip attractors such as office uses, and nominal trip rates for residential and retail uses; higher or lower employee densities, different types of retail, or different residential building types could result in higher or lower trip rates per square foot than the rates incorporated in the travel forecast model.

- Level of Transit and Ridesharing – The trip generation rates incorporates a mode split (e.g. percentage of trips by transit, carpools and van pools) similar to the existing Vallejo trip-making pattern. The proposed Mare Island bus service and on-going development of regional high-occupancy vehicles facilities would be adequate to maintain or somewhat exceed the existing mode split in the long range. However, specific Traffic Demand Management (TDM) initiatives applied through large employer programs targeted at developments on Mare Island, for example, could result in lower levels of auto trip generation compared to the assumptions incorporated into the travel forecast model. TDM programs range from basic programs which primarily disseminate information to encourage use of ridesharing and transit to those which are very pro-active and include specific employee incentives such as subsidized transit passes,

preferential parking for carpools and van pools, as well as management assistance in establishing carpools and van pools. These programs are ordinarily implemented by large employers, although Cities may be involved in reviewing the program effectiveness.

- Extension of the Peak Travel Period – The travel analysis was based upon comparison of peak hour traffic levels to the roadway capacities. As a result of regional roadway congestion, or as a result of flexible work times and/or scheduling of shift workers, the peak period may be spread out over a longer duration than one hour. In addition, certain land use types such as hotels, medical facilities, and facilities with large numbers of visitor trips tend to generate trips more evenly over the day with correspondingly lower peak hour trip rates. With a longer peak period, a given roadway facility may carry 33 percent more daily traffic compared to a facility with a sharp peak. This effect is most likely to occur as existing facilities reach capacity.

Due to the above factors, it is possible that higher levels of development can be attained on Mare Island and in the downtown and waterfront development zones. As more specific development proposals become available, especially for those involving increased intensity of land use, Vallejo should re-evaluate the critical capacity thresholds to determine whether higher levels of development can be approved, in conjunction with an approved TDM plan. Clearly these assessments would need to be accomplished on a case-by-case basis.

Another option which Vallejo should consider, especially with regard to Mare Island, is implementing a regular trip monitoring activity. This could be accomplished either by conducting traffic counts in spring and fall, or by using loop counters located in each of the traffic entry and exit lanes at the Causeway and Route 37 interchange. This information would be most useful if data were maintained on residential and employee populations on the island as well as participation levels in transit and ridesharing (which could be obtained from employer TDM programs). Monitoring could be used to validate on-going travel forecasting for Mare Island traffic and could work in conjunction evaluating future development proposals.

FUNDING STRATEGY

The funding strategy emphasizes the use of non-local funding to the greatest degree possible, and identifies that more than half of the funding could come from non-local sources:

- 22 percent - State sources
- 33 percent - Federal sources
- 45 percent - local or land-based sources

Key State revenue sources proposed as part of the funding plan include:

- State Transportation Improvement Program (STIP)
- State General Fund / Budget Surplus Program
- Transportation Development Act (TDA) Funds

The key Federal revenue sources proposed as part of the strategy include:

- High Priority (Demonstration Project)
- Federal Discretionary - Ferry Boat Program
- Surface Transportation Program / Congestion Mitigation & Air Quality
- Transportation for Liveable Communities (TLC)

Key local or land-based sources include:

- Developer Financing
- Land-Secured Financing
- City of Vallejo General Fund / Capital Improvements Proram
- Redevelopment Agency Financing
- Development Impact Fees

In general, the local and land-based sources are anticipated to cover the revenue shortfall which is projected to exist after State and Federal sources have been exhausted.

The mix of funding identified in the funding strategy is as follows:

Funding Source	Amount $ 1,000's
Developer / Land Based	41,299
City	3,650
RDA	5,791
State	25,000
Federal	37,646
Other	163

The amount of developer financing required to ensure successful project implementation may significantly exceed the amounts proposed for the various transportation projects, especially considering the high degree of uncertainty of state and federal funding sources. Developer financing will help serve a leverage role and can be used as matching funds to increase the amount of state and federal money available for the projects.