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Hercules Transportation Impact Fee Nexus Study

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4.0	2/7/2019	Final cost estimate revisions; RITC cost allocation	EEV

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1 INTRODUCTION

1.1 Background and Purpose

Like many California jurisdictions, the City of Hercules collects a transportation impact fee from new residential and commercial development projects. Transportation impact fees help fund the improvements to the City's roadway, bicycle and pedestrian facilities that are needed to accommodate travel demand generated by new land development. Fees are differentiated by type of development in relationship to their relative impacts on the transportation system. The intent is to provide an equitable means of ensuring that future development contributes its proportional share of the cost of transportation improvements, so that the City's General Plan Circulation policies and quality of life can be maintained.

The City last updated its transportation impact fee in 2009. Since then, some projects funded by that fee have progressed or been completed and several new development proposals and General Plan amendments have been approved. In 2018, the City updated the Circulation Element of its General Plan to incorporate these approved development projects and summarize the transportation investments that will be required to meet City policies and standards. As part of this process, new policies relating to the City's transportation network were established and existing policies regarding the level of service were reaffirmed.

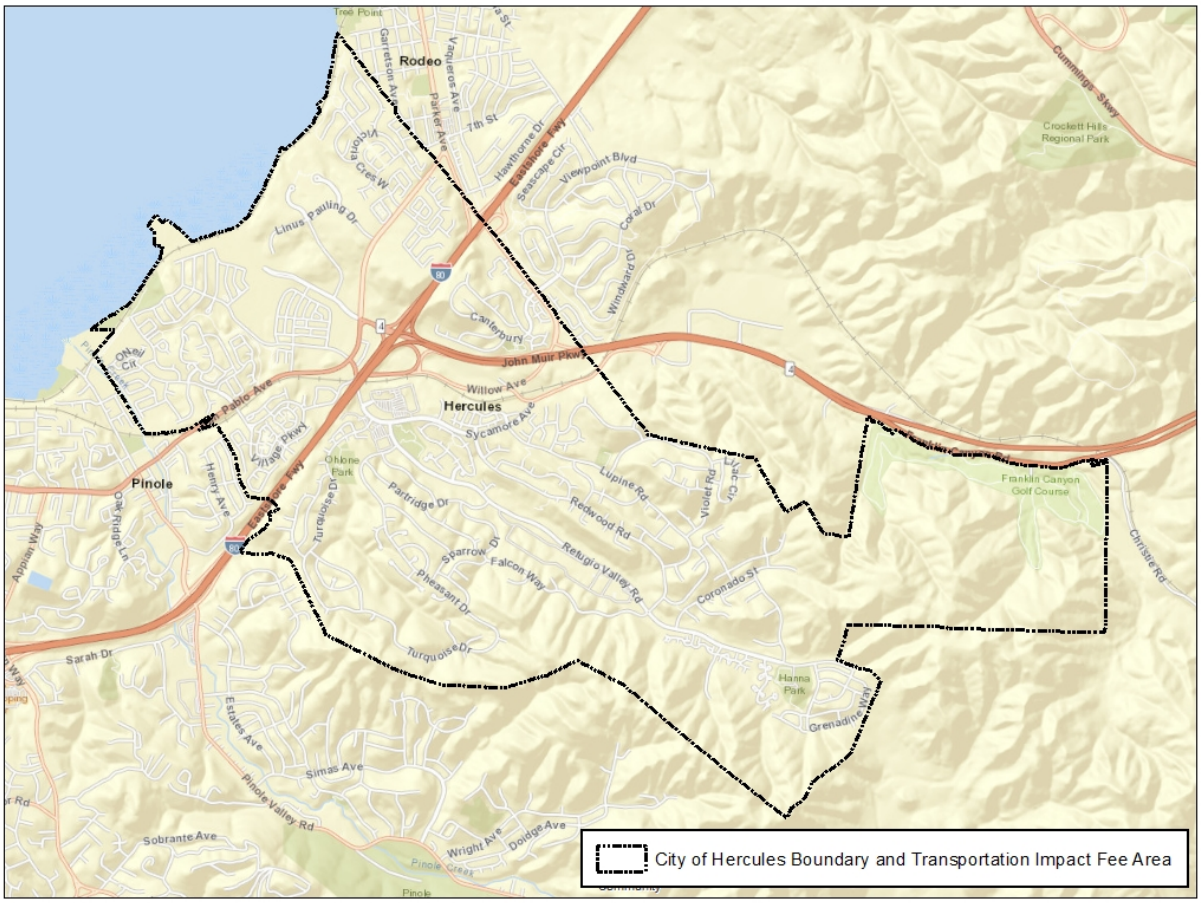
The City's transportation impact fee should now be revisited to make sure it is aligned with the Circulation Element project list, the amount of expected development, and current project cost estimates. This report documents the analytical approach for determining the nexus between the updated fees, the local impact created by expected new development, and the transportation improvements to be funded with fee revenues to mitigate transportation impacts. A traffic and fair-share cost analysis was conducted to equitably distribute the costs of the necessary improvements to developments that cause the impacts, in accordance with the provisions of the *Mitigation Fee Act* of the *California Government Code Sections 66000 et seq*.

Figure 1 locates the City of Hercules boundaries where the updated transportation impact fee will be collected.

1.1 Current Transportation Impact Fee

In addition to current City traffic impact fees, development in Hercules is also subject to a fee administered by the West Contra Costa Transportation Advisory Committee (WCCTAC) to fund projects in the Subregional Transportation Mitigation Program (STMP). Note that while the previous development impact fee study established maximum permissible fee levels, the City Council directed that lower transportation impact fee rates be collected as a matter of policy in 2009 and in 2012. **Table 1** summarizes the maximum transportation impact fees established by the 2009 fee study, the fees currently being collected by the City of Hercules, and the current STMP fees.

Figure 1 City of Hercules Transportation Impact Fee Area



The existing Hercules traffic facilities fee was intended to provide funding towards the projects listed in **Table 2** and **Table 3**, representing $86,822,000 in estimated project costs. Some of the projects on the previous impact fee program's list have been carried over to the proposed new fee program and some have been completed, as indicated. As of October 2018, the City's traffic impact fee cash balance was $202,220. This remaining fee balance will be earmarked towards completing the projects remaining to be completed from the existing fee program. Calculations for the new fee program will take into account the remaining balance and subtract this from the project costs allocated to new development.

Table 1 Current Transportation Impact Fees

Land Use	Maximum Fee from Previous Nexus Study[1]	Current City of Hercules Traffic Facilities Fee[2]	Current STMP Fee [3]	Proposed STMP Fee [4]
Single Family Dwelling Unit	$4,830/$3,634	$982.00	$2,904.00	$5,439
Multifamily Dwelling Unit	$2,965/$2,247	$603.00	$1,844.00	$2,679
Retail (per square foot)	$9.86/$5.40	$2.01	$2.036	$8.72
Office (per square foot)	$7.13/$5.36	$1.450	$3.927	$6.59
Industrial (square foot)	$4.69/$3.54	$4.766	$2.741	$5.56
Hotel (per room)		$176.00	$2,197.00	n/a

Sources: *Impact Fees (*www.ci.hercules.ca.us/government/building/impact-fees).
Willdan Financial Services, *City of Hercules Development Fee Study*, 2009

Notes:

1. Non-transit-oriented development (Non-TOD)/TOD rates.
2. As set in 2012.
3. STMP administered by WCCTAC. There are also special STMP fees rates for senior housing, storage facilities, churches, and hospitals.
4. WCCTAC board-recommended STMP fee levels approved December 2018.

Table 2. Status of Projects from Existing Fee Program – Roadway Projects

Project Description	Estimated Project Cost (2009 Dollars)	Status	In Updated Hercules Fee Project List?
I-80/SR4 Freeway Ramps Relocation	$15,600,000	Not completed (In 2017 Countywide Transportation Plan)	No
Wetland & Habitat Permits for Ramp Relocation	$55,000	Not completed (Associated with above project)	No
John Muir Parkway Phase 2	$3,000,000	Completed	No
Signage Plan for John Muir Parkway	$65,000	Completed	No
Bayfront Blvd Bridge	$3,675,000	Completed	No
I-80 West On-Ramp from John Muir Pkwy Improvement	$3,753,000	Not completed	Carried over (Project #3)
Intersection San Pablo at Sycamore Improvement	$229,000	Not completed	Carried over (Project #5)
Roundabout Willow at Palm	$5,077,000	Not completed (Associated with I-80/SR4 Ramp Relocation project)	N/A
Sycamore -Willow to San Pablo Improvement	$418,000	Not completed	Carried over (Project #2)
Willow Ave - Sycamore to Palm Improvement	$3,000,000	Not completed	No
Intersection San Pablo at Tsushima Improvement	$450,000	Not completed	Carried over (Project #1)
Total	**$35,322,000**		

Table 3. Status of Projects from Existing Fee Program – Regional Intermodal Transportation Center (RITC) Projects

Project Description	Estimated Project Cost (2009 Dollars)	Status	In Updated Project Hercules Fee List?
Transit Loop Bridge	$4,000,000	Not completed	No
Transit Loop Drive	$1,500,000	Not completed	No
Realign & Restore Refugio Creek at Waterfront	$1,000,000	Partially completed (east of Bayfront Boulevard)	Yes (Project #21, RITC)
Waterfront Utilities Relocation	$8,100,000	Not completed	
Ferry & Rail Station Pavilion & Bridge to Platform	$7,8800,000	Not completed	Yes (but ferry facilities not included in revised RITC project)
UPRR Track & Signal Improvements for Passenger Station	$13,100,000	Not completed,	Yes (Project #21, RITC
Permanent Waterfront Parking Structure	$16,000,000	Not completed	Yes, Project #20
Total Transit Project Cost	**$51,500,000**		

2 TRANSPORTATION IMPACT FEE CALCULATION

This section describes the analytical methods and procedures used to arrive at the proposed new maximum allowable transportation impact fees for the City of Hercules.

2.1 Overview of Methodology

2.1.1 2009 Development Impact Fee Study Methodology

For roadway projects, the 2009 Hercules Development Impact Fee Study applied PM peak hour trip generation rates from the then current Trip Generation Manual as published by the Institute of Transportation Engineers (ITE) to generate travel demand by land use type. The percentage of roadway project costs allocated to new development was set as the proportion of trip ends due to growth to total future (year 2035) trip ends.

All the transit projects in the 2009 Hercules Development Impact Fee Study were associated with what is now called the Regional Intermodal Transportation Center (RITC) on the Hercules waterfront. Costs for this transit project were allocated by multiplying the percent of total PM peak period trip ends associated with the RITC by the percentage of total future trip ends associated with new development.

2.1.2 Hercules Fee Study Update

Roadway Projects

This nexus study adopts a refined approach to reflect current best practices for impact fee programs. The use of simple trip generation rates tends to over-estimate the traffic impact of retail development on the overall roadway system. The average length of trips coming in and out of a new residential development is longer than trips coming in and out of a retail development, reflecting commute trips (people are willing to commute long distances to a job but tend to run errands as close to home or work as possible). Furthermore, studies show that about 25 to 50 percent of the trips that will go in and out of a new retail development will already be traveling on roadways near that development, and thus are “pass-by” or “diverted” trips, not “new trips” to the surrounding roadway system. All of the trips going to and from a new residential unit are “new trips”.

The updated Hercules transportation impact fee program will instead use estimates of vehicle-miles of travel (VMT) added by new development. The VMT rates multiply the trip rate for a land use type by its average trip length and proportion of “new trips” versus “pass-by trips.” The calculation of fee rates based on this methodology is discussed in Section 2.5 of this report.

Transit, Bicycle, and Pedestrian Improvements

For transit, bicycle, and pedestrian-related projects, this nexus study will allocate costs based on the proportion of expected new development to total development in the future (2040). The rationale for this association is that improved transit, bicycle and pedestrian facilities will improve alternative mode connectivity throughout the City and benefits will be shared by existing and new development alike.

2.2 Determination of Development Potential

The transportation needs analysis and allocation of improvement costs for the Hercules transportation impact fee program is based on the countywide travel demand model developed by

the Contra Costa Transportation Agency (CCTA)[1] using a 2040 horizon year. The calculation of fees is based on the following general land use categories and associated measurement units that are used as a basis for the land use inputs in CCTA's travel demand model:

Land Use Type	Units
Single-Family	Dwelling units (DU)
Multi-Family	Dwelling units (DU)
Commercial/Retail	Jobs
Office	Jobs
Industrial	Jobs

CCTA's latest land use estimates of existing conditions and 2040 forecasts of new development by Traffic Analysis Zones (TAZs) in the City of Hercules were summarized and reviewed with City Planning staff as part of the Circulation Element update[2]. For nonresidential land uses, the land use in terms of jobs from the CCTA model was converted to square feet of retail, office, and industrial with the following factors:

- Retail – 500 square feet per job
- Office - 275 square feet per job
- Industrial – 600 square feet per job

The expected amount of growth was then adjusted to reflect the best local knowledge of remaining development capacity in each TAZ. The resulting growth estimate for Hercules is summarized in Transportation Needs Analysis

The projects included in the transportation impact fee calculation stem from analysis undertaken for the City's recent update of its Circulation Element. Some project needs were originally identified in analyses supporting various certified Environmental Impact Reports (EIRs) for projects that were ultimately approved and adopted as General Plan amendments. Others resulted from policies or standards adopted in the updated Circulation Element.

2.2.1 Travel Demand Forecasting

The transportation needs analysis and allocation of improvement costs were based on CCTA's travel demand model using a 2040 horizon year, the growth assumptions summarized in **Table 4**, and the 'preferred alternative' scenario for 2040 developed for the most recent circulation element update (February 2018).

[1] The CCTA travel demand model was calibrated to a base year of 2010.
[2] City of Hercules (*Circulation Element Update; Traffic-Related Appendices*, February 2018)

Table 4. Summary of Estimated Development 2010 to 2040 Growth

Land Use Category	Units	2010 Units	2040 Units	Growth in Units	DUE(2) per Unit	2040 DUEs	Growth in DUEs
Single-Family	DU(1)	6,631	6,809	178	1.00	6,809	178
Multi-Family	DU	1,432	4,506	3,074	0.57	2,549	1739
Retail	KSF(3)	178	802.5	624	1.35	1,080	840
Office	KSF(3	864.875	1,169.875	305	1.17	1,370	357
Industrial	KSF(3	570.6	945.6	375	1.09	1,031	409
Total:						12,838	3,522

(1) Dwelling Unit
(2) Dwelling Unit Equivalent
(3) Square feet

Percent Growth DUEs
=3,522/12,838
=**0.274**

2.2.2 Level of Service Analysis

For the Circulation Element update, intersection Level of Service (LOS) analyses were conducted for existing conditions and the General Plan horizon year (2040). Traffic count data was collected in December 2016 to support the existing conditions analysis. This analysis found that only one of the study intersections corresponding to a fee program project location had an existing LOS deficiency (San Pablo Avenue and Linus Pauling Drive during the AM peak hour).

Future year LOS analysis used CCTA travel model outputs to develop intersection turning movement and LOS forecasts. Projects were identified and modeled to ensure that all study intersections met the City's LOS standards for the 2040 horizon year.

2.2.3 General Plan Policies and Standards

The Circulation Element contains several policies which resulted in projects to be funded by the transportation impact fee program. These are summarized below.

Policy 1.C.1 Gaps in Existing Bicycle/Pedestrian Network. The City will continue to identify opportunities for connecting gaps or enhancing connectivity on both sides of the road in the existing pedestrian and bicycle network where appropriate and will prioritize the improvements. Funding for such improvements may be allocated as part of the Capital Improvement Program (CIP), with possible funding sources including impact fees, grant funding, gas tax, or other sources.

Policy 1.G.2 Accessibility of Existing Circulation Facilities. The City as part of its ongoing capital improvement program or through funding secured by grants or similar programs will work to retrofit existing circulation facilities to ensure they meet ADA requirements.

Policy 1.C. 4a Bicycle/Pedestrian Linkage to Schools, Parks, and Trails. The City will work to ensure the provision of safe and convenient pedestrian and bicycle facilities to schools and parks.

Policy 1.C. 4b Bicycle/Pedestrian Linkage to Key Destinations. The City will prioritize safe and convenient pedestrian and bicycle facilities to key destinations including regional transit hubs including the Regional Intermodal Transportation Center (RITC) and the Hercules Transit Center (HTC)as well as major employment centers such as BioRad, the Creekside Shopping Center, and the Waterfront.

Policy 1.C.5 Minimize Conflicts between Pedestrian, Bicycles, and Vehicular Traffic. The circulation system shall be designed to minimize, to the extent practical, physical conflicts between pedestrians/bicyclists and vehicular traffic, including designing streets and intersections to maximize safety without impeding mobility.

Policy 4.D.1 Complete Streets Program. The City will continue to participate in and comply with the "Complete Streets" program as specified by AB1358 and its own Complete Streets policy to ensure roads in the City adequately serve all applicable modes of transportation in the interest of increasing the safety and convenience of all users, and to create a connected network of facilities within and across jurisdictional boundaries.

Policy 4.D.4 Bicycle/Pedestrian Safety and Road Capacity. New road improvements or modifications to existing roads will be designed to give priority to enhancing pedestrian/bicycle safety while implementing improvements needed to increase road capacity.

Policy 4.D.6 Lighting for Bicycles/Pedestrian Trail System. Lighting as needed for safety purposes, as determined by the City, will be provided for pedestrian and bicycle facilities.

Policy 4.C.5 Enhance Existing Transit Facilities. The City will work with WestCAT to explore the possible implementation of improvements to enhance the function of existing transit facilities in the City. An example of such an enhancement would be installing electronic signage that provides real time bus schedule and arrival times at bus stops.

Policy 4.A: Regional Intermodal Transportation Center (RITC). The City will continue to actively support the Hercules Regional Intermodal Transportation Center (RITC) by working closely with all transit service providers, including rail, ferry, and bus, while proactively continuing to work to secure the permit approvals and funding needed to construct the RITC facility.

2.2.4 Selected Project List

Table 5 lists the transportation improvement projects included in the fee program. Some candidate projects identified in the Circulation Element analysis, namely the relocation of the I-80/SR-4 Willow hook ramp to a full interchange at Willow and SR-4, improvements at the Willow and Palm Avenue intersection, and the addition of a new I-80 eastbound off-ramp at Sycamore, were not included because they were thought to be regional in nature and would not justify a significant project cost allocation percentage for a local fee program or were not needed in the foreseeable future. A reduced portion of the Regional Intermodal Transportation Center (RITC) is included in the newly updated West County STMP fee program, which could potentially provide some funding for this project. The project locations are also indicated in **Figure 2.**

2.3 Improvement Cost Estimates

Planning-level cost estimates were prepared based on conceptual designs for each project. The cost estimates do not have geotechnical or survey support information. Thus, the costs of unknown constraints (such as rock excavation, removal of unsuitable material, relocation of unseen utilities, etc.) were assumed in a project contingency percentage of 15 percent. The cost estimates include percentages for the following key elements in the implementation of each project where applicable:

- Project contingencies,
- Survey, design and construction management,
- Environmental mitigation,
- Right-of-way acquisition

The cost estimates for each of the selected projects for funding by the Hercules transportation impact fee program, shown in **Table 5**, are provided in Appendix A.

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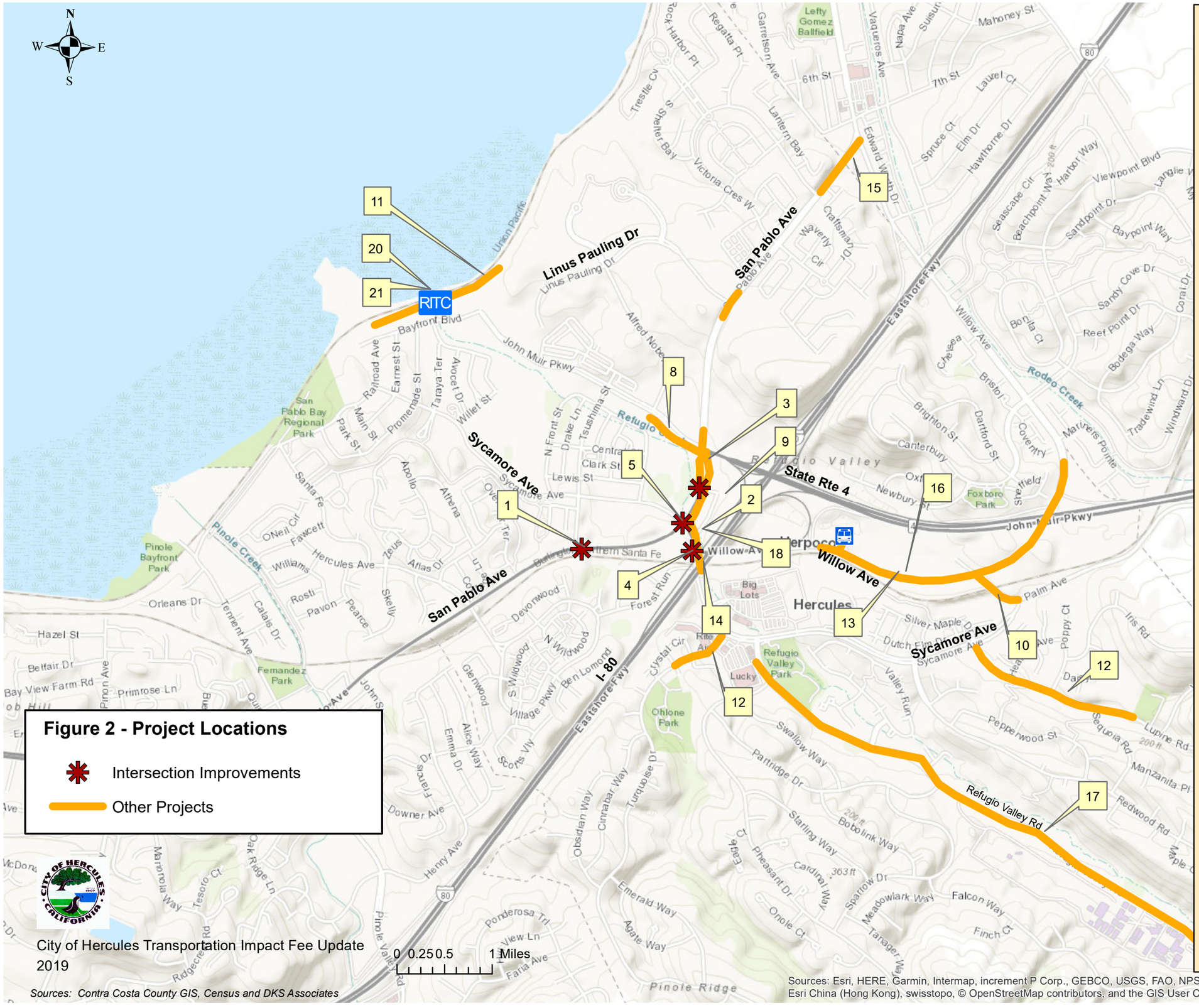

Figure 2 - Project Locations

Intersection Improvements

Other Projects

City of Hercules Transportation Impact Fee Update 2019

0 0.25 0.5 1 Miles

Sources: Contra Costa County GIS, Census and DKS Associates

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

1. Signalize San Pablo Avenue & Tsushima

2. Reconfigure Sycamore Avenue cross section from Willow to San Pablo Avenue

3. San Pablo Avenue/John Muir Parkway to I-80 Improvementss

4. Intersection improvements at Willow Avenue & Sycamore Avenue

5. Add third northbound through lane to San Pablo at Sycamore along NB San Pablo Approach

6. Pedestrian activated signal phase at Market Hall driveway across San Pablo Avenue

*7. Update curb ramps to ADA standards at all marked crosswalks (mutiple locations)

8. Hercules Creekside Trail from Alfred Noble to Sycamore Avenue

9. Multiuse path along San Pablo and Sycamore Avenues at Market Hall site

10. Pedestrian connection along Palm Avenue between Sycamore and Willow Avenues

11. Bay Trail gap closure and lighting

*12. Expand bicycle network

13. Add sidewalk along Willow Avenue to Hercules Transit Center

14. Improve pedestrian connections to Hercules Transit Center - Sycamore Avenue to Willow

15. Extend sidewalk connections to Rodeo

16. Complete bicycle facilities on Willow Avenue between Hercules Transit Center and Mariner's Pointe (Class II or Class III)

*17. Add lighting to Refugio Valley Trail

18. Remove crosswalk at north leg of San Pablo Avenue & Sycamore Avenuey

*19. Provide bus shelters along San Pablo Avenue

20. Parking garage serving Regional Intermodal Transit Center (RITC)

21. Complete Regional Intermodal Transit Center (RITC)

*Not shown due to multiple locations

Table 5. Selected Project List, Cost Estimates and Cost Allocation (All values based on 2018 Dollars)

Project/Description	Type	Allocation Basis	Cost Estimate	Percent Allocated to New Development	Cost Allocated to New Development
1. Signalize intersection of San Pablo Avenue & Tsushima Street	1.A.1	Percent of traffic volume growth due to local trips (future deficiency)	$595,000	75.49	$449,147
2. Reconfigure Sycamore Avenue cross section from Willow to San Pablo Ave	1.A.1	Percent of traffic volume growth due to local trips (future deficiency)	$232,000	96.21	$223,205
3. San Pablo Avenue/John Muir Parkway to I-80 Improvements	1.A.1	Percent of traffic volume growth due to local trips (future deficiency)	$7,167,000	100.00	$7,166,985
4. Intersection Improvements at Willow Avenue & Sycamore Avenue	1.A.1	Percent of traffic volume growth due to local trips (future deficiency)	$91,000	96.57	$87,882
5. Add 3rd northbound through lane to San Pablo Avenue at Sycamore	1.A.1	Percent of traffic volume growth due to local trips (future deficiency)	$21,000	55.69	$11,694
6. Install pedestrian-activated signal at Market Hall crosswalk	4.D.4	Percent growth DUEs	$23,000	27.44	$6,310
7. Upgrade or add ADA Curb Ramps	1.G.2	Percent growth DUEs	$273,000	27.44	$74,900
8. Hercules Creekside Trail from Alfred Noble to Sycamore Avenue	1.C.1	Included in STMP Fee	$1,386,000	27.44	$380,264

Table 5. Selected Project List, Cost Estimates and Cost Allocation (All values based on 2018 Dollars)

Project/Description	Type	Allocation Basis	Cost Estimate	Percent Allocated to New Development	Cost Allocated to New Development
9. Multiuse path at Market Hall site	4.D.1	Percent growth DUEs	$108,000	27.44	$29,631
10. Pedestrian connection along Palm Ave between Sycamore and Willow Ave	1.C.4.b	Percent growth DUEs	$284,000	27.44	$77,918
11. Bay Trail gap closure and lighting	1.C.1	Percent growth DUEs	$307,000	27.44	$84,229
12. Expand bicycle network	1.C.4a	Percent growth DUEs	$26,000	27.44	$7,133
13. Add sidewalk along Willow Avenue to Hercules Transit Center	1.C.4b	Percent growth DUEs	$889,000	27.44	$243,906
14. Improve pedestrian connections to Hercules Transit Center - Sycamore Avenue to Willow	1.C.4b	Percent growth DUEs	$957,000	27.44	$262,563
15. Extend sidewalk connections to Rodeo	1.C.1	Percent growth DUEs	$635,000	27.44	$174,219
16. Complete bicycle facilities between Mariner's Pointe and HTC	1.C	Percent growth DUEs	$29,000	27.44	$7,956
17. Add lighting to Refugio Valley Trail	4.D.5	Percent growth DUEs	$675,000	27.44	$185,193
18. Remove crosswalk at north leg of San Pablo Avenue & Sycamore Avenue	1.C.5, 4.D.4	Percent growth DUEs	$16,000	27.44	$4,390

Table 5. Selected Project List, Cost Estimates and Cost Allocation (All values based on 2018 Dollars)

Project/Description	Type	Allocation Basis	Cost Estimate	Percent Allocated to New Development	Cost Allocated to New Development
19. Provide bus shelters along San Pablo Avenue	4.C.5	Percent growth DUEs	$32,000	27.44	$8,780
20. Parking for Intermodal Transit Center	4A	Percent growth DUEs	$8,500,000(1)	27.44	$2,332,064
21. Complete Intermodal Transit Center/Rail Station	4A	Percent growth DUEs less expected fees paid under STMP(2)	$53,600,000	27.44	$13,494,036
		Totals	$75,846,000		$25,312,405

1) TBD
2) See section 2.5.3.

2.4 Allocation of Costs to New Development

This section describes the process used to allocate transportation improvement costs to new development in the fee program area and the estimated transportation impact fees that result from this analysis.

The allocation of costs of roadway and intersection improvements is based on answering the following questions:

- Is there an existing deficiency?
- Would the improvement project be required without new development?
- Who uses the roadway/intersection (local traffic versus through-traffic)?

The allocation of costs is based on estimates of who will use the roadways or intersections that require improvements based on 2040 traffic forecasts. The allocation of improvement costs is based on the percentage of trips on the roadways and intersections from 1) existing development, 2) new development in Hercules and 3) through traffic. An increase in through traffic represents an increase in trips that both start and end outside Hercules and pass through the city. **Table 5** summarizes the estimated percentages for the selected project list. The methods used to allocate costs are described below.

2.4.1 Improvements to Meet City LOS Standards

Costs for improvements needed to address LOS impacts are allocated to new development in Hercules using one of two methods:

1. For a roadway location that is currently operating at an acceptable LOS but would operate at an unacceptable LOS in 2040, the entire cost of improving that segment or intersection is allocated to new development if there is moderate to no increase in through traffic. This approach is suitable in a large urban region with many adjacent jurisdictions where each jurisdiction must mitigate local problems to which regional through traffic contributes. This method was used to allocate costs for roadway improvement projects numbers 1 through 3, 5, and 6.
2. For a roadway location that currently does not meet the City's LOS standards (an existing deficiency), the percent cost share for new development in Hercules is equal to the number of new trips at that location that have either their origin or destination within the City divided by all trips on that roadway, both from existing and new development (including through traffic). This method was used to allocate costs for the improvement at San Pablo Avenue and Linus Pauling Drive (Project #4).

2.4.2 Bicycle and Pedestrian Projects

Bicycle and pedestrian improvements are localized improvements serving trips that most often have their origin or destination within Hercules rather than serving through trips. Lack of bicycle and pedestrian facilities is an existing deficiency in the City; hence the improvements will benefit both existing and future residents. Since the improvements will serve the existing and future bicycle and pedestrian demand, the cost of those projects allocated to new development will equal the new development's proportional share of the total future development (existing plus new development)

in Hercules (measured in Dwelling Unit Equivalents). This method was used to allocate costs for the bicycle and pedestrian improvements described in **Table 5**.

2.4.3 Transit Improvements

The three transit improvement projects on the list include providing shelters along the San Pablo Avenue bus routes, the Regional Intermodal Transit Center (RITC), and a parking garage at the RITC. The ratio of new development to total future development is applied as the cost allocation percentage for these projects.

The RITC itself has been included in the project list for the West Contra Costa Subregional Transportation Mitigation Program (STMP), a development impact fee program covering the West Contra Costa transportation Advisory Committee (WCCTAC) planning area. The maximum allowable STMP fee rate would provide only partial funding for each of the regional projects and the WCCTAC Board has voted to implement its total fee at 75 percent of that maximum allowable fee rate. Thus, it is unknown whether any STMP fees will available to fund the RITC project. However, the City intends to build the RITC project regardless of funds received from WCCTAC.

To ensure that local Hercules developers will not pay more than their fair share of the RITC, the cost allocated to City's fee program ($53,600,000 * 27.44% = $14,707,840) will be reduced by the estimated amount of STMP fees that would be collected from development in the City. The estimated STMP fee for the RITC is $344.64 per DUE and this rate would be paid by an estimated 3,522 DUEs in Hercules. Thus, the RITC cost allocated to the City's fee program is:

$14,707,840 - ($344.64 * 3,522) = $13,494,036

2.5 Fee Calculation Method

2.5.1 Land Use Categories

The calculation of fees will be based on the general land use categories that can be derived for all areas of the county from CCTA's travel demand model. These general categories include the following:

- Single-Family Dwelling Units (SFDU)
- Multi-Family Dwelling Units (MFDU)
- Commercial/Retail 1,000 Sq. Ft. (KSF)
- Office 1,000 Sq. Ft (KSF)
- Industrial 1,000 Sq. Ft (KSF)

2.5.2 Dwelling Unit Equivalents

In the allocation of costs to various types of development, each development type will be assigned a "dwelling unit equivalent" or "DUE" rate. DUEs are numerical measures of how the trip-making characteristics of a land use compare to a typical single-family residential unit, which is assigned a DUE of 1. Land uses that have greater overall traffic impacts than a typical single-family residential unit are assigned values greater than 1, while land uses with lower overall traffic impacts than a typical single-family residential unit are assigned DUE values less than 1.

DUEs are developed by comparing both the trip generation and trip length characteristics of various land uses to those same rates for a typical single-family residential unit. Since roadway needs are primarily based on traffic flows and conditions during the PM peak hour on an average weekday, the DUEs reflect the relative trip generation for the peak hour. Also considered in the calculation of DUEs are “percent new” trips since some of the vehicles attracted to non-residential uses would have been on the roadway system regardless of the presence of the traffic generated by the new development. Average trip lengths for the remaining "primary" trips generated by a development are then utilized to better reflect overall impact of longer trips on the City’s roadway system.

The DUE rates will thus be based on estimates of the average vehicle-miles of travel (VMT) generated during the PM peak hour for each general land use type. The DUE rates that will be used to estimate the Hercules transportation impact fees are shown in **Table 6**.

2.6 Fee Calculation

The cost per DUE (i.e. cost for a typical single-family dwelling unit) is calculated by dividing the total costs allocated to new development in Hercules (methods described above) by the total growth in DUEs in Hercules by 2040 (see **Table 7**). The cost for each land use type is then based on its DUE rate. The nexus-based fee rates are shown in Table 12.

Table 6. Dwelling Unit Equivalent Rates

Land Use Category	PM Peak Hour Trip Rate per Unit[1]	Unit	Trip Length (miles)[2]	Percent New trips[2]	VMT per Unit	DUE per Unit
Singe Family	0.99	Dwelling Unit	5.0	100	4.95	1.00
Multi-Family	0.56		5.0	100	2.80	0.57
Retail	0.00381	Square Feet	2.3	76	0.01	0.00135
Office	0.00140		4.5	92	0.01	0.00117
Industrial	0.00115		5.1	92	0.01	0.00109

[1] ITE Trip Generation Web-based App (https://itetripgen.org, October 2018)
[2] ITE Journal, May 1992
Source: DKS Associates, 2018

Table 7. Growth in DUEs

Land Use Category	Unit	Growth in Units[1]	DUE per Unit	Growth in DUEs
Single-Family	Dwelling Unit	178	1.00	178
Multi-Family		3,074	0.57	1739
Retail	Square Feet (000)	624	1.35	839.55
Office		305	1.17	357.13
Industrial		375	1.09	408.77
			Total:	**3522**

Table 8. Nexus-Based Fee Rates

Cost of Improvements Allocated to AOB Growth			$25,312,405
Current Fund Balance*			$202,220
Unfunded Allocated Costs			$25,110,185
Growth in Dwelling Unit Equivalents (DUEs)			3522
Cost per DUE			$7,128.96
Land Use	**Units**	**DUE per Unit**	**Fee per Unit[1]**
Single-Family	Dwelling Unit	1.00	$7,129
Multi-Family		0.57	$4,033
Retail	Square Feet	0.00135	$9.59
Office		0.00117	$8.35
Industrial		0.00109	$7.77

3 NEXUS ANALYSIS

A nexus analysis has been prepared for the Hercules transportation impact fee program in accordance with the procedural guidelines established in AB1600 which is codified in California Government Section 66000 et seq. These code sections set forth the procedural requirements for establishing and collecting development impact fees. These procedures require that "a reasonable relationship or nexus must exist between a governmental exaction and the purpose of the condition." Specifically, each local agency imposing a fee must:

- Identify the purpose of the fee;
- Identify how the fee is to be used;
- Determine how a reasonable relationship exists between the use of the fee and the type of development project on which the fee is imposed;
- Determine how a reasonable relationship exists between the need for the public facility and the type of development project on which the fee is imposed; and,
- Demonstrate a reasonable relationship between the amount of the fee and the cost of public facility or portion of the public facility attributable to the development on which the fee is imposed.

3.1 Purpose of Fee

The purpose of the Hercules transportation impact fee program is to fund improvements to the City's major roadway, bicycle and pedestrian facilities needed to accommodate travel demand generated by new land development within the City over the next 22 years (through 2040).

The Hercules transportation impact fee program will help meet the City's General Plan policies including maintenance of adequate levels of service and safety for roadway facilities and provision of pedestrian and bicycle infrastructure. New development in Hercules will increase the demand for all modes of travel (including walking, biking, transit, automobile and truck/goods movement) and thus the need for improvements to transportation facilities. The Hercules transportation impact fee program will help fund transportation facilities necessary to accommodate new residential and non-residential development in Hercules.

3.2 Use of Fees

The fees from new development in the Hercules transportation impact fee program will be used to fund additions and improvements to the transportation system needed to accommodate future travel demand resulting from residential and non-residential development within the City of Hercules. The Hercules transportation impact fee program will help fund improvements to roadways (including intersection improvements) bikeways and walkways plus fee program administration costs. The transportation improvements wholly or partially funded by the program are described in more detail in Section 2.3.4.

3.3 Relationship Between Use of Fees and Type of Development

Fee revenues generated by the Hercules transportation impact fee program will be used to develop the transportation improvements described in Section 2.3.4. All of these improvements increase the capacity, improve the safety, or facilitate the use of alternative modes (transit, bicycle, pedestrian) on those segments of the transportation system affected by new development. The results of the

transportation modeling analysis summarized in this report demonstrate that these improvements either mitigate impacts from and/or provide benefits to new development.

3.4 Relationship between Need for Facility and Type of Development

The projected residential and non-residential development described in Section 2.2 will add to the incremental need for transportation facilities by increasing the amount of demand on the transportation system. The transportation analysis presented in Section 2.3 demonstrates that improvements are required to minimize the negative impact on current levels of service caused by new development and/or accommodate the increased need for alternative transportation modes (transit, bicycle, pedestrian).

3.5 Relationship between Amount of Fees and the Cost of Facility Attributed to Development upon which Fee is Imposed

The basis for allocating improvement costs to development is described in Section 2.5. Construction of necessary transportation improvements will directly serve residential and non-residential development within the City of Hercules and will directly benefit development in those areas.

Expected new development in Hercules is allocated a percentage of costs based on the number of new trips on a roadway segment or intersection that have either their origin or destination within the City divided by the total amount of trips from new development. The remaining percentage of costs, reflecting new trips that have neither their origin nor destination in Hercules (through trips), are not allocated to development in Hercules. For facilities that have an “existing deficiency”, the cost of the improvement that is allocated to the fee program is modified to account for that deficiency.

The fee that a developer pays for a new residential unit or commercial building varies by the type of development based on its impact on the transportation system. Each development type is assigned a “dwelling unit equivalent” or “DUE” rate based on its estimated vehicle-miles of travel (VMT) per unit of development.

DUE’s are numerical measures of how the trip-making characteristics of a land use compare to a single-family residential unit. DUE’s were developed by comparing both the trip generation and trip length characteristics of various land uses to those of the single-family residential units. Since roadway needs are primarily based on traffic flows and conditions during the peak hour on an average weekday, the DUE’s reflect the relative trip generation for the peak hour. Also considered in the calculation of DUE’s are “percent new” trips. The DUE rates were thus based on estimates of the average vehicle-miles of travel (VMT) generated during the peak hour for each general land use type.

3.6 Current Hercules Traffic Impact Fee Fund Balance

The current balance in the Hercules traffic impact fee account has been earmarked for those carry-over projects from the previous project list that have not yet been completed (see **Table 2** and **Table 3**). Since the previous traffic impact fee was not collected at the maximum justifiable rate, these carry-over projects will require continued funding from the new transportation impact fee. The projects added in this update will receive funding from new development in Hercules.

DRAFT

Appendix A
Project Cost Estimates