

Off-Street Trails Concepts and Overpass Feasibility Analysis

Technical Memorandum

April 27, 2023



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1.0 Introduction

The purpose of the Southwest Orlando Bike and Pedestrian Study is to identify and develop recommendations and concepts to improve conditions and the environment for people currently or desiring to walk or ride a bike safely and connect to key destinations in southwest Orlando within the city limits but generally bounded by SR 408, John Young Parkway, Sand Lake Road and Hiawassee Road (see Figure 1). This study will build on recent planning efforts such as the Orlando Bike Plan and Vision Zero Action Plan, as well as the recently completed pedestrian and bicycle infrastructure projects. The study area has a strong economic base containing Universal Studios and the International Drive Tourist District, which rely heavily on service and entertainment workers. The area also contains Valencia College West Campus and industrial parks that use different aspects of the city's transportation network. The transportation network within the study area is served by large arterial roadways with limited transit service and an insufficient amount of bicycle and pedestrian infrastructure.

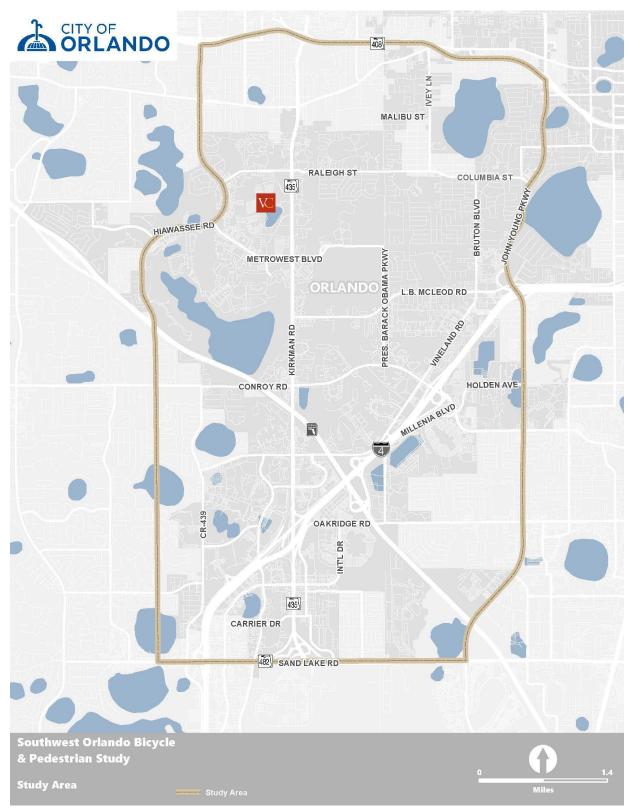
This study will address the challenges identified for bicyclists and pedestrians to establish a more comfortable environment for all modes along heavily traveled streets, as well as providing enhanced street crossing opportunities. The overall study will combine five separate, but interrelated tasks to analyze and recommend improvements that will connect people in this area of the city to jobs, schools, and entertainment uses. The five tasks are related to the following:

- 1. Arterial roadway crash analysis / Safety analysis
- 2. Valencia College West Campus bicycle and pedestrian study
- 3. Pedestrian and bicycle overpass locations feasibility analysis
- 4. Off-street trail concepts and connectivity study
- 5. Pedestrian walking conditions analysis / recommendations

This technical memorandum summarizes a review of the proposed trail network within the study area and the development of conceptual plans for a selected high priority trail corridor. It also documents the preliminary screening analysis of potential pedestrian and bicycle overpass locations to better address connectivity to employment centers, schools, commercial centers, and residential communities, and includes feasibility reviews for two selected high priority locations.



Figure 1 | Southwest Bike and Pedestrian Study Area







2.0 Trail Network Review

Having a network of connected and high-quality trails supports residents that use active modes of transportation, increases access to recreational opportunities, and can lead to the improvement of the health of residents in the area. To determine locations for trail improvements, a review of the existing and proposed trail network was conducted. The proposed trail improvements in the *City of Orlando Bicycle Plan Update 2020*, shown in Figure 2, were screened based on a combination of comfort, connectivity, equity and safety goals across six individual criteria categories as detailed in Table 1.

Table 1 | Proposed Trail Improvement Screening Criteria

Bike Gap Goal	Criteria Category	Evaluation Criteria	Scoring	Weighting
	Primary Bike Route	Project is part of the Primary Bike Routes network	100	
Comfort	Addresses Barrier	Provides a connection across a road with ≥ 6 lanes or a RR track	100	30%
		Provides a connection across a 4 or 5 lane road	60	
	Latent Demand	Project latent demand score	0-100	
Connectivity	completes Gap	Completes a gap between existing bikeways	100	30%
		Completes a gap between planned bikeways	50	
Equity	Equity	Socioeconomic Equity Target Area	70	20%
Equity	Equity	Bikeway Under- Investment Area	70	20%
Safety	Safety	Located on a high crash segment or intersection or part of the Vision Zero High Injury Network	100	20%

Screening results are summarized in Table 2 and identify the top two locations as the Orlando Urban Trail (OUT) from Mantilla Avenue to Bruton Boulevard, and Conroy Road from President Barack Obama Parkway to Vineland Road.



Figure 2 | City of Orlando Bike Plan Existing and Proposed Trail Network

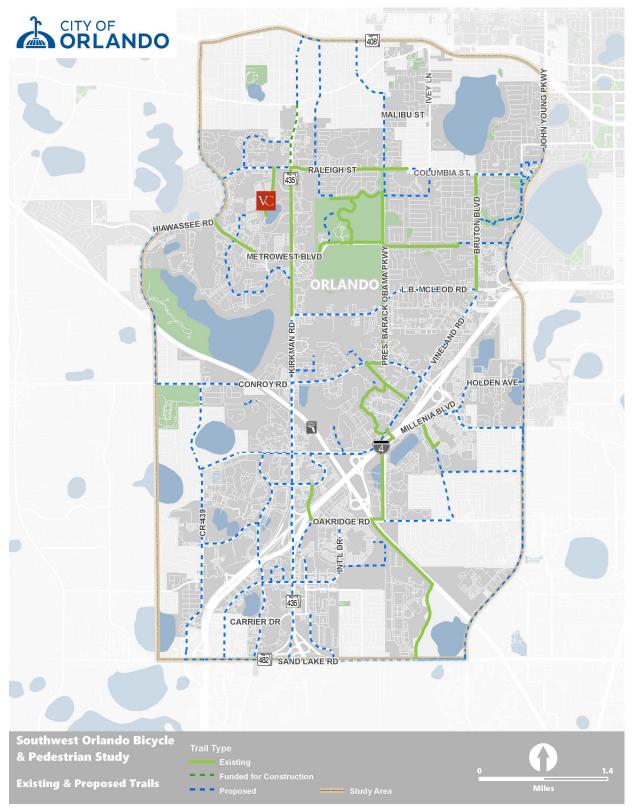




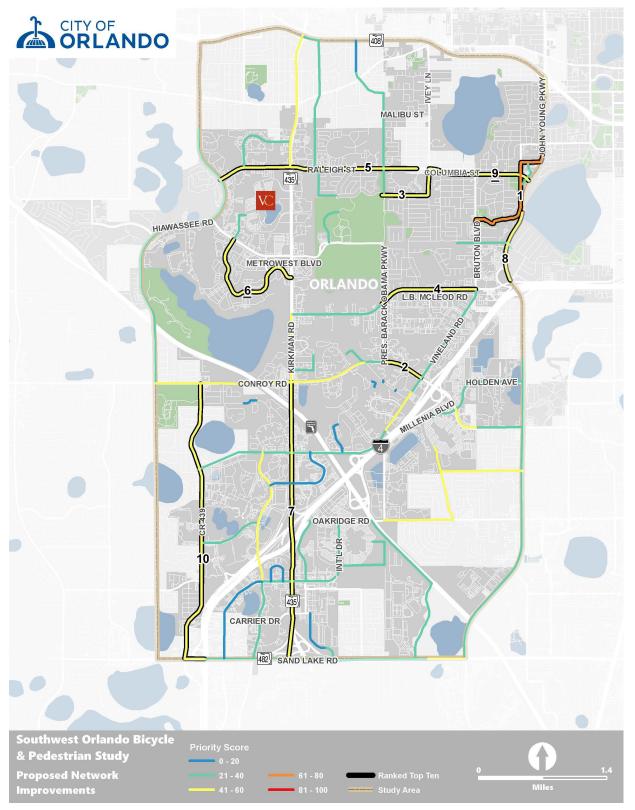


Table 2 | Proposed Trail Network Improvement Screening Ranking and Scoring

Rank	Project	Length (miles)	Score
1	Orlando Urban Trail (OUT) (Mantilla Ave to Bruton Blvd)	1.63	74
2	Conroy Road (President Barack Obama Pkwy to Vineland Rd)	0.46	57
3	Carver Shores Trail (Shingle Creek Trail to Columbia St)	0.73	56
4	LB McLeod Road (President Barack Obama Pkwy to Bruton Blvd)	1.07	56
5	Raleigh Street (Hiawassee Rd to Campanella Ave)	2.18	55
6	Robert Trent Jones Drive/Arnold Palmer Drive (Metrowest Blvd to Kirkman Rd)	1.50	55
7	Kirkman Road (Sand Lake Rd to Conroy Rd)	3.03	55
8	John Young Parkway Trail (OUT West Segment to Clear Way)	0.79	55
9	Columbia Street (Ivey Ln to John Young Pkwy)	1.18	54
10	Turkey Lake Road (Sand Lake Rd to Conroy Rd)	3.69	52



Figure 3 | Proposed Trail Network Improvement Screening Results

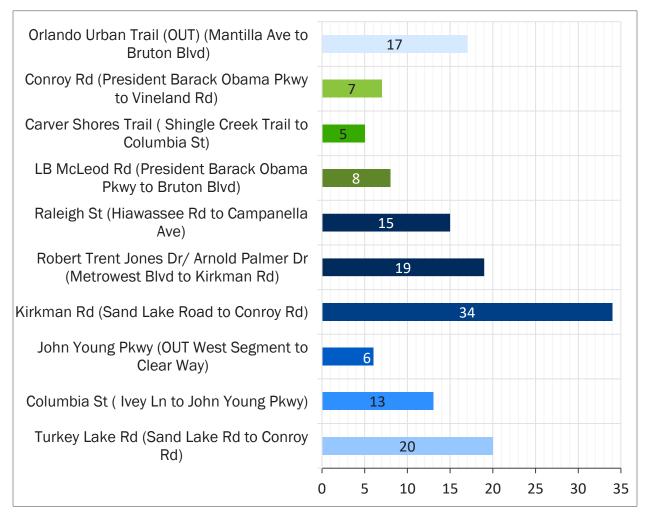




2.1 Proposed Trail Improvements Survey Results

A survey was conducted to help identify the community's preferences for the best locations for trail improvements. In reference to the top 10 trail locations shown on Table 2, survey participants responded to: "Which of the following two locations do you think would be best for a new trail? As shown in Figure 4, the location most chosen by survey participants was the Kirkman Road from Sand Lake Road to Conroy Road. Turkey Lake Road from Sand Lake Road to Conroy Road received the second highest number of selections from the survey respondents, followed closely by Robert Trent Jones Drive/ Arnold Palmer Drive from Metrowest Boulevard to Kirkman Road.

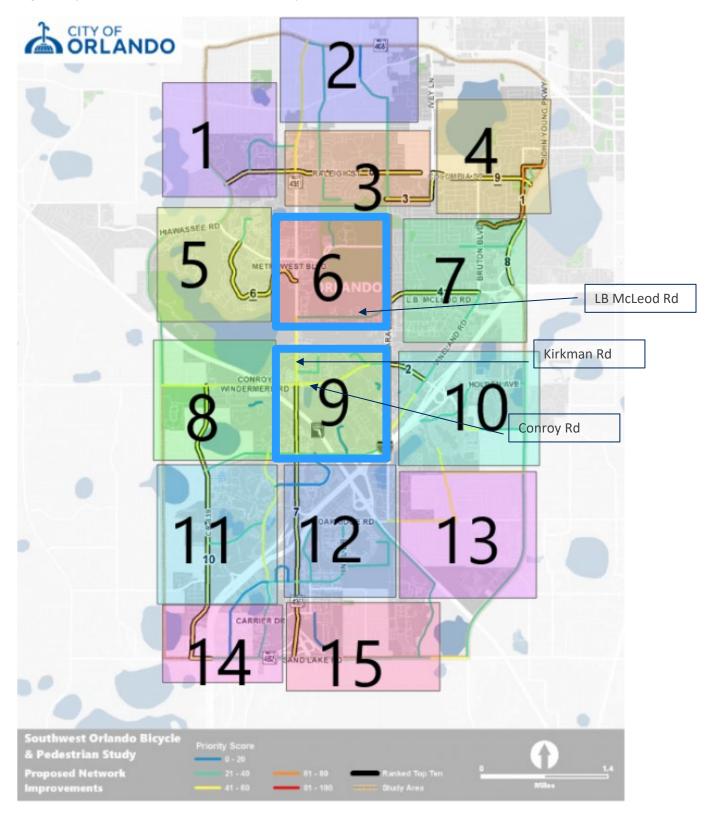
Figure 4 | Top Two Preferred New Trail Location Survey Responses



Survey participants were also asked: "Is there another location within the area where a trail would improve conditions for bicyclists or pedestrians?" For those that responded yes, a follow up question with the map in Figure 5 asked: "Click the map nearest the location where you would add a trail."



Figure 5 | Other New Trail Locations Survey Map





As shown in Figure 6, the area selected the most by participants was Area 6, followed by Area 9. Proposed trail locations in these areas that were not previously represented among the top 10 trail segments shown in Figure 5 include LB McLeod Road between Kirkman Road and President Barack Obama Parkway, Kirkman Road from Conroy Road to LB McLeod Road, and Conroy Road from Kirkman Road to President Barack Obama Parkway.



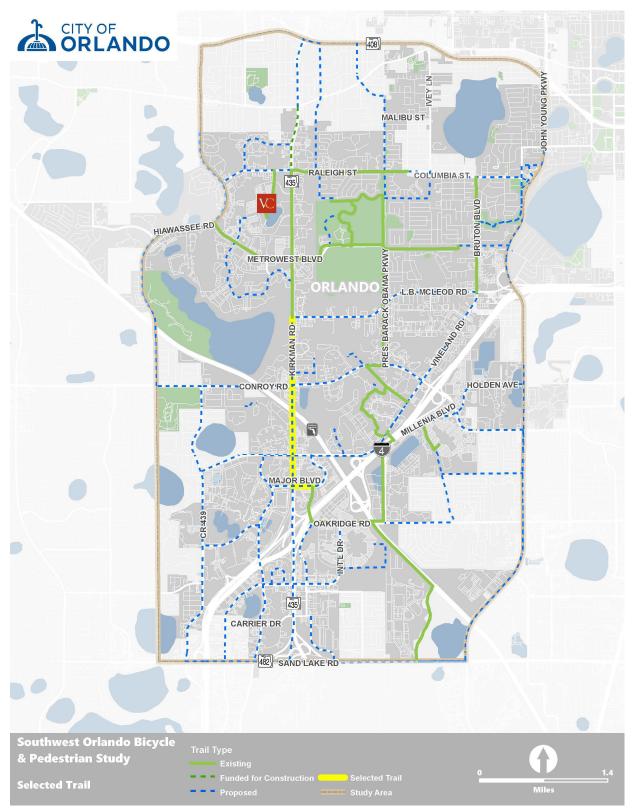
Figure 6 | Other New Trail Locations Survey Results

2.2 Trail Corridor Selection

Based on the proposed trail network review and feedback from the community, several potential trail corridors were considered for trail concept plan development. The project scope initially envisioned selection of two trail corridors of approximately one mile in length each. However, to best address the community preferences and provide connections to existing trails on both ends, one longer trail corridor of approximately two miles was selected for advancement. As shown in Figure 7, the selected trail corridor is along Kirkman Road, from LB McLeod Road on the north to Major Boulevard on the south, then continuing east on Major Boulevard from Kirkman Road to Grand National Drive. This corridor includes a portion of the most selected trail corridor by the community (Kirkman Road from Sand Lake Road to Conroy Road), connects to the southern terminus of the existing Kirkman Road Trail at LB McLeod Road, and connects to the existing shared-use path on Grand National Drive that continues south to Oak Ridge Road. The selected trail corridor also connects to the existing pedestrian and bicycle overpass at Major Boulevard over Kirkman Road that provides a connection into the Universal Orlando Resort. Perhaps most importantly, the trail will provide connections to a much larger network of regional and statewide trail corridors. To the north, the City of Orlando and Orange County have funding in place to complete the existing gap along Kirkman Road between Raleigh Street and the Pine Hills Trail, which provides a direct connection to Florida's nearly complete Coast to Coast Trail. Similarly, the project provides additional connectivity south via the Shingle Creek Trail, with remaining segments in various phases of planning, design, and construction that will eventually connect this area to Kissimmee through Orange and Osceola Counties.



Figure 7 | Selected Trail Corridor







3.0 Trail Concept Plans

The concept for the proposed trail matches many of the details and general alignment of the existing Kirkman Road Trail between Raleigh Street and LB McLeod Road, which was previously completed as part of a FDOT resurfacing project on Kirkman Road. The new section of trail is proposed to be 10-feet-wide, replacing existing sidewalk on the east side of Kirkman Road from LB McLeod Road to Major Boulevard. Continuing east on Major Boulevard, the 10-foot-wide trail is proposed to be placed on the south side of the road, also replacing existing sidewalk, and connecting to the existing shared-use path on the west side of Grand National Drive.

In addition to connecting to the existing pedestrian and bicycle overpass at Kirkman Road and Major Boulevard, the proposed trail corridor also would connect to one of the proposed new pedestrian and bicycle overpass locations at Kirkman Road and Conroy Road. This overpass, along with a second proposed overpass location at Kirkman Road and Metrowest Boulevard (along the existing Kirkman Road Trail) are discussed in more detail in Sections 4.0 and 5.0.

The following sections provide more details on specific issues and considerations along the trail corridor. Appendix A provides the concept plan for the trail extension.

3.1 Major Boulevard

The proposed trail along Major Boulevard requires the reconstruction of the curb line to remove the eastbound on-street bike lane and provide a buffer to the back of curb while avoiding the need for right-of-way acquisition. Eastbound bicyclists that wish to continue into the on-street bike lane on Major Boulevard east of Grand National Drive can transition back to the bike lane as they cross through the intersection. A total of 10 overhead lighting fixtures require relocation, and three trees need to be removed. Two catch basins will be reconstructed for stormwater management.

3.2 Kirkman Road (Major Boulevard to Vineland Road)

A total of 2,150 square feet of right-of-way needs to be acquired in this section from parcel number 292318540101010, located on the northeast corner of the Kirkman Road and Major Boulevard intersection to construct the trail adjacent to the existing pedestrian and bicycle overpass. This acquisition helps to avoid:

- Reconstructing the mast arm for northbound Kirkman Road at Major Boulevard
- Reconstruction the concrete barrier along Kirkman Road
- Removing the northbound on-street bike lane on Kirkman Road
- Placing the trail inside the bridge clear zone

It should be noted that the proposed right-of-way acquisition would not encroach into the existing hotel parking lot, although some landscaping on the edge of the lot would need to be removed.

Additionally, the implementation of the trail will require a temporary construction easement to reconstruct channelizing islands at three of four driveways. The stormwater ditches will need to be regraded to accommodate added impervious area. One catch basin and one driveway culvert require relocation.



3.3 Kirkman Road (Vineland Road to Conroy Road)

The proposed trail concept for the segment of Kirkman Road between Vineland Road and Conroy Road requires right-of-way acquisition for 1,100 square feet from parcel number 292318260000010, located on the southeast corner of the Kirkman Road and Conroy Road intersection, to construct the proposed Conroy Road pedestrian and bicycle overpass (see plan view and oblique renderings of the overpass in Figure 8 and Figure 9, respectively). This proposed acquisition will not encroach into the existing bank parking lot, although some landscaping on the edge of the lot will need to be removed.

To avoid significant improvements to the bridge over the Florida Turnpike or require construction of a separate pedestrian and bicycle bridge, it is proposed to remove the northbound on-street bike lane between the south approach to the bridge (Station 136+60) and Conroy Road (Station 160+60) to provide sufficient space to construct the 10-foot-wide trail on the existing bridge deck. Northbound bicyclists will be directed onto the trail for this section and can transition back to the on-street bike lane north of Conroy Road. This portion of the trail also includes reconstruction of curb and gutter with guardrail (Station 136+60 to Station 143+20); reconstruction of concrete barrier and pedestrian fence (Station 143+20 to Station 147+00); reconstruction of curb and gutter with guardrail (Station 147+00 to Station 156+40); and construction of new curb and gutter with restriping of the right turn lane (Station 156+40 to Station 160+60).

Other improvements in this section include relocating an overhead lighting fixture near Station 129+20; reconstructing seven catch basins and two driveway culverts; regrading the ditches between Vineland Road and Windhover Drive to accommodate added impervious area from the trail; relocating two overhead electrical poles at the southeast corner of the Conroy Road intersection to accommodate the proposed pedestrian and bicycle overpass; and removal of duplicative sidewalk sections.

3.4 Kirkman Road (Conroy Road to LB McLeod Road)

For the Conroy Road to LB McLeod Road segment, a 1,450 square foot permanent maintenance easement is required for the proposed Conroy Road pedestrian and bicycle overpass structure in the northeast quadrant of the Conroy Road and Kirkman Road intersection (Station 161+80 to Station 164+80; parcel numbers 292307276800020, 292307276800010, 292307276800011). Additionally, a temporary construction easement is required to remove the existing sidewalk from Station 161+80 to Station 168+20 (parcel numbers 292307276800020, 292307276800010, 292307276800011, 292307831300001). Stormwater ditches for this segment will be regraded to accommodate for the additional impervious areas. Eleven driveway culverts and two headwalls will be reconstructed since they are located within the roadside ditches.

Figure 10 and Figure 11 show plan view and oblique renderings of the proposed trail at the Pine Shadows Parkway intersection, respectively, including additional landscaping and the proposed implementation of a right-in/right-out raised median refuge to appropriately channelize vehicles entering and exiting the Pine Shadows Condominiums, as well as added high-visibility crosswalk markings to help warn of potential trail users crossing the driveway.



Figure 8 | Proposed Conroy Road Overpass Concept Plan

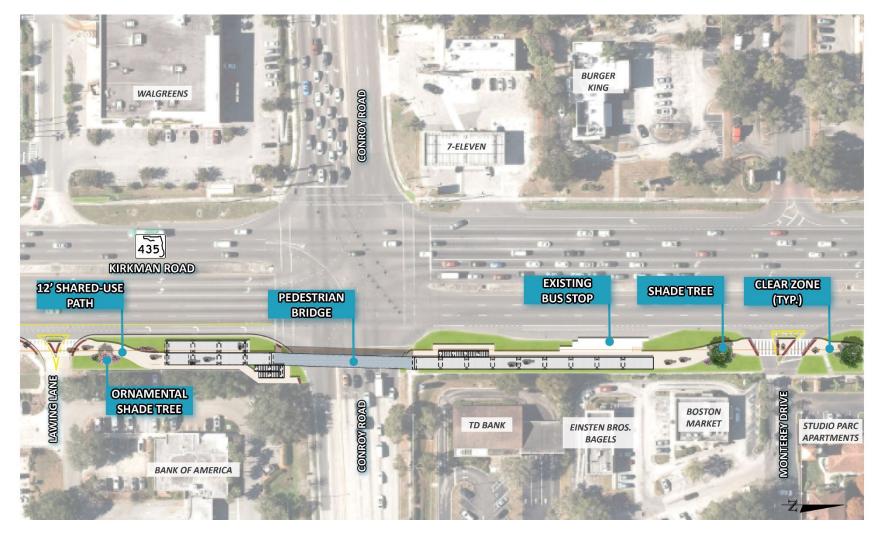






Figure 9 | Proposed Conroy Road Overpass Rendering





Figure 10 | Kirkman Road Trail at Pine Shadows Parkway Concept Plan

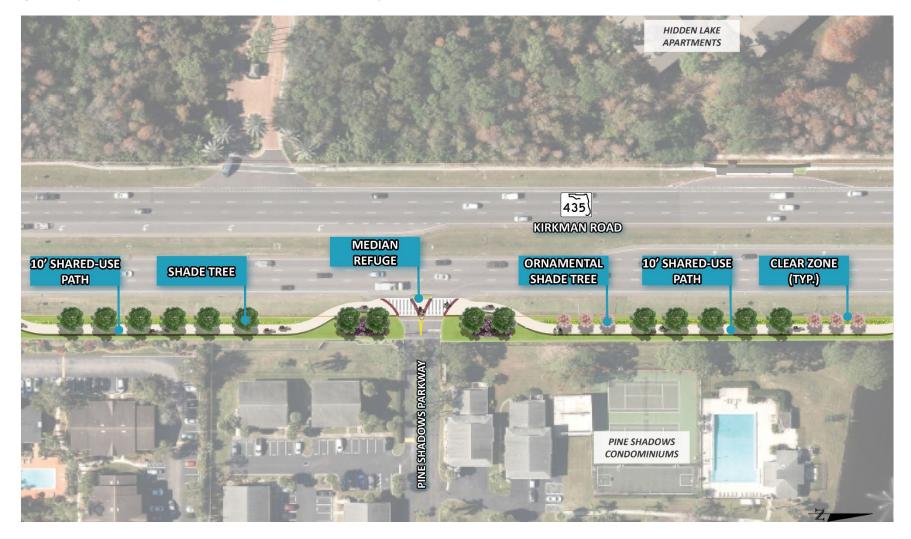






Figure 11 | Kirkman Road Trail at Pine Shadows Parkway Rendering





4.0 Overpass Location Identification and Screening

The purpose of a pedestrian and bicycle bridge is to help improve both safety and connectivity for all users in a community. The location of a pedestrian and bicycle bridge is important to meet these goals. A well located and designed bridge is more convenient and therefore more attractive for users than crossing at street level. Pedestrian and bicycle bridges work best in locations that address one or more of the following characteristics:

- Lots of potential users at many different times during the day
- Along linear corridors (e.g., Shingle Creek Trail)
- Crossing wide roadways with multiple lanes in each direction (e.g., Conroy Road)
- Crossing roadways with posted travel speeds at or above 45 miles per hour
- Crossing roadways with high traffic (e.g., Kirkman Road)

A set of screening criteria was developed to help identify potential locations for pedestrian and bicycle overpass implementation. The evaluation was based on the following seven criteria:

- 1. Locations within the Vision Zero High Injury Network
- 2. The number of lanes that have to be crossed
- 3. The posted speed on the roadway
- 4. Traffic volumes
- 5. The relative levels of bicycle demand taken from the City of Orlando Bicycle Plan Update 2020
- 6. Transit ridership at nearby bus stops
- 7. The distance to the nearest signalized intersection

The overpass screening criteria and points are displayed in Table 3.



Table 3 | Potential Overpass Screening Criteria and Scoring

Criteria	Description	Score
Vision Zero High	≤ 0.25 mi of segment or intersection	100
Injury Network (HIN)	>0.25 mi of segment or intersection	0
Deadway month on of	>4	100
Roadway number of lanes	4	50
latics	<4	0
	≥ 50 mph	100
Posted speed	40-45 mph	50
	≤ 35 mph	0
T (C)) ()	>50,000	100
Traffic Volumes	50,000 to 30,000	50
(AADT)	<30,000	0
Relative bicycle	Top quartile	100
demand score (from	Second quartile	75
Orlando Bicycle Plan	Third quartile	50
<i>Update 2020)</i>	Bottom quartile	25
	Top quartile	100
Transit ridership at	Second quartile	75
adjacent bus stops (0.25 mi)	Third quartile	50
(0.23 1111)	Bottom quartile	25
Distance to nearest	>0.25 mi from closest signalized intersection	100
signalized	0.125 – 0.25 mi from closest signalized intersection	50
intersection	< 0.125 mi from closest signalized intersection	0

Figure 12 shows the results of this initial screening process on the collector and arterial roadway network within the study area. Taking into consideration the screening results and overlaying the existing and proposed trail network, Figure 13 shows the potential locations for new pedestrian and bicycle overpasses. Figure 14 and Table 4 show the ranking of potential overpass locations and the top ten candidate pedestrian and bicycle overpass locations based on the scoring criteria. Most of the highest scoring pedestrian and bicycle overpass locations are along Kirkman Road between Westgate Drive and Vineland Road. The top-ranked location is at the intersection of Kirkman Road and Summeroak Street.



Figure 12 | Collector and Arterial Screening Results

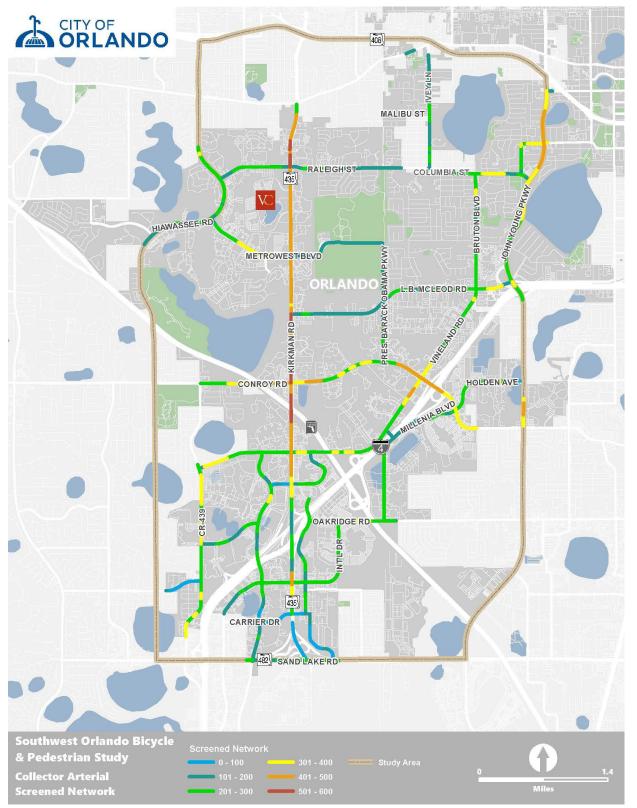






Figure 13 | Potential Overpass Locations

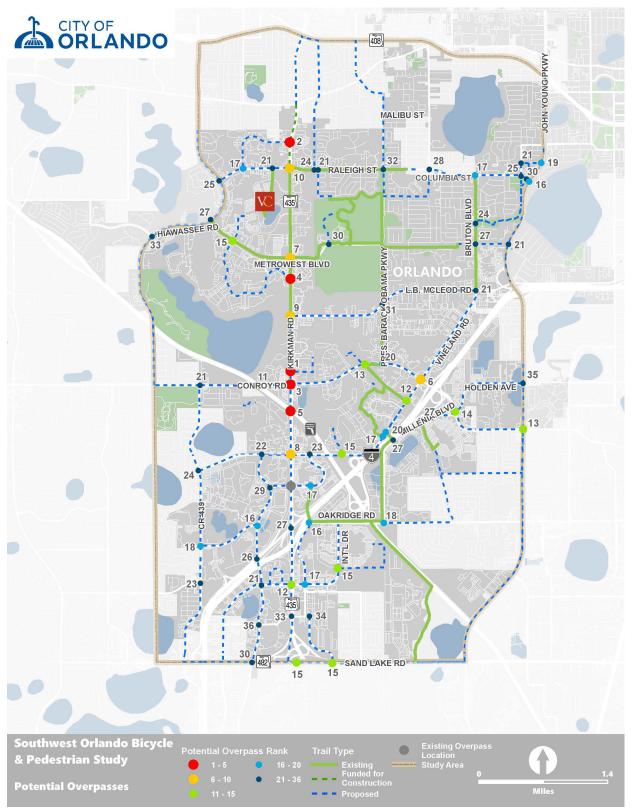






Figure 14 | Potential Overpass Locations Rankings and Top 10 Candidate Locations

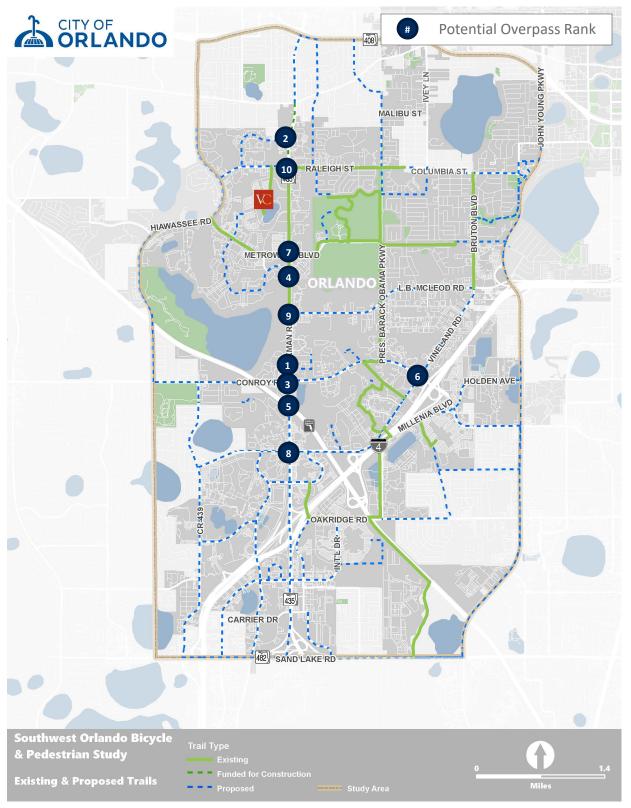






Table 4 | Top 10 Potential Overpass Location Ranking and Scoring

Rank	Location	Tot Score
1	Kirkman Rd & Summeroak St	575
2	Kirkman Rd & Westgate Dr	525
3	Kirkman Rd & Conroy Rd	463
4	Kirkman Rd & Arnold Palmer Dr	450
5	Turnpike & Kirkman Rd	436
6	Conroy Rd & Vineland Rd	419
7	Kirkman Rd & Metrowest Blvd	406
8	Kirkman Rd & Vineland Rd	363
9	Kirkman Rd & LB McLeod Rd	363
10	Raleigh St & Kirkman Rd	358

4.1 Overpass Survey Results

A survey was conducted to help identify the community's preferences for the best locations for pedestrian and bicycle overpasses. A specific question referencing the map showing the top 10 candidate overpass location asked: "Which two of the following locations do you feel are the least safe to cross as a bicyclist or pedestrian, and would most benefit from a pedestrian and bicycle overpass?" The results from this question are shown on Figure 15. Kirkman Road at Conroy Road was the location with the most selections during the survey and was ranked third in the screening process. Kirkman Road at Metrowest Boulevard received the second highest number of selections in the survey and ranked seventh in the screening evaluation. Turnpike at Kirkman Road was the third most selected location in the survey and ranked fifth from the screening criteria.

Survey respondents were also asked to list why they had chosen a specific location. The most common reason was being traffic volumes. Other popular reasons listed were school proximity, dangerous intersections, aggressive driving, safety, speeding, and commute.

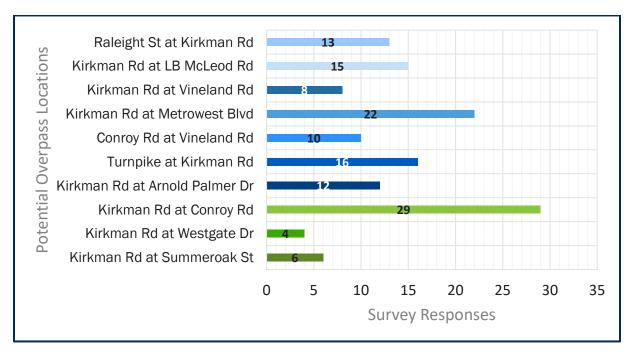
4.2 Overpass Selection

Based on the overpass location identification, screening analysis, and feedback from the community, several potential overpasses were considered for advancing to concept development. Ultimately, the two selected overpass locations are on Kirkman Road at the Conroy Road and Metrowest Boulevard intersections. The Conroy Road location is proposed along the proposed extension of the Kirkman Road Trail from LB McLeod Road to Major Boulevard and would cross over Conroy Road along the east side of Kirkman Road. The Metrowest Boulevard location is at the junction of the existing Kirkman Road Trail and the existing Shingle Creek Trail spur on the south side of Metrowest Boulevard east of Kirkman Road. The proposed overpass at this location would cross over Kirkman Road on the south leg of the intersection and provides the opportunity for a potential gateway feature for the Metrowest area.



It should also be noted that while a separate overpass structure is not proposed on Kirkman Road at the Florida Turnpike, the existing bridge is proposed to be reconfigured to allow for a trail on the east side as discussed previously in Section 3.3.

Figure 15 | Pedestrian and Bicycle Overpass Survey Responses





5.0 Overpass Feasibility Review and Concept Development

Based on the evaluation results and input from the community, the two selected candidate pedestrian and bicycle bridge locations are:

- Kirkman Road / Conroy Road Intersection (Figure 16)
- Kirkman Road / Metrowest Boulevard Intersection (Figure 17)

Figure 16 | Plan View of the Kirkman Road at Conroy Road Intersection

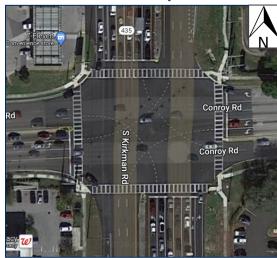
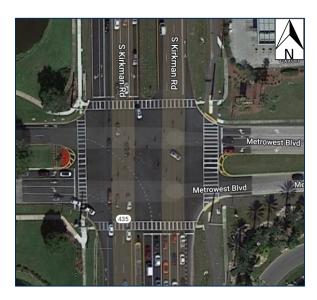


Figure 17 | Plan View of the Kirkman Road at Metrowest Boulevard Intersection





5.1 Existing Conditions

The existing typical section for Kirkman Road consists of a six-lane divided arterial with buffered bike lanes. The posted speed of Kirkman Road is 50 mph. The existing typical section for Conroy Road consists of a six-lane divided arterial west of Kirkman Road and a four-lane divided arterial east of Kirkman Road. The posted speed of Conroy Road is 35 mph. The existing typical section for Metrowest Boulevard consists of a four-lane divided collector with bike lanes west of Kirkman Road and a two-lane undivided collector east of Kirkman Road. The posted speed of Metrowest Boulevard is 40 mph.

5.2 Vertical Clearance

Per Florida Design Manual (FDM) 260.6, the minimum vertical clearance is measured from the lowest point on the bridge superstructure and the traveled way or shoulder directly below that element. The proposed vertical clearance for the two candidate bridges will meet the minimum vertical clearance of 17.5 feet outlined in Table 260.6.1 in the FDM.

5.3 Environmental and Permitting Requirements

The project is located in the urban corridor of Kirkman Road in Orange County, Florida. A review of the two candidate bridge locations found that the drainage ditches can be considered other surface waters. It is anticipated that no General Permit or U.S. Army Corp of Engineers (USACE) permit would be required. However, final determination will be coordinated during the environmental permitting process/design phase.

5.4 Proposed Roadway and Bridge Geometry

Based on coordination with the City of Orlando, there are three main alternatives for each candidate bridge location to provide a bicycle and pedestrian crossing. The three roadway and bridge geometry alternatives considered at each intersection are summarized below:

- Kirkman Road/Conroy Road Intersection:
 - **Option 1:** Pedestrian structure that spans east/west over Kirkman Road.
 - **Option 2:** Pedestrian structure that spans north/south over Conroy Road.
 - **Option 3:** Pedestrian structure that spans both, east/west over Kirkman Road and north/south over Conroy Road.
- Kirkman Road/Metrowest Boulevard Intersection:
 - **Option 1:** Pedestrian structure that spans east/west over Kirkman Road.
 - **Option 2:** Pedestrian structure that spans north/south over Metrowest Boulevard.
 - **Option 3:** Pedestrian structure that spans both, east/west over Kirkman Road and north/south over Metrowest Boulevard.

Since Kirkman Road has flush shoulders, the clear zone width requirement per FDM Table 215.2.1 is 30 feet from the edge of travel lanes and 18 feet from the edge of auxiliary lanes. For the portion of Kirkman Road south of Conroy Road, curb and gutter will be provided for a minimum lateral offset requirement of the greater of 16 feet from the edge of travel lane, 4 feet from the face of curb, or 6 feet from the edge of the auxiliary lane per FDM Table 215.2.2. Both Conroy Road and Metrowest Boulevard have curb and gutter. The minimum lateral offset for curbed roadways is the greater of 16





feet from the edge of travel lane, 4 feet from the face of curb, or 6 feet from the edge of the auxiliary lane. The bridge columns and piers will be located outside of the minimum lateral offset and clear zone. While the overpasses will provide enhanced safety for people traveling along the route of the overpass ramps, at-grade crossing treatments should be maintained at these intersections to provide an alternative for pedestrians in lieu of out-of-way travel via the overpass.

5.5 Bridge Structures

The proposed bridge structures will provide safe passage for pedestrians and connection of the communities. The proposed bridge typical section for all alternatives consists of a 12-foot clear width on a shared-use path. This width meets the minimum design criteria from FDM 266.2. The 16-foot desirable clear width (incorporating an additional two feet of shy distance on each side of the path to provide an effective 12-foot width) was not provided to minimize the right-of-way impacts and acquisitions and per coordination with the City of Orlando, the 12-foot width was acceptable. The superstructure alternatives for the main span(s) of the pedestrian and bicycle bridge typically includes Florida-I Beams, steel plate and box girders, or a prefabricated steel truss. A full or partial enclosure is required, in accordance with the FDM, to reduce the likelihood of objects being dropped or thrown onto the roadway below.

Florida I-Beams

Florida-I Beams consist of concrete prestressed beams with a concrete deck. However longer spans will require a deeper beam. Steel plate or box girders with a composite deck are typically considered when short/medium span alternatives are inappropriate. Aesthetically, steel box girders are preferred in areas of high visibility, but the construction costs are normally higher. A prefabricated steel truss includes a concrete deck surface above the bottom chord of the truss. Advantage of a prefabricated steel truss include a shallow superstructure depth. The FDM outlines a maximum steel truss span length of 200 feet.

Prefabricated Steel Truss

A single-span alternative is the most favorable option because it would minimize obstruction, lower construction duration, and eliminates an intermediate pier. An intermediate pier was deemed not feasible for the main crossing due to insufficient median width for placement and the potential impact to the existing roadway. A prefabricated structure is the preference because it would reduce the superstructure depth and can be installed with fewer operations. It is anticipated that the span length of the main crossings will range between 165 feet to 175 feet. This length was determined based on the lateral offset and clear zone requirements in the FDM. The location of the supporting piers for the main span will be set to ensure that the overhead utilities (electric) will not interfere with pile driving operations or bridge erection.

Several alternatives were considered to facilitate pedestrian movement from the bridge to at-grade, including:

Switchback Ramps

Switchback ramps carry pedestrians from the bridge to the roadway below by a series of wraparound landings and longitudinal ramps. The length of the switchback ramps can vary depending on the total height from the bridge to at-grade, geometric constraints, and ADA requirements.



Switchback ramps can be placed parallel or perpendicular to the bridge crossing. These ramps were considered to minimize the ramp footprint.

Longitudinal Ramps

Longitudinal ramps are linear paths that provide easy access for pedestrians from the bridge to atgrade. Similar to the switchback ramps, the lengths and width of the ramps depends on the total height from the bridge to at-grade, geometric constraints, and ADA requirements. The major advantage of this option is to minimize the right-of-way acquisitions and are more favorable to bicyclists or wheelchair users due to the minimum number of turns. A disadvantage with this option is pedestrian access. Stairways are usually added to reduce users from walking to the beginning of the ramp.

Elevators

The elevator alternative consists of a building that would house an elevator and stairs. Elevators were considered because it requires the smallest footprint out of the alternatives. However due to the cost and maintenance concerns, elevators were not considered further.

Retaining wall systems can be utilized to reduce the need for the ramp alternatives. The wall systems need to account for the geotechnical condition and the minimum soil reinforcement length in accordance with the Structures Design Guidelines (SDG). The use of retaining walls or short span bridges for the ramp will be evaluated further during the design phase. This report assumes short span bridges for the ramp.

The maximum grade for the ramps consists of 8.33% grade for a rise of 30 inches accompanied with a 5-foot level landing until the ramp ties down to existing ground.

5.6 Proposed Trail Concept

The existing trail located along the east side of Kirkman Road begins at LB McLeod Road and continues north to Raleigh Street. This Southwest Bike and Pedestrian Study proposes a shared-use path that extends the existing Kirkman Road trail to the south and through the Conroy Road intersection.

The existing trail segment located south of the Metrowest Boulevard intersection will require realignment to the west of the bridge ramp. This would require relocation of the drainage ditch for the proposed trail. The trail would connect to the bridge ramps to allow users the option to use the pedestrian and bicycle overpass or to stay on the at-grade trail as shown in Appendix B.

5.7 Build Alternatives

Based on the existing roadway characteristics, the build alternatives to provide a bicycle and pedestrian crossing utilize a single span crossing. These alternatives were evaluated using Florida-l beams and a prefabricated steel structure, with longitudinal ramps to carry pedestrians from the bridge. Table 5 summarizes the build alternatives considered.



Table 5 | Build Alternatives

Alternative	Location
1A	Florida-I Beam (Main Span) East/West Crossing
1B	Prefabricated Steel Truss (Main Span) East/West Crossing
2A	Florida-I Beam (Main Span) North/South Crossing
2B	Prefabricated Steel Truss (Main Span) North/South Crossing
ЗА	Florida-I Beam (Main Span) North/South & East/West Crossing
3B	Prefabricated Steel Truss (Main Span) North/South & East/West Crossing

5.7.1 Construction Cost

Unit costs for the construction cost estimates are consistent with Chapter 9 of the *FDOT Structures Design Guidelines*. Additional unit costs not accounted for in Chapter 9 were obtained from FDOT historical costs. The estimated construction cost shown in Table 6 and Table 7 include an additional 20 percent for construction over traffic. Details on the construction cost estimates are provided in Appendix C.

Table 6 | Estimated Construction Cost at the Kirkman Road at Conroy Road Intersection

Alternative	Superstructure	Substructure	Misc.	Total
1A: East/West over Kirkman Road (Florida-I Beam)	\$ 2,746,000	\$ 1,138,000	\$ 777,000	\$ 4,661,000
1B: East/West over Kirkman Road (Prefabricated Steel Truss)	\$ 2,861,000	\$ 1,370,000	\$ 846,000	\$ 5,077,000
2A: North/South over Conroy Road (Florida-l Beam)	\$ 2,746,000	\$ 1,138,000	\$ 777,000	\$ 4,661,000
2B: North/South over Conroy Road (Prefabricated Steel Truss)	\$ 2,861,000	\$ 1,370,000	\$ 846,000	\$ 5,077,000
3A: North/South & East/West Crossing (Florida-I Beam)	\$ 4,213,000	\$ 1,903,000	\$ 1,223,000	\$ 7,339,000
3B: North/South & East/West Crossing (Prefabricated Steel Truss)	\$ 4,278,000	\$ 2,382,000	\$ 1,332,000	\$ 7,992,000



Table 7 | Estimated Construction Cost at the Kirkman Road at Metrowest Boulevard Intersection

Alternative	Superstructure	Substructure	Misc.	Total*
1A: East/West over Kirkman Road (Florida-I Beam)	\$ 3,342,000	\$ 1,204,000	\$ 909,000	\$ 5,455,000
1B: East/West over Kirkman Road (Prefabricated Steel Truss)	\$ 2,647,000	\$ 1,392,000	\$ 808,000	\$ 4,847,000
2A: North/South over Metrowest Boulevard (Florida-I Beam)	\$ 3,342,000	\$ 1,204,000	\$ 909,000	\$ 5,455,000
2B: North/South over Metrowest Boulevard (Prefabricated Steel Truss)	\$ 2,647,000	\$ 1,392,000	\$ 808,000	\$ 4,847,000
3A: North/South & East/West Crossing (Florida-I Beam)	\$ 5,107,000	\$ 2,001,000	\$ 1,422,000	\$ 8,530,000
3B: North/South & East/West Crossing (Prefabricated Steel Truss)	\$ 4,065,000	\$ 2,445,000	\$ 1,302,000	\$ 7,812,000

^{*}Costs for potential business damages or sign relocation not included

5.7.2 Roadway Cost

The associated roadway cost for the Conroy Road intersection is outside the scope of this Southwest Bike and Pedestrian Study and has been excluded from the total construction cost. Based on the recommended alternative at Metrowest Boulevard, the proposed bridge structure will impact the existing trail and sidewalk. This would require realignment of the trail and sidewalk, relocation of the drainage ditch, and regrading of the sod. The estimated roadway cost is \$ 110,000. Table 8 provides a breakdown of the roadway costs.

Table 8 | Estimated Roadway Costs at Metrowest Boulevard

Roadway Cost	Drainage Cost	Roadway Total	
\$ 85,000	\$ 25,000	\$ 110,000	

5.7.3 Maintenance of Traffic

The maintenance of traffic (MOT) plan provides safe passage through the construction area while minimizing traffic flow interruptions. The MOT for the pedestrian and bicycle bridge components will utilize the FDOT Standard Plans Index Series 600 since minimal roadway reconstruction work is anticipated. Pier foundation and pier cap constructions will require temporary reduction of travel lanes and possibly some lane shifts to provide an adequate construction work zone. Additional concerns during construction will be maintaining pedestrian access through the work zone. This could be accomplished by using temporary sidewalk around the work zone or providing a pedestrian detour. The construction of the superstructure will require temporary road closures and detours since traffic is not allowed under an active work zone. The road closure with traffic detour will be performed at night to facilitate construction of the superstructure elements and minimize traffic impacts.



5.7.4 Right-of-Way Impacts

Right-of-way acquisitions typically increase the project cost and lengthen the project schedule. Therefore, the priority is to minimize or avoid right-of-way impacts. To meet minimum lateral offset and clear zone, right-of-way is often acquired to accommodate the bridge piers and ramps.

Right-of-way acquisitions will be required along the east side of Kirkman Road to accommodate the construction of the ramps and stairs. As noted previously in Sections 3.2 and 3.3, a total of 2,150 square feet and 1,100 square feet will need to be acquired on the northeast corner of the Kirkman Road / Major Boulevard intersection and the southeast corner of the Kirkman Road / Conroy Road intersection, respectively. Temporary Construction Easements (TCEs) along the east side of Kirkman Road will also be required at these locations, as well as at the Kirkman Road / Metrowest Boulevard intersection to accommodate the construction of the sidewalk and trail.

Right-of-way acquisition totaling 6,220 square feet will be required on the southeast corner of the Kirkman Road / Metrowest Boulevard intersection to accommodate the construction of ramps, stairs, and sidewalk. TCEs beyond the limits of the right-of-way acquisition may also be required on that southwest intersection corner.

5.7.5 Constructability

The proposed bridge construction can be accomplished through traditional construction methods. The construction materials are concrete and steel which are widely used and widely available. Conventional construction methods will involve temporary facility closures and detours during offpeak hours to allow crane operation, and placement of the truss, concrete deck, pedestrian parapet, and fence enclosure.

The prefabricated steel truss will be supplied by a fabricator and could be transported as a whole unit or sections and then assembled/erected onsite. Equipment, such as cranes, are anticipated for various activities, including pile driving, pier construction, and truss placement. All anticipated operations can be accommodated by cranes commonly used in bridge construction. There is adequate access to the project site to deliver the required truss and piles since Kirkman Road is a paved roadway with access to SR 400 (I-4) to the south and SR 408 to the north for delivery of materials. The existing right-of-way along Kirkman Road has adequate width to accommodate the required cranes for truss erection and pile driving. These erection schemes will require a nighttime lane closure due to overhead erection activities. The final erection sequence will be determined during the design phase. Potential crane positions are shown in Figure 18 and Figure 19.



Figure 18 | Crane Position at the Kirkman Road at Conroy Road Intersection

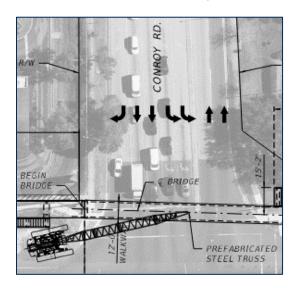
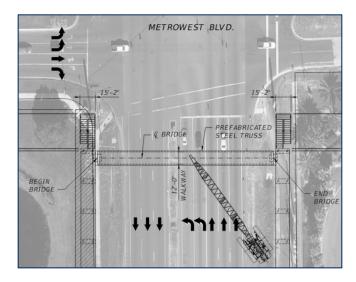


Figure 19 | Crane Position at the Kirkman Road at Metrowest Boulevard Intersection



Due to existing building structures and businesses located in the surrounding area, Section 108 of the Specifications will be applied to all construction activities along the project corridor. This report assumed 18-inch prestressed concrete piles for the construction cost estimates. Prior to pile driving, the concrete piles will need to be preformed to mitigate noise and vibrations. Foundation alternatives including prestressed concrete piles, drilled shafts, steel H-piles, and steel pipe piles will need to be further evaluated during the design phase once geotechnical investigation has occurred.

5.7.6 Utilities Impacts

A review of the corridor revealed buried fiber optic cable, underground gas, buried electric and overhead electric. Since there are existing utilities, the proposed bridge construction must include utility coordination and adequate OSHA clearances. The utility stakeholders in the area includes:



- CenturyLink
- TECO Peoples Gas
- Summit Broadband
- Orlando Utilities Commission

5.7.6.1 Kirkman Road at Conroy Road Intersection

There are existing overhead electric lines located on the east and north side that will need to be raised or relocated. There is also an underground gas line located on the east and south side that may be impacted. Other utilities including buried fiber optic cables located on the east and north side and underground water line located on the south side appear to not be impacted. Additional coordination will need to take place during the design phase since these potential impacts may require lengthening the bridge and/or increasing right-of-way acquisitions.

5.7.6.2 Kirkman Road at Metrowest Boulevard Intersection

There are buried water and electrical lines on the west side that are not anticipated to be impacted. There are also underground gas/water lines and buried fiber optic/electric cables located on the east side, with the latter being impacted. Existing business signage on the corner properties at the intersection may have visibility reduction due to the bridge and pier columns. However, the proposed open truss bridge provides visibility between the connected truss elements. The pier columns at specific viewing angles may also cause signage obstruction but those are not continuous elements. The proposed structure would likely partially obscure the traffic signals for westbound traffic, so additional signal heads may need to be placed on the east side of the structure to provide additional visibility. Additional coordination will need to take place during the design phase to finalize these utilities impacts.

5.7.7 Evaluation Matrix

The evaluation of the bridge alternatives was based on the evaluation of estimated construction cost, pedestrian/bicycle safety, maintenance of traffic, right of way impacts, constructability, and utility impacts. The alternatives with identical ranking indicate there is no significant difference between alternatives for that particular criteria.

Table 9 and Table 10 provide the alternatives evaluation summaries for the Conroy Road and Metrowest Boulevard overpass locations, respectively.



Table 9 | Kirkman Road at Conroy Road Intersection Alternatives Evaluation

Alternative	Estimate Constructi Cost		Pedestrian /Bicycle Safety	МОТ	Right of Way Impacts	Constructability and Utility Impacts	Total
1A: East/West over Kirkman Road (Florida-I Beam)	\$ 4,661,000	1	2	1	3	2	9
1B: East/West over Kirkman Road (Prefabricated Steel Truss)	\$ 5,077,000	2	2	1	3	1	9
2A: North/South over Conroy Road (Florida-I Beam)	\$ 4,661,000	1	3	1	2	2	9
2B: North/South over Conroy Road (Prefabricated Steel Truss)	\$ 5,077,000	2	3	1	1	1	8
3A: North/South & East/West Crossing (Florida-I Beam)	\$ 7,339,000	3	1	2	4	3	13
3B: North/South & East/West Crossing (Prefabricated Steel Truss)	\$ 7,992,000	3	1	2	4	3	13

Note 1: Rankings range from 1 to 4, where 1 indicates the best and 4 indicates the worst



Table 10 | Kirkman Road at Metrowest Boulevard Intersection Alternatives Evaluation

Alternative	Estimated Construction (Pedestrian/ Bicycle Safety	мот	Right of Way Impacts	Constructability and Utility Impacts	Total
1A: East/West over S Kirkman Road (Florida-I Beam)			2	1	2	2	9
1B: East/West over S Kirkman Road (Prefabricated Steel Truss) ¹	\$ 4,847,000	1	2	1	2	1	7
2A: North/South over Metrowest Boulevard (Florida-I Beam)	\$ 5,455,000	2	3	1	1	2	9
2B: North/South over Metrowest Boulevard (Prefabricated Steel Truss)	\$ 4,847,000	1	3	1	1	1	7
3A: North/South & East/West Crossing (Florida-I Beam)			1	2	3	3	13
3B: North/South & East/West Crossing (Prefabricated Steel Truss)	\$ 7,812,000 3		1	2	3	3	12

Note 1: Rankings range from 1 to 4, where 1 indicates the best and 4 indicates the worst

Note 2: Alternative 1B selected due to increase in pedestrian/bicycle safety

5.8 Pedestrian and Bicycle Overpass Locations Recommendations

Based upon the evaluation above, the recommended superstructure at both locations consists of a prefabricated steel truss supported by bridge columns and piers. The ramps will utilize cast-in-place flat slabs followed by 5-foot landings. Stairways will be provided at each bridge end to avoid having pedestrians walking to the beginning of the ramps. The implementation of barriers can channel pedestrians to use the overpass instead of crossing at street level.

5.8.1 Kirkman Road at Conroy Road Intersection

The recommended alternative for the pedestrian and bicycle bridge at the Kirkman Road/Conroy Road Intersection is Alternative 2B, a prefabricated steel truss bridge that spans north/south over Conroy Road and connects the proposed shared-path extension along the east side of Kirkman Road. This alternative provides a major community connection point that improves safety, recreation, and active transportation for the southwest Orlando residents.

Alternative 2B consist of single-span prefabricated steel truss with a 6-inch concrete deck. The overall length of this structure is 165 feet with a clear walkway width of 12 feet. A straight longitudinal ramp will be utilized at the northern end of the bridge while switchback ramps will be utilized at the southern end of the bridge. Straight ramps were evaluated but the driveway located just south of Conroy Road and coordination with the City of Orlando made that option not feasible. The ramps will consist of short



spans of cast-in-place flat slabs follow by 5-foot landings, supported by piers or multicolumn. The estimated total construction cost for Alternative 2B is \$5,077,000 as shown in Table 11. Exhibit 1 in Appendix B provides a detailed plan and elevation view of the recommended alternative.

Table 11 | Estimated Construction Cost for the Recommended Alternative at the Kirkman Road / Conroy Road Intersection

Alternative	Superstructure	Substructure	Misc.	Total
2B: North/South over Conroy Road (Prefabricated Steel Truss)	\$ 2,861,000	\$ 1,370,000	\$ 846,000	\$ 5,077,000

5.8.2 Kirkman Road at Metrowest Boulevard Intersection

The recommended alternative for the pedestrian and bicycle bridge at the Kirkman Road/Metrowest Boulevard Intersection is Alternative 1B, a prefabricated steel truss bridge that spans east/west over Kirkman Road. This alternative provides connectivity between the residential developments located on the east side along Kirkman Road and Metrowest Boulevard, and the activity centers located to the west including the Walmart Plaza and Valencia College West Campus.

Alternative 1B consist of single-span prefabricated steel truss with a 6-inch concrete deck. The overall length of this structure is 175 feet with a clear walkway width of 12 feet. A straight longitudinal ramp will be utilized at both east and west ends of the bridge. The ramps will consist of short spans of cast-in-place flat slabs follow by 5-foot landings and supported by piers or multicolumn. The estimated total construction cost is \$4,957,000. Table 12 provides a breakdown of the estimated construction costs. Exhibit 2 in Appendix B provides a detailed plan and elevation view of the recommended alternative.

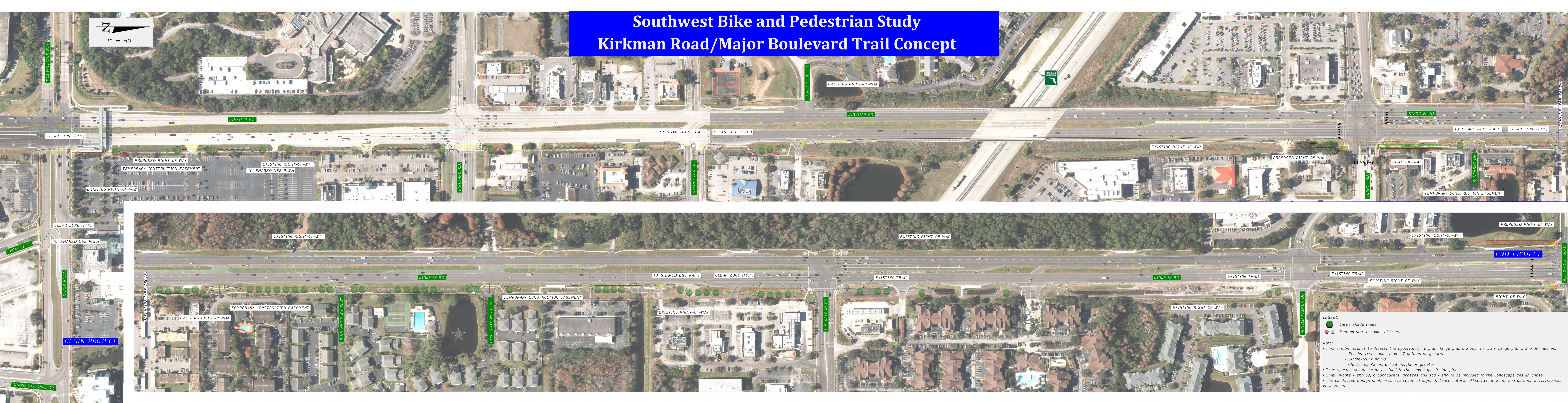
Table 12 | Estimated Construction Cost for the Recommended Alternative at the Kirkman Road / Metrowest Boulevard Intersection

Alternative	Superstructure	Substructure	Misc.	Roadway	Total
1B: East/West over Kirkman Road (Prefabricated Steel Truss)	\$ 2,647,000	\$ 1,392,000	\$ 808,000	\$ 110,000	\$ 4,957,000



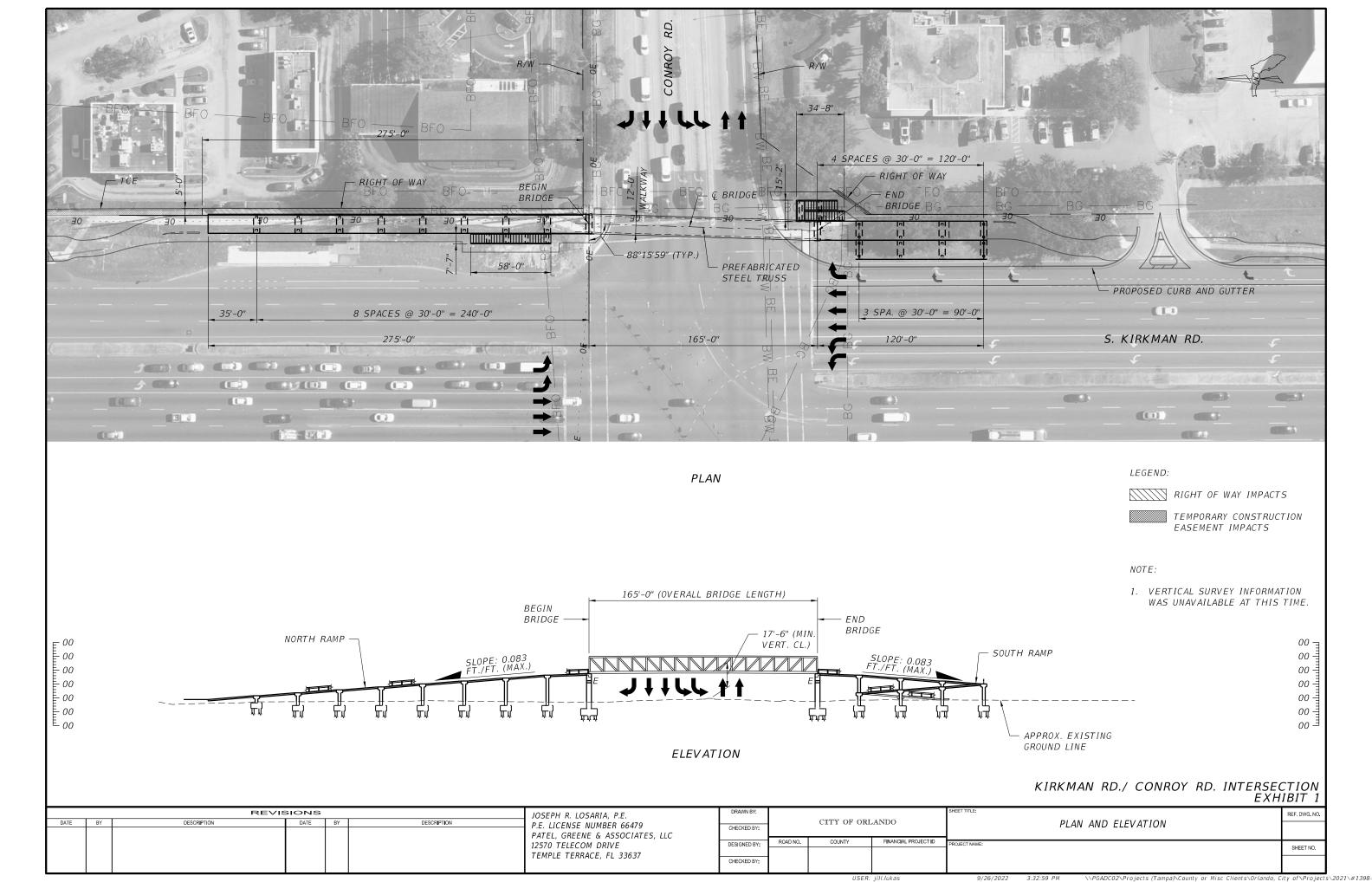
APPENDIX A | Trail Concept Plans

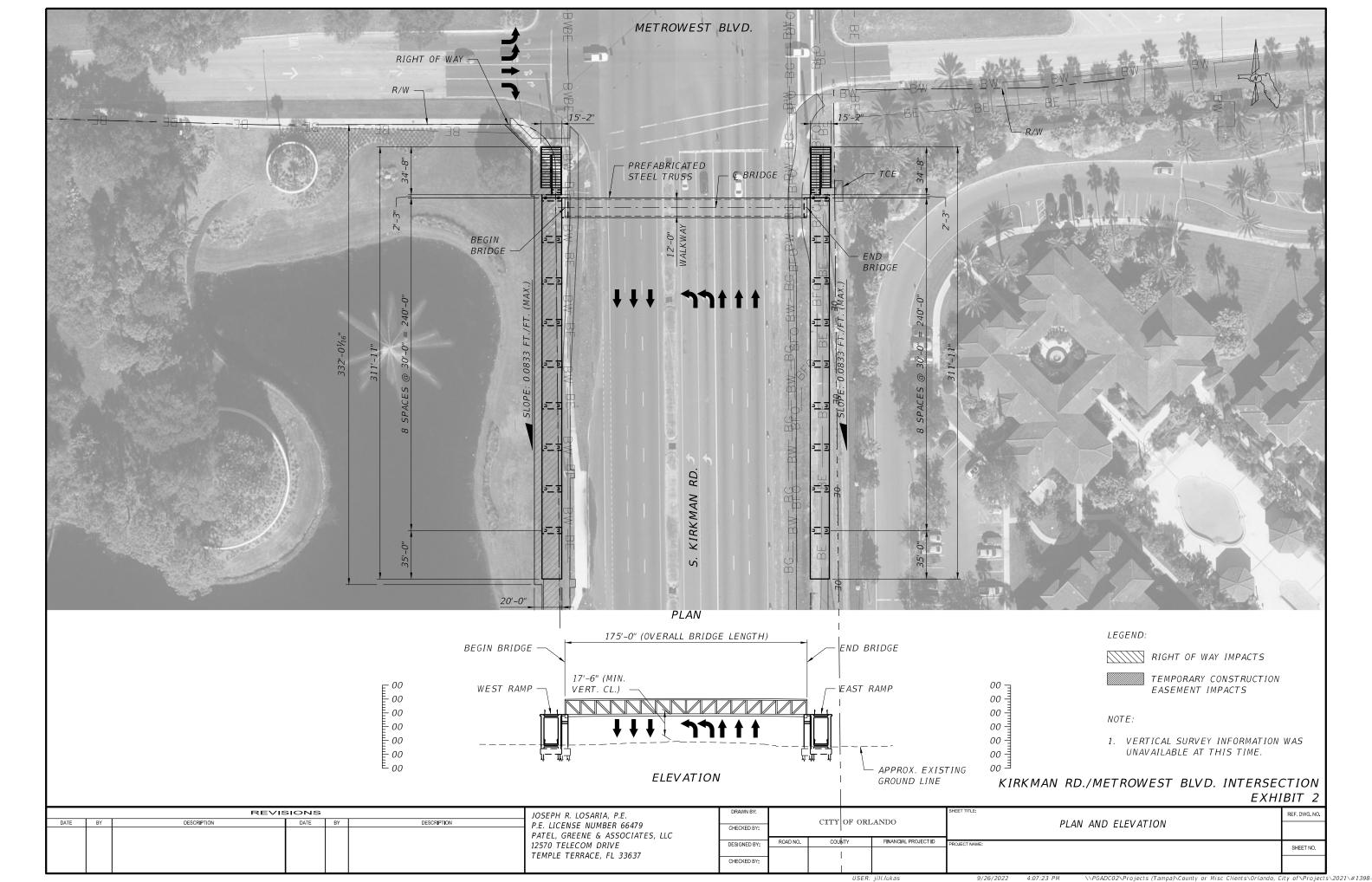


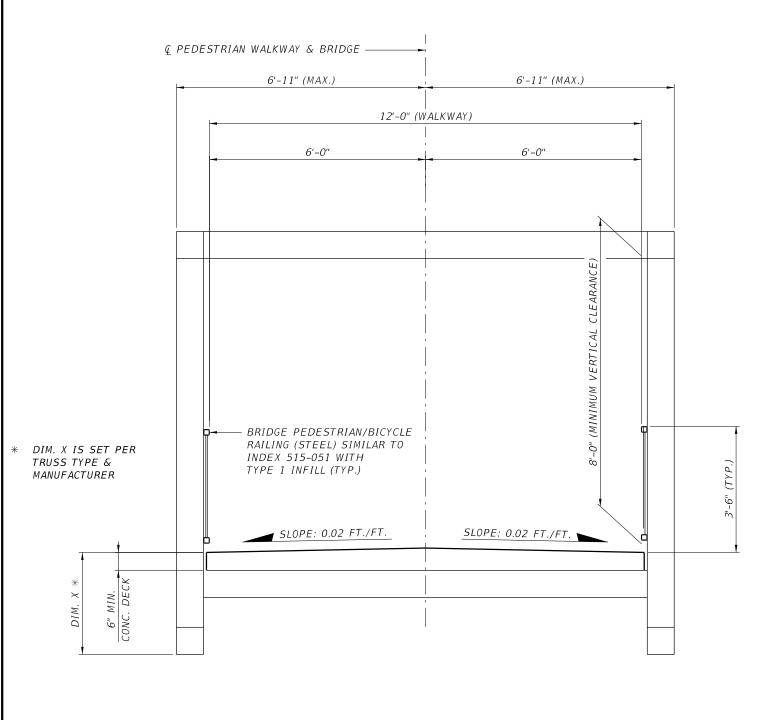


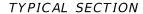
APPENDIX B | Overpass Exhibits

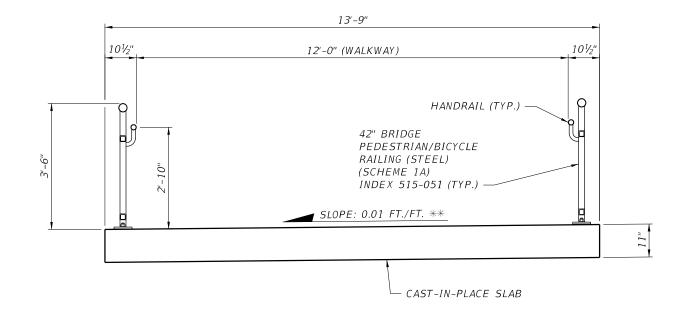












** SLOPE TOWARD OUTSIDE EDGE

TYPICAL SECTION THRU RAMPS

NOTES:

- 1. MEMBER SIZE AND TRUSS HEIGHT TO BE PER MANUFACTURER'S REQUIREMENTS.
- 2. ALL TRUSS MEMBERS TO CONSIST OF HSS TUBULAR SHAPES.

EXHIBIT 3

		REVIS	SIONS			JOSEPH R. LOSARIA, P.E.	DRAWN BY:					REF. DWG. NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	P.E. LICENSE NUMBER 66479 PATEL, GREENE & ASSOCIATES, LLC	CHECKED BY:	-	CITY OF ORI	ANDO	TYPICAL SECTIONS	
						12570 TELECOM DRIVE TEMPLE TERRACE, FL 33637	DESIGNED BY:	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	PROJECT NAME:	SHEET NO.
						TEMPLE TERRACE, FL 33037	CHECKED BY:					

APPENDIX C | Overpass Construction Cost Summary



SW Orlando from Sand Lake Road to SR 408 Estimated Bridge Construction Cost

DES. BY: VLT DATE: 08/22

CHK. BY: MSL DATE: 08/22

KIRKMAN ROAD/ CONROY ROAD INTERSECTION

1A: East/West over S Kirkman (Florida-I Beam)		bstructure	Superstructure	Miscellaneous		Total	Grand Total
Main Span (165-ft)	\$	187,562	\$ 392,182	\$ 115,949	\$	695,693	
Ramp (2 ramps)	\$	1,807,248	\$ 601,112			2,890,032	\$ 4,661,638
Stairway (2 stairway)	\$	751,648	\$ 144,946	\$ 179,319	\$	1,075,913	
			1				
1B: East/West over S Kirkman (Prefabricated Steel Truss)		bstructure		Miscellaneous		Total	Grand Total
Main Span (165-ft)	\$	187,562	\$ 673,408	\$ 172,194		1,033,164	
Ramp (1 ramps)	\$	854,026	\$ 266,592			1,344,742	\$ 5,076,460
Switchback Ramp (1 ramps)	\$	1,067,293		\$ 270,440	_	1,622,641	-,,
Stairway (2 stairway)	\$	751,648	\$ 144,946	\$ 179,319	\$	1,075,913	
2A: North/South over Conroy Rd (Florida-I Beam)	1.0	bstructure	c	Miscellaneous		Total	Grand Total
Main Span (165-ft)	Ś	187.562	Superstructure \$ 392.182	\$ 115.949	Ś	695.693	Grand Total
Ramp (2 ramps)	т.	1,807,248	\$ 601,112	,		,	ć 4.664.630
Stairway (2 stairway)	\$					2,890,032	\$ 4,661,638
Stairway (2 Stairway)	\$	751,648	\$ 144,946	\$ 179,319	\$	1,075,913	
2B: North/South over Conroy Rd (Prefabricated Steel Truss)	Su	bstructure	Superstructure	Miscellaneous	1	Total	Grand Total
2B: North/South over Conroy Rd (Prefabricated Steel Truss) Main Span (165-ft)	Su \$	bstructure 187,562	\$ 673,408	Miscellaneous \$ 172,194		Total 1,033,164	Grand Total
				\$ 172,194	\$		
Main Span (165-ft)	\$	187,562	\$ 673,408	\$ 172,194 \$ 224,124	\$	1,033,164	\$ 5,076,460
Main Span (165-ft) Ramp (1 ramps)	\$	187,562 854,026 1,067,293	\$ 673,408 \$ 266,592	\$ 172,194 \$ 224,124 \$ 270,440	\$ \$ \$	1,033,164 1,344,742	
Main Span (165-ft) Ramp (1 ramps) Switchback Ramp (1 ramps) Stairway (2 stairway)	\$ \$ \$ \$	187,562 854,026 1,067,293 751,648	\$ 673,408 \$ 266,592 \$ 284,908 \$ 144,946	\$ 172,194 \$ 224,124 \$ 270,440 \$ 179,319	\$ \$ \$ \$	1,033,164 1,344,742 1,622,641 1,075,913	\$ 5,076,460
Main Span (165-ft) Ramp (1 ramps) Switchback Ramp (1 ramps) Stainway (2 stainway) 3A: North/South & East/West Crossing (Florida-I Beam)	\$ \$ \$ \$	187,562 854,026 1,067,293 751,648 bstructure	\$ 673,408 \$ 266,592 \$ 284,908 \$ 144,946 Superstructure	\$ 172,194 \$ 224,124 \$ 270,440 \$ 179,319 Miscellaneous	\$ \$ \$ \$	1,033,164 1,344,742 1,622,641 1,075,913	
Main Span (165-ft) Ramp (1 ramps) Stairway (2 stairway) 3A: North/South & East/West Crossing (Florida-I Beam) Main Spans (165-ft)	\$ \$ \$ \$	187,562 854,026 1,067,293 751,648	\$ 673,408 \$ 266,592 \$ 284,908 \$ 144,946	\$ 172,194 \$ 224,124 \$ 270,440 \$ 179,319	\$ \$ \$ \$	1,033,164 1,344,742 1,622,641 1,075,913	\$ 5,076,460
Main Span (165-ft) Ramp (1 ramps) Switchback Ramp (1 ramps) Stainway (2 stainway) 3A: North/South & East/West Crossing (Florida-I Beam)	\$ \$ \$ \$	187,562 854,026 1,067,293 751,648 bstructure	\$ 673,408 \$ 266,592 \$ 284,908 \$ 144,946 Superstructure	\$ 172,194 \$ 224,124 \$ 270,440 \$ 179,319 Miscellaneous	\$ \$ \$ \$	1,033,164 1,344,742 1,622,641 1,075,913 Total 1,391,386	\$ 5,076,460
Main Span (165-ft) Ramp (1 ramps) Stairway (2 stairway) 3A: North/South & East/West Crossing (Florida-I Beam) Main Spans (165-ft)	\$ \$ \$ \$	187,562 854,026 1,067,293 751,648 bstructure 375,124	\$ 673,408 \$ 266,592 \$ 284,908 \$ 144,946 Superstructure \$ 784,364	\$ 172,194 \$ 224,124 \$ 270,440 \$ 179,319 Miscellaneous \$ 231,898 \$ 722,508	\$ \$ \$ \$	1,033,164 1,344,742 1,622,641 1,075,913 Total 1,391,386	\$ 5,076,460 Grand Total
Main Span (165-ft) Ramp (1 ramps) Stairway (2 stairway) 3A: North/South & East/West Crossing (Florida-I Beam) Main Spans (165-ft) Ramp (3 ramps) Stairway (3 stairway)	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	187,562 854,026 1,067,293 751,648 bstructure 375,124 2,710,872 1,127,472	\$ 673,408 \$ 266,592 \$ 284,908 \$ 144,946 Superstructure \$ 784,364 \$ 901,668 \$ 217,419	\$ 172,194 \$ 224,124 \$ 270,440 \$ 179,319 Miscellaneous \$ 231,898 \$ 722,508 \$ 268,978	\$ \$ \$ \$	1,033,164 1,344,742 1,622,641 1,075,913 Total 1,391,386 4,335,048 1,613,869	\$ 5,076,460 Grand Total \$ 7,340,303
Main Span (165-ft) Ramp (1 ramps) Stairway (2 stairway) 3A: North/South & East/West Crossing (Florida-I Beam) Main Spans (165-ft) Ramp (3 ramps) Stairway (3 stairway) 3B: North/South & East/West Crossing (Prefabricated Steel Truss)	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	187,562 854,026 1,067,293 751,648 bstructure 375,124 2,710,872 1,127,472 bstructure	\$ 673,408 \$ 266,592 \$ 284,908 \$ 144,946 Superstructure \$ 784,364 \$ 901,668 \$ 217,419 Superstructure	\$ 172,194 \$ 224,124 \$ 270,440 \$ 179,319 Miscellaneous \$ 231,898 \$ 722,508 \$ 268,978	\$ \$ \$	1,033,164 1,344,742 1,622,641 1,075,913 Total 1,391,386 4,335,048 1,613,869	\$ 5,076,460 Grand Total
Main Span (165-ft) Ramp (I ramps) Switchback Ramp (I ramps) Stairway (2 stairway) 3A: North/South & East/West Crossing (Florida-I Beam) Main Spans (165-ft) Ramp (3 ramps) Stairway (3 stairway) 3B: North/South & East/West Crossing (Prefabricated Steel Truss) Main Spans (165-ft)	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	187,562 854,026 1,067,293 751,648 bstructure 375,124 2,710,872 1,127,472 bstructure 375,124	\$ 673,408 \$ 266,592 \$ 284,908 \$ 144,946 Superstructure \$ 784,364 \$ 901,668 \$ 217,419 Superstructure \$ 1,346,816	\$ 172,194 \$ 224,124 \$ 270,440 \$ 179,319 Miscellaneous \$ 231,898 \$ 722,508 \$ 268,978 Miscellaneous \$ 344,388	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	1,033,164 1,344,742 1,622,641 1,075,913 Total 1,391,386 4,335,048 1,613,869 Total 2,066,328	\$ 5,076,460 Grand Total \$ 7,340,303
Main Span (165-ft) Ramp (1 ramps) Stairway (2 stairway) 3A: North/South & East/West Crossing (Florida-I Beam) Main Spans (165-ft) Ramp (3 ramps) Stairway (3 stairway) 3B: North/South & East/West Crossing (Prefabricated Steel Truss) Main Spans (165-ft) Ramp (2 ramps)	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	187,562 854,026 1,067,293 751,648 bstructure 375,124 2,710,872 1,127,472 bstructure 375,124 1,708,052	\$ 673,408 \$ 266,592 \$ 284,908 \$ 144,946 Superstructure \$ 784,364 \$ 901,668 \$ 217,419 Superstructure \$ 1,346,816 \$ 1346,816 \$ 533,184	\$ 172,194 \$ 224,124 \$ 270,440 \$ 179,319 Miscellaneous \$ 231,898 \$ 722,508 \$ 268,978 Miscellaneous \$ 344,388 \$ 448,247	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	1,033,164 1,344,742 1,622,641 1,075,913 Total 1,391,386 4,335,048 1,613,869 Total 2,066,328 2,689,483	\$ 5,076,460 Grand Total \$ 7,340,303
Main Span (165-ft) Ramp (I ramps) Switchback Ramp (I ramps) Stairway (2 stairway) 3A: North/South & East/West Crossing (Florida-I Beam) Main Spans (165-ft) Ramp (3 ramps) Stairway (3 stairway) 3B: North/South & East/West Crossing (Prefabricated Steel Truss) Main Spans (165-ft)	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	187,562 854,026 1,067,293 751,648 bstructure 375,124 2,710,872 1,127,472 bstructure 375,124	\$ 673,408 \$ 266,592 \$ 284,908 \$ 144,946 Superstructure \$ 784,364 \$ 901,668 \$ 217,419 Superstructure \$ 1,346,816	\$ 172,194 \$ 224,124 \$ 270,440 \$ 179,319 Miscellaneous \$ 231,898 \$ 722,508 \$ 268,978 Miscellaneous \$ 344,388 \$ 448,247 \$ 270,440	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	1,033,164 1,344,742 1,622,641 1,075,913 Total 1,391,386 4,335,048 1,613,869 Total 2,066,328	\$ 5,076,460 Grand Total \$ 7,340,303 Grand Total

KIRKMAN ROAD/ METROWEST BLVD INTERSECTION

1A: East/West over S Kirkman (Florida-I Beam)	9	Sub	structure	Su	perstructure		cellaneous		Total		Grand Total
Main Span (175-ft)	\$		187,562	\$	390,211	\$	115,555	\$	693,328		
Ramp (2 ramps)	\$		2,403,008	\$	668,460	\$	614,294	\$	3,685,762	\$	5,455,002
Stairway (2 stairway)	\$		751,648	\$	144,946	\$	179,319	\$	1,075,913		
1B: East/West over S Kirkman (Prefabricated Steel Truss)	- 1	Sub	structure	Sui	perstructure	Mis	cellaneous	Т	Total	Г	Grand Total
Main Span (175-ft)	Ś		187,562	\$	714,100	Ś	180,332	Ś	1,081,994	H	
Ramp (2 ramps)	\$		1,708,052	\$		_		\$	2,689,483	\$	4,847,390
Stairway (2 stairway)	\$		751,648	\$	144,946	\$	179,319	\$	1,075,913		
2A: North/South over Metrowest Blvd (Florida-I Beam)				_							
Main Span (175-ft)	Ś		structure 187,562	Su _l	perstructure 390,211	Ś	cellaneous 115,555	Ś	Total 693,328	-	Grand Total
Ramp (2 ramps)	Ś		2,403,008	\$	668,460		-,	Ś	3,685,762	Ś	5,455,002
Stairway (2 stairway)	Ś		751,648	•	144,946			\$	1,075,913	Ş	3,433,002
Stall way (2 Stall way)	ý		731,046	ې	144,540	ڔ	173,313	۶	1,073,513	_	
2B: North/South over Metrowest Blvd (Prefabricated Steel Truss)		Sub	structure	Su	perstructure	Mis	cellaneous		Total		Grand Total
Main Span (175-ft)	\$		187,562	\$	714,100	\$	180,332	\$	1,081,994		
Ramp (2 ramps)	\$		1,708,052	\$	533,184	\$	448,247	\$	2,689,483	\$	4,847,390
Stairway (2 stairway)	\$		751,648	\$	144,946	\$	179,319	\$	1,075,913		
3A: North/South & East/West Crossing (Florida-I Beam)	- 1	Sub	structure	Sui	perstructure	Mis	cellaneous		Total	Г	Grand Total
						_			1,386,655		
	Ś		375.124	Ś	780,422	Ś	231.109	Ś			
Main Spans (175-ft) Ramp (3 ramps)			375,124 3,604,512	_	780,422 1,002,690	\$		\$	5,528,642	\$	8,529,167
Main Spans (175-ft)	\$			_		\$	- ,	\$		\$	8,529,167
Main Spans (175-ft) Ramp (3 ramps) Stairway (3 stairway)	\$ \$ \$		3,604,512 1,127,472	\$	1,002,690 217,419	\$	921,440 268,978	\$	5,528,642 1,613,869	\$	
Main Spans (175-ft) Ramp (3 ramps) Stairway (3 stairway) 3B: North/South & East/West Crossing (Prefabricated Steel Truss)	\$ \$ \$		3,604,512 1,127,472 structure	\$ \$ Su	1,002,690 217,419 perstructure	\$ \$ Mis	921,440 268,978 cellaneous	\$	5,528,642 1,613,869 Total	\$	8,529,167 Grand Total
Main Spans (175-ft) Ramp (3 ramps)	\$ \$ \$	Sub	3,604,512 1,127,472	\$ \$ Su	1,002,690 217,419	\$ \$ Mis	921,440 268,978 cellaneous	\$	5,528,642 1,613,869	\$	8,529,167 Grand Total 7,812,083

SW Orlando from Sand Lake Road to SR 408 Comparative Cost Estimates - Conroy Rd

DES. BY: VLT DATE: 08/22

CHK. BY: MSL DATE: 08/22

	STRUCTURES - PREFABRICATED STEEL TRUSS BRIDGE - 165 FT SPAN													
PAY ITEM	PAY ITEM DESCRIPTION	UNIT	BDR Cost Estimates	ARE	EA 8	6-MONTH	STATEWIDE	QUANTITY	UNIT COST	тс	OTAL COST			
			UNIT PRICE	UNIT PRICE	# CONTRACTS	UNIT PRICE	# CONTRACTS							
0460 7	PREFABRICATED STEEL PEDESTRIAN BRIDGE	LS	-	\$ -	0	\$ 316.98	2	1980	\$ 316.98	\$	627,620			
0400 2 4	CONC CLASS II, BRIDGE SUPERSTRUCTURE	CY	\$ 750.00	\$ -	0	\$ 874.15	2	37	\$ 874.15	\$	32,081			
0415 1 4	REINFORCING STEEL - BRIDGE SUPERSTRUCTURE	LB	\$ 1.05	\$ 1.10	3	\$ 1.62	6	7524	\$ 1.62	\$	12,189			
0458 111	BRIDGE DECK EXPANSION JOINT, NEW CONSTRUCTION, F&I POURED JOINT WITH BACKER ROD	LF	\$ 45.00	\$ 50.17	4	\$ 56.21	7	27	\$ 56.21	\$	1,518			
0400 4 5	CONCRETE CLASS IV, BRIDGE SUBSTRUCTURE	CY	\$ 950.00	\$ 2,128.13	3	\$ 2,097.92	8	43.3	\$ 2,128.13	\$	92,148			
0415 1 5	REINFORCING STEEL- BRIDGE SUBSTRUCTURE	LB	\$ 1.00	\$ 1.30	4	\$ 1.80	8	6495	\$ 1.80	\$	11,691			
0455 34 3	PRESTRESSED CONCRETE PILING, 18" SQ	LF	\$ 140.00	\$ -	0	\$ 173.11	2	300	\$ 173.11	\$	51,933			
0455143 3	TEST PILES-PRESTRESSED CONCRETE,18" SQ	LF	\$ 140.00	\$ -	0	\$ 244.54	2	130	\$ 244.54	\$	31,790			
				_				CONDITIO	NAL VARIABLE		20%			
								STRUCTUR	ES SUB-TOTAL	Ś	1,033,164			

	STRUCTURES - PREFABRICATE										
PAY ITEM	PAY ITEM DESCRIPTION	UNIT	BDR Cost Estimates	AR	EA 8	6-MONTH	STATEWIDE	QUANTITY	Y UNIT COST		OTAL COST
			UNIT PRICE	UNIT PRICE	# CONTRACTS	UNIT PRICE	# CONTRACTS				
0400 2 4	CONC CLASS II, BRIDGE SUPERSTRUCTURE	CY	\$ 750.00	\$ -	0	\$ 874.15	2	140	\$ 874.15	\$	122,381
0415 1 4	REINFORCING STEEL - BRIDGE SUPERSTRUCTURE	LB	\$ 1.05	\$ 1.10	3	\$ 1.62	6	28700	\$ 1.62	\$	46,494
0458 1 11	BRIDGE DECK EXPANSION JOINT, NEW CONSTRUCTION, F&I POURED JOINT WITH BACKER ROD	LF	\$ 45.00	\$ 50.17	4	\$ 56.21	7	137	\$ 56.21	\$	7,701
0400147	COMPOSITE NEOPRENE PADS	CF	\$ 1,000.00	\$ 1,144.72	2	\$ 752.47	5	4.6	\$ 1,144.72	\$	5,266
0521 6 11	CONCRETE PARAPET, PEDESTRIAN/BICYCLE, 27" HEIGHT	LF	\$ 65.00	\$ 58.00	1	\$ 85.14	2	550	\$ 85.14	\$	46,827
0515 4 2	BULLET RAIL, DOUBLE RAIL	LF	\$ 50.00	\$ 55.00	1	\$ 68.95	4	550	\$ 68.95	\$	37,923
0400 4 5	CONCRETE CLASS IV, BRIDGE SUBSTRUCTURE	CY	\$ 950.00	\$ 2,128.13	3	\$ 2,097.92	8	187.6	\$ 2,128.13	\$	399,237
0415 1 5	REINFORCING STEEL- BRIDGE SUBSTRUCTURE	LB	\$ 1.00	\$ 1.30	4	\$ 1.80	8	28140	\$ 1.80	\$	50,652
0455 34 3	PRESTRESSED CONCRETE PILING, 18" SQ	LF	\$ 140.00	\$ -	0	\$ 173.11	2	1600	\$ 173.11	\$	276,976
0455143 3	TEST PILES-PRESTRESSED CONCRETE,18" SQ	LF	\$ 140.00	\$ -	0	\$ 244.54	2	520	\$ 244.54	\$	127,161
								CONDITIO	NAL VARIABLE		20%
								STRUCTUR	ES SUB-TOTAL	\$	1,344,742

	STRUCTURES - PREFABRICATED STEE	L TRUSS B	RIDGE - 165 I	T SPAN -	- SWITCHE	BACK RAMP						
PAY ITEM	PAY ITEM DESCRIPTION	UNIT	BDR Cost Estimates		ARE	A 8	6-MON	'H STATEWIDE	QUANTITY	UNIT COST	т	OTAL COST
			UNIT PRICE	UNIT	PRICE	# CONTRACTS	UNIT PRIC	# CONTRACTS				
0400 2 4	CONC CLASS II, BRIDGE SUPERSTRUCTURE	CY	\$ 750.00	\$		0	\$ 874.1	2	145.1	\$ 874.15	\$	126,839
0415 1 4	REINFORCING STEEL - BRIDGE SUPERSTRUCTURE	LB	\$ 1.05	\$	1.10	3	\$ 1.63	! 6	29746	\$ 1.62	\$	48,189
0458 111	BRIDGE DECK EXPANSION JOINT, NEW CONSTRUCTION, F&I POURED JOINT WITH BACKER ROD	LF	\$ 45.00	\$	50.17	4	\$ 56.2	. 7	168	\$ 56.21	\$	9,443
0400147	COMPOSITE NEOPRENE PADS	CF	\$ 1,000.00	\$ 1	1,144.72	2	\$ 752.4	5	6.3	\$ 1,144.72	\$	7,212
0521 6 11	CONCRETE PARAPET, PEDESTRIAN/BICYCLE, 27" HEIGHT	LF	\$ 65.00	\$	58.00	1	\$ 85.14	2	605	\$ 85.14	\$	51,510
0515 4 2	BULLET RAIL, DOUBLE RAIL	LF	\$ 50.00	\$	55.00	1	\$ 68.9	4	605	\$ 68.95	\$	41,715
0400 4 5	CONCRETE CLASS IV, BRIDGE SUBSTRUCTURE	CY	\$ 950.00	\$ 2	2,128.13	3	\$ 2,097.93	. 8	234	\$ 2,128.13	\$	498,834
0415 1 5	REINFORCING STEEL- BRIDGE SUBSTRUCTURE	LB	\$ 1.00	\$	1.30	4	\$ 1.80	8	35160	\$ 1.80	\$	63,288
0455 34 3	PRESTRESSED CONCRETE PILING, 18" SQ	LF	\$ 140.00	\$		0	\$ 173.1	2	2000	\$ 173.11	\$	346,220
0455143 3	TEST PILES-PRESTRESSED CONCRETE,18" SQ	LF	\$ 140.00	\$		0	\$ 244.5	2	650	\$ 244.54	\$	158,951
									CONDITIO	NAL VARIABLE		20%
									STRUCTUR	ES SUB-TOTAL	Ś	1.622.641

	STRUCTURES - FLORIDA-I 63 BEAM - 165 FT SPAN											
PAY ITEM	PAY ITEM DESCRIPTION	UNIT	BDR Cost Estimates	A	REA 8	6-MONTH	STATEWIDE	QUANTITY	UNIT COST	T	OTAL COST	
			UNIT PRICE	UNIT PRICE	# CONTRACTS	UNIT PRICE	# CONTRACTS					
0450 2 63	PREST BEAMS: FLORIDA-I BEAM 63"*	LF	\$ 300.00	\$ -	0	\$ 500.00	0	495	\$ 500.0	0 \$	247,500	
0400 2 4	CONC CLASS II, BRIDGE SUPERSTRUCTURE	CY	\$ 750.00	\$ -	0	\$ 874.15	2	63	\$ 874.1	5 \$	55,159	
0415 1 4	REINFORCING STEEL - BRIDGE SUPERSTRUCTURE	LB	\$ 1.05	\$ 1.1	3	\$ 1.62	6	12936.0	\$ 1.6	2 \$	20,956	
0458 111	BRIDGE DECK EXPANSION JOINT, NEW CONSTRUCTION, F&I POURED JOINT WITH BACKER ROD	LF	\$ 45.00	\$ 50.1	7 4	\$ 56.21	7	27.0	\$ 56.2	1 \$	1,518	
0400147	COMPOSITE NEOPRENE PADS	CF	\$ 1,000.00	\$ 1,144.7	2 2	\$ 752.47	5	5	\$ 1,144.7	2 \$	5,953	
0521 6 11	CONCRETE PARAPET, PEDESTRIAN/BICYCLE, 27" HEIGHT	LF	\$ 65.00	\$ 58.0	1	\$ 85.14	2	330.0	\$ 85.1	4 \$	28,096	
0550 10354	FENCING, TYPE R, 8.1-10.0', WITH PARTIAL ENCLOSURE, TYPE R ONLY	LF	-	\$ -	0	\$ -	0	330.0	\$ 100.0	0 \$	33,000	
0400 4 5	CONCRETE CLASS IV, BRIDGE SUBSTRUCTURE	CY	\$ 950.00	\$ 2,128.1	3	\$ 2,097.92	8	43.3	\$ 2,128.1	3 \$	92,148	
0415 1 5	REINFORCING STEEL- BRIDGE SUBSTRUCTURE	LB	\$ 1.00	\$ 1.3	4	\$ 1.80	8	6495	\$ 1.8	0 \$	11,691	
0455 34 3	PRESTRESSED CONCRETE PILING, 18" SQ	LF	\$ 140.00	\$ -	0	\$ 173.11	2	300	\$ 173.1	1 \$	51,933	
0455143 3	TEST PILES-PRESTRESSED CONCRETE,18" SQ	LF	\$ 140.00	\$ -	0	\$ 244.54	2	130	\$ 244.5	4 \$	31,790	
*Note: Based co	st from 12-month Statewide Average since no data from 6-month statewide average	-	<u> </u>		-	•	-	CONDITIO	NAL VARIABLE		20%	
								STRUCTUR	ES SUB-TOTAL	\$	695,693	

	STRUCTURES - FLORIG	DA-I 63 BE	AM - 165 FT	PAN - RAMP							
PAY ITEM	PAY ITEM DESCRIPTION	UNIT	BDR Cost Estimates	ARE	A 8	6-MONTH	STATEWIDE	QUANTITY	UNIT COST	то	TAL COST
			UNIT PRICE	UNIT PRICE	# CONTRACTS	UNIT PRICE	# CONTRACTS				
0400 2 4	CONC CLASS II, BRIDGE SUPERSTRUCTURE	CY	\$ 750.00	\$ -	0	\$ 874.15	2	157.9	\$ 874.15	\$	138,028
0415 1 4	REINFORCING STEEL - BRIDGE SUPERSTRUCTURE	LB	\$ 1.05	\$ 1.10	3	\$ 1.62	6	32370	\$ 1.62	\$	52,439
0458 111	BRIDGE DECK EXPANSION JOINT, NEW CONSTRUCTION, F&I POURED JOINT WITH BACKER ROD	LF	\$ 45.00	\$ 50.17	4	\$ 56.21	7	153	\$ 56.21	\$	8,600
0400147	COMPOSITE NEOPRENE PADS	CF	\$ 1,000.00	\$ 1,144.72	2	\$ 752.47	5	5.2	\$ 1,144.72	\$	5,953
0521 6 11	CONCRETE PARAPET, PEDESTRIAN/BICYCLE, 27" HEIGHT	LF	\$ 65.00	\$ 58.00	1	\$ 85.14	2	620	\$ 85.14	\$	52,787
0515 4 2	BULLET RAIL, DOUBLE RAIL	LF	\$ 50.00	\$ 55.00	1	\$ 68.95	4	620	\$ 68.95	\$	42,749
0400 4 5	CONCRETE CLASS IV, BRIDGE SUBSTRUCTURE	CY	\$ 950.00	\$ 2,128.13	3	\$ 2,097.92	8	219.7	\$ 2,128.13	\$	467,550
0415 1 5	REINFORCING STEEL- BRIDGE SUBSTRUCTURE	LB	\$ 1.00	\$ 1.30	4	\$ 1.80	8	32955	\$ 1.80	\$	59,319
0455 34 3	PRESTRESSED CONCRETE PILING, 18" SQ	LF	\$ 140.00	\$ -	0	\$ 173.11	2	1350	\$ 173.11	\$	233,699
0455143 3	TEST PILES-PRESTRESSED CONCRETE,18" SQ	LF	\$ 140.00	\$ -	0	\$ 244.54	2	585	\$ 244.54	\$	143,056
								CONDITIO	NAL VARIABLE		20%
								STRUCTUR	ES SUB-TOTAL	\$	1,445,016

	STRU	CTURES - S	STAIRW	ΑY								
PAY ITEM	PAY ITEM DESCRIPTION	UNIT	BDR C		ARE	A 8	6-MONTH	6-MONTH STATEWIDE		UNIT COST	TO	OTAL COST
			UNIT P	RICE	UNIT PRICE	# CONTRACTS	UNIT PRICE	# CONTRACTS				
0400 0 13	CONCRETE CLASS NS, STEPS	CY	\$ 75	0.00	\$ -	0	\$ 3,478.00	1	13.6	\$ 3,478.00	\$	47,301
0415 1 6	REINFORCING STEEL- MISCELLANEOUS	LB	\$	1.05	\$ -	0	\$ 1.00	1	2788	\$ 1.05	\$	2,927
0515 2211	PEDESTRIAN / BICYCLE RAILING, STEEL, 42" TYPE 1	LF	\$	2.05	\$ -	0	\$ 180.85	6	123	\$ 180.85	\$	22,245
0400 4 5	CONCRETE CLASS IV, BRIDGE SUBSTRUCTURE	CY	\$	2.05	\$ 2,128.13	3	\$ 2,097.92	8	64.4	\$ 2,128.13	\$	137,052
0415 1 5	REINFORCING STEEL- BRIDGE SUBSTRUCTURE	LB	\$	3.05	\$ 1.30	4	\$ 1.80	8	9660	\$ 3.05	\$	29,463
0455 34 3	PRESTRESSED CONCRETE PILING, 18" SQ	LF	\$	4.05	\$ -	0	\$ 173.11	2	750	\$ 173.11	\$	129,833
0455143 3	TEST PILES-PRESTRESSED CONCRETE,18" SQ	LF	\$	5.05	\$ -	0	\$ 244.54	2	325	\$ 244.54	\$	79,476
									CONDITIO	NAL VARIABLE		20%
									STRUCTUR	ES SUB-TOTAL	\$	537,956

OPTION 1 (PREFABRICATED STEEL TRUSS BRIDGE - 165 FT SPAN)	SUB	STRUCTURE	SUPERSTRUCTURE	MISCELLANEOUS	TOTAL
MAIN SPAN	\$	187,562	\$ 673,408	\$ 172,194	\$ 1,033,164
RAMP (COST PER RAMP)	\$	854,026	\$ 266,592	\$ 224,124	\$ 1,344,742
SWITCHBACK RAMP (COST PER RAMP)	\$	1,067,293	\$ 284,908	\$ 270,440	\$ 1,622,641
STAIRWAY (COST PER STAIRWAY)	\$	375,824	\$ 72,473	\$ 89,659	\$ 537,956

OPTION 2 (FLORIDA-I 63 BEAM - 165 FT SPAN)	SUBS	STRUCTURE	SUPERSTRUCTURE	MISCELLANEOUS	TOTAL
MAIN SPAN	\$	187,562	\$ 392,182	\$ 115,949	\$ 695,693
RAMP (COST PER RAMP)	\$	903,624	\$ 300,556	\$ 240,836	\$ 1,445,016
STAIRWAY (COST PER STAIRWAY)	\$	375,824	\$ 72,473	\$ 89,659	\$ 537,956

SW Orlando from Sand Lake Road to SR 408 Comparative Cost Estimates - Metrowest Blvd

DES. BY: VLT DATE: 08/22

CHK. BY: MSL DATE: 08/22

	STRUCTURES - PREFABRIO	ATED STE	EL TRUSS BRIE	OGE - 175 FT SPA	N						
PAY ITEM	PAY ITEM DESCRIPTION			ARFA 8 I 6-MONTH STATEWIDE I		QUANTITY	UNIT COST	тс	OTAL COST		
			UNIT PRICE	UNIT PRICE	# CONTRACTS	UNIT PRICE	# CONTRACTS	1			
0460 7	PREFABRICATED STEEL PEDESTRIAN BRIDGE	LS	-	\$ -	0	\$ 316.98	2	2100	\$ 316.98	\$	665,658
0400 2 4	CONC CLASS II, BRIDGE SUPERSTRUCTURE	CY	\$ 750.00	\$ -	0	\$ 874.15	2	39	\$ 874.15	\$	34,004
0415 1 4	REINFORCING STEEL - BRIDGE SUPERSTRUCTURE	LB	\$ 1.05	\$ 1.10	3	\$ 1.62	6	7975	\$ 1.62	\$	12,920
0458 111	BRIDGE DECK EXPANSION JOINT, NEW CONSTRUCTION, F&I POURED JOINT WITH BACKER ROD	LF	\$ 45.00	\$ 50.17	4	\$ 56.21	7	27	\$ 56.21	\$	1,518
0400 4 5	CONCRETE CLASS IV, BRIDGE SUBSTRUCTURE	CY	\$ 950.00	\$ 2,128.13	3	\$ 2,097.92	8	43.3	\$ 2,128.13	\$	92,148
0415 1 5	REINFORCING STEEL- BRIDGE SUBSTRUCTURE	LB	\$ 1.00	\$ 1.30	4	\$ 1.80	8	6495	\$ 1.80	\$	11,691
0455 34 3	PRESTRESSED CONCRETE PILING, 18" SQ	LF	\$ 140.00	\$ -	0	\$ 173.11	2	300	\$ 173.11	\$	51,933
0455143 3	TEST PILES-PRESTRESSED CONCRETE,18" SQ	LF	\$ 140.00	\$ -	0	\$ 244.54	2	130	\$ 244.54	\$	31,790
							_	CONDITIO	NAL VARIABLE		20%
								STRUCTUR	ES SUB-TOTAL	\$	1,081,994

	STRUCTURES - PREFABRICATE	D STEEL TI	RUSS BRIDGE	- 175 FT SPAN - F	AMP					
PAY ITEM	PAY ITEM DESCRIPTION	UNIT	BDR Cost Estimates	ARE	A 8	6-MONTH	STATEWIDE	QUANTITY	UNIT COST	TOTAL COS
			UNIT PRICE	UNIT PRICE	# CONTRACTS	UNIT PRICE	# CONTRACTS			
0400 2 4	CONC CLASS II, BRIDGE SUPERSTRUCTURE	CY	\$ 750.00	\$ -	0	\$ 874.15	2	140	\$ 874.15	\$ 122,3
0415 1 4	REINFORCING STEEL - BRIDGE SUPERSTRUCTURE	LB	\$ 1.05	\$ 1.10	3	\$ 1.62	6	28700	\$ 1.62	\$ 46,4
0458 111	BRIDGE DECK EXPANSION JOINT, NEW CONSTRUCTION, F&I POURED JOINT WITH BACKER ROD	LF	\$ 45.00	\$ 50.17	4	\$ 56.21	7	137	\$ 56.21	\$ 7,7
0400147	COMPOSITE NEOPRENE PADS	CF	\$ 1,000.00	\$ 1,144.72	2	\$ 752.47	5	4.6	\$ 1,144.72	\$ 5,2
0521 6 11	CONCRETE PARAPET, PEDESTRIAN/BICYCLE, 27" HEIGHT	LF	\$ 65.00	\$ 58.00	1	\$ 85.14	2	550	\$ 85.14	\$ 46,8
0515 4 2	BULLET RAIL, DOUBLE RAIL	LF	\$ 50.00	\$ 55.00	1	\$ 68.95	4	550	\$ 68.95	\$ 37,9
0400 4 5	CONCRETE CLASS IV, BRIDGE SUBSTRUCTURE	CY	\$ 950.00	\$ 2,128.13	3	\$ 2,097.92	8	187.6	\$ 2,128.13	\$ 399,2
0415 1 5	REINFORCING STEEL- BRIDGE SUBSTRUCTURE	LB	\$ 1.00	\$ 1.30	4	\$ 1.80	8	28140	\$ 1.80	\$ 50,6
0455 34 3	PRESTRESSED CONCRETE PILING, 18" SQ	LF	\$ 140.00	\$ -	0	\$ 173.11	2	1600	\$ 173.11	\$ 276,9
0455143 3	TEST PILES-PRESTRESSED CONCRETE,18" SQ	LF	\$ 140.00	\$ -	0	\$ 244.54	2	520	\$ 244.54	\$ 127,1
								CONDITIO	NAL VARIABLE	20%
								STRUCTUR	ES SUB-TOTAL	\$ 1,344,7

	STRUCTURES - FL	ORIDA-I 7	8 BEAM - :	175 I	FT SPAN							
PAY ITEM	PAY ITEM DESCRIPTION	UNIT	BDR Cos Estimate		ARE	A 8	6-MONT	H STATEWIDE	QUANTITY	UNIT COST	т	OTAL COST
			UNIT PRI	CE	UNIT PRICE	# CONTRACTS	UNIT PRICE	# CONTRACTS				
0450 2 78	PREST BEAMS: FLORIDA-I BEAM 78"	LF	\$ 330.	00	\$ 458.42	1	\$ -	0	525	\$ 458.4	2 \$	240,671
0400 2 4	CONC CLASS II, BRIDGE SUPERSTRUCTURE	CY	\$ 750.	00	\$ -	0	\$ 874.15	2	67	\$ 874.1	5 \$	58,568
0415 1 4	REINFORCING STEEL - BRIDGE SUPERSTRUCTURE	LB	\$ 1.	05	\$ 1.10	3	\$ 1.62	6	13735.0	\$ 1.6	2 \$	22,251
0458 1 11	BRIDGE DECK EXPANSION JOINT, NEW CONSTRUCTION, F&I POURED JOINT WITH BACKER ROD	LF	\$ 45.	00	\$ 50.17	4	\$ 56.21	7	27.0	\$ 56.2	1 \$	1,518
0400147	COMPOSITE NEOPRENE PADS	CF	\$ 1,000.	00	\$ 1,144.72	2	\$ 752.47	5	2	\$ 1,144.7	2 \$	2,404
0521 6 11	CONCRETE PARAPET, PEDESTRIAN/BICYCLE, 27" HEIGHT	LF	\$ 65.	00	\$ 58.00	1	\$ 85.14	2	350.0	\$ 85.1	4 \$	29,799
0550 10354	FENCING, TYPE R, 8.1-10.0', WITH PARTIAL ENCLOSURE, TYPE R ONLY	LF	-		\$ -	0	\$ -	0	350.0	\$ 100.0	0 \$	35,000
0400 4 5	CONCRETE CLASS IV, BRIDGE SUBSTRUCTURE	CY	\$ 950.	00	\$ 2,128.13	3	\$ 2,097.92	8	43.3	\$ 2,128.1	3 \$	92,148
0415 1 5	REINFORCING STEEL- BRIDGE SUBSTRUCTURE	LB	\$ 1.	00	\$ 1.30	4	\$ 1.80	8	6495	\$ 1.8	0 \$	11,691
0455 34 3	PRESTRESSED CONCRETE PILING, 18" SQ	LF	\$ 140.	00	\$ -	0	\$ 173.11	2	300	\$ 173.1	1 \$	51,933
0455143 3	TEST PILES-PRESTRESSED CONCRETE,18" SQ	LF	\$ 140.	00	\$ -	0	\$ 244.54	2	130	\$ 244.5	4 \$	31,790
-	-		-						CONDITIO	NAL VARIABLE		20%
									STRUCTUR	ES SUB-TOTAL	\$	693,328

	STRUCTURES - FLORII	DA-I 78 BE	AM - 1	175 FT S	PAN - RAMP									
PAY ITEM	PAY ITEM DESCRIPTION	UNIT		Cost mates	ARE	A 8	6	-MONTH	STATEWIDE	QUANTITY	UNIT COST		тс	OTAL COST
			UNIT	PRICE	UNIT PRICE	# CONTRACTS	UN	IT PRICE	# CONTRACTS					
0400 2 4	CONC CLASS II, BRIDGE SUPERSTRUCTURE	CY	\$ 7	750.00	\$ -	0	\$	874.15	2	175.7	\$	874.15	\$	153,588
0415 1 4	REINFORCING STEEL - BRIDGE SUPERSTRUCTURE	LB	\$	1.05	\$ 1.10	3	\$	1.62	6	36019	\$	1.62	\$	58,351
0458 111	BRIDGE DECK EXPANSION JOINT, NEW CONSTRUCTION, F&I POURED JOINT WITH BACKER ROD	LF	\$	45.00	\$ 50.17	4	\$	56.21	7	168	\$	56.21	\$	9,443
0400147	COMPOSITE NEOPRENE PADS	CF	\$ 1,0	00.00	\$ 1,144.72	2	\$	752.47	5	5.7	\$	1,144.72	\$	6,525
0521 6 11	CONCRETE PARAPET, PEDESTRIAN/BICYCLE, 27" HEIGHT	LF	\$	65.00	\$ 58.00	1	\$	85.14	2	690	\$	85.14	\$	58,747
0515 4 2	BULLET RAIL, DOUBLE RAIL	LF	\$	50.00	\$ 55.00	1	\$	68.95	4	690	\$	68.95	\$	47,576
0400 4 5	CONCRETE CLASS IV, BRIDGE SUBSTRUCTURE	CY	\$ 9	950.00	\$ 2,128.13	3	\$ 2	,097.92	8	269.3	\$	2,128.13	\$	573,105
0415 1 5	REINFORCING STEEL- BRIDGE SUBSTRUCTURE	LB	\$	1.00	\$ 1.30	4	\$	1.80	8	40395	\$	1.80	\$	72,711
0455 34 3	PRESTRESSED CONCRETE PILING, 18" SQ	LF	\$ 1	140.00	\$ -	0	\$	173.11	2	2200	\$	173.11	\$	380,842
0455143 3	TEST PILES-PRESTRESSED CONCRETE,18" SQ	LF	\$ 1	140.00	\$ -	0	\$	244.54	2	715	\$	244.54	\$	174,846
										CONDITIO	NAL	VARIABLE		20%
										STRUCTUR	RES S	UB-TOTAL	\$	1,842,881

	STRU	CTURES - S	STAIR	RWAY										
PAY ITEM	PAY ITEM DESCRIPTION	UNIT		R Cost imates	AREA 8			6-MONTH	1 STATEWIDE	QUANTITY	UNIT COST		то	TAL COST
			UNI	T PRICE	ι	JNIT PRICE	# CONTRACTS	UNIT PRICE	# CONTRACTS					
0400 0 13	CONCRETE CLASS NS, STEPS	CY	\$	750.00	\$	-	0	\$ 3,478.00	1	13.6	\$	3,478.00	\$	47,301
0415 1 6	REINFORCING STEEL- MISCELLANEOUS	LB	\$	1.05	\$	-	0	\$ 1.00	1	2788	\$	1.05	\$	2,927
0515 2211	PEDESTRIAN / BICYCLE RAILING, STEEL, 42" TYPE 1	LF	\$	2.05	\$	-	0	\$ 180.85	6	123	\$	180.85	\$	22,245
0400 4 5	CONCRETE CLASS IV, BRIDGE SUBSTRUCTURE	CY	\$	2.05	\$	2,128.13	3	\$ 2,097.92	8	64.4	\$	2,128.13	\$	137,052
0415 1 5	REINFORCING STEEL- BRIDGE SUBSTRUCTURE	LB	\$	3.05	\$	1.30	4	\$ 1.80	8	9660	\$	3.05	\$	29,463
0455 34 3	PRESTRESSED CONCRETE PILING, 18" SQ	LF	\$	4.05	\$	-	0	\$ 173.11	2	750	\$	173.11	\$	129,833
0455143 3	TEST PILES-PRESTRESSED CONCRETE,18" SQ	LF	\$	5.05	\$	-	0	\$ 244.54	2	325	\$	244.54	\$	79,476
										CONDITIO	NAL \	/ARIABLE		20%
										STRUCTUR	RES SU	JB-TOTAL	\$	537,956

OPTION 1 (PREFABRICATED STEEL TRUSS BRIDGE - 175 FT SPAN)	SUB	TRUCTURE	SUPERSTRUCTURE	MISCELLANEOUS	TOTAL
MAIN SPAN	\$	187,562	\$ 714,100	\$ 180,332	\$ 1,081,994
RAMP (COST PER RAMP)	\$	854,026	\$ 266,592	\$ 224,124	\$ 1,344,742
STAIRWAY (COST PER STAIRWAY)	\$	375,824	\$ 72,473	\$ 89,659	\$ 537,956

OPTION 2 (FLORIDA-I 78 BEAM - 175 FT SPAN)	SUE	STRUCTURE	SUPERSTRUCTURE	MISCELLANEOUS	TOTAL
MAIN SPAN	\$	187,562	\$ 390,211	\$ 115,555	\$ 693,328
RAMP (COST PER RAMP)	\$	1,201,504	\$ 334,230	\$ 307,147	\$ 1,842,881
STAIRWAY (COST PER STAIRWAY)	\$	375,824	\$ 72,473	\$ 89,659	\$ 537,956

BRIDGE QUANTITY CALCULATIONS: CONROY RD. (FLORIDA-I 63)

SW Orlando from Sand Lake Road to SR 408 Bridge Quantities Calculations - Conroy Rd. (Florida-I 63" Beam)

DES. BY: VLT DATE: 08/22

CHK. BY: MSL DATE: 08/22

Introduction:

This spreadsheet is used to calculate and summarize all quantities for the plans.

Superstructure

PREST BEAMS: FLORIDA-I BEAM 63"- Pay Item No. 0450 2 63

Length of Prestressed	Beam (FIB-36)	
# of Spans	1.0	Spans
# of Beams	3.0	beam
Beam Length	165.0	ft
Quantity	495.0	LF

of beams in cross section

SubTotal= 495.0 LF

Total= 495 LF

CONC CLASS II, BRIDGE SUPERSTRUCTURE- Pay Item No. 0400 2 4

Volume of Concre			
Bridge Length	165.00	ft	165' length
Bridge Width	14.00	ft	14'-0" width
Thickness of bridge	0.67	ft	8" thickness
Quantity	57.04	CY	

| Volume of Concrete (Buildup)
Number of Beams	3.00	beam
Bridge Length	165.00	ft
Width of Top Flange	4.00	ft
Buildup Thickness	1.00	in
Quantity	6.11	CY

SubTotal= 6.11 CY

BRIDGE DECK EXPANSION JOINT, NEW CONSTRUCTION, F&I POURED JOINT WITH BACKER ROD- Pay Item No. 0458 111

Length of Expansion Joint		
2.0	joint	
12.0		12' length
0.0	deg	bridge skew
8.8	in	
26.9	LF	
	2.0 12.0 0.0 8.8	2.0 joint 12.0 ft

SubTotal= 26.9 LF

Total= 27 LF

COMPOSITE NEOPRENE PADS- Pay Item No. 0400147

Volume of Bear	ring Pad		
Number of Pads	6.00	pad	1 spans x 3 beams x 2 pads per beam
Length	2.67	ft	2'-8" length
Width	0.83	ft	10" width
Height	0.16	ft	1+29/32" height (Assume Pad Type E)
Quantity	2.12	CF	

SubTotal=	2.12 CF
Total=	2.1 CF

SW Orlando from Sand Lake Road to SR 408 Bridge Quantities Calculations - Conroy Rd. (Florida-I 63" Beam)

DES. BY: VLT DATE: 08/22

CHK. BY: MSL DATE: 08/22

Railing/Barrier

CONCRETE PARAPET, PEDESTRIAN/BICYCLE, 27" HEIGHT- Pay Item No. 0521 6 11

Pedestrian Parapet at b	bridge
Number of Parapet	2.0 barrier
Barrier Length at Bridge	165.0 ft 165' length
Quantity	330.0 LF 2 x bridge length
SubTotal=	: 330.0 LF
Total=	: 330 LF

FENCING, TYPE R, 8.1-10.0', WITH PARTIAL ENCLOSURE, TYPE R ONLY- Pay Item No. 0550 10354

Bridge Fencing			
Number of Fencing	2.0	barrier	
Fencing Length at Bridge	165.0	ft	165' length
Quantity	330.0	LF	2 x bridge length
SubTotal	= 330.0	LF	
Total	= 330	CF	

<u>Substructure</u>

CONCRETE CLASS IV, BRIDGE SUBSTRUCTURE- Pay Item No. 0400 4 5

Volume of Pier Column			
Number of Pier location	2.0	pier	
Width of Column	4.00	ft	4'-0" width
Depth of Column	4.00	ft	4'-0" width
Height of Column	17.50	ft	17'-6" height
Quantity	20.74	CY	

SubTotal-	20.74 CV

Volume of Pier	Footing		
Number of Pier location	2.0	pier	
Depth of Footing	7.50	ft	7'-6" width
Width of Footing	7.50	ft	7'-6" width
Thickness of Footing	4.00	ft	4'-0" thickness
Quantity	16.67	CY	

SubTotal=	16.67 CY

Subtotal (Pier 1)=	21.67 CY
Subtotal (Pier 2)=	21.67 CY

Total=	43.3 CY

Volume of P	ier Column Cap		
Number of Pier location	2.0	pier	
Width of Cap	4.00	ft	4'-0" width
Depth of Cap	4.00	ft	4'-0" width
Length of Cap	14.00	ft	14'-0" length
Taper Length	4.00	ft	
Untaper Height	2.00	ft	
Quantity	5.93	CY	

SubTotal= 5.93 CY

SW Orlando from Sand Lake Road to SR 408 Bridge Quantities Calculations - Conroy Rd. (Florida-I 63" Beam)

DES. BY: VLT DATE: 08/22

CHK. BY: MSL DATE: 08/22

<u>Foundation</u>

PRESTRESSED CONCRETE PILING, 18" SQ- Pay Item No. 0455 34 3

Piles at End Pi	er 1		
Number of Pier location	1.0	pier	1
Production Pile Length*	50.0	ft	
Production Piles	3.0	pile	
Quantity of Piles	150.0	ft	

l pier per side

Piles at End Pier 2			
Number of Pier location	1.0	pier	
Production Pile Length*	50.0	ft	
Production Piles	3.0	pile	
Quantity of Piles	150.0	ft	

1 pier per side

*Assume pile length of 65-ft

SubTotal=	150.0 LF	
Total=	300 LF	

*Assume pile length of 50-ft

SubTotal=	150.0 LF	

TEST PILES-PRESTRESSED CONCRETE,18" SQ- Pay Item No. 0455143 3

Piles at End Pier 1			ı
Number of Pier location	1.0	pier	1
Production Pile Length	65.0	ft	ı
Production Piles	1.0	pile	ı
Quantity of Piles	65.0	ft	

pier per side

Piles at End Pie	ır 2		1
Number of Pier location	1.0	pier	1 pier per side
Production Pile Length	65.0	ft	1
Production Piles	1	pile	1
Quantity of Piles	65.0	ft	1

^{*}Assume pile length of 65-ft

SubTotal=	65.0 LF	
Total=	130 LF	

SubTotal=	65.0 LF	

REINFORCING STEEL - BRIDGE SUPERSTRUCTURE- Pay Item No. 0415 1 4

Total Superstructure Reinforcement				
Standard Deck Slab 205.0 LB/CY				
Superstructure Quantity	63.1	CY		
Quantity	12935.5	LB		

From Design Aid for Determination of Reinforcing Steel

Superstructure Subtotal 12935.5 LB

Total= 12936 LB

REINFORCING STEEL - BRIDGE SUBSTRUCTURE- Pay Item No. 0415 1 5

Total Substructure Reinforcement			
Single Column Piers <25'	150.0	LB/CY	
Substructure Quantity	43.3	CY	
Quantity	6495.0	LB	

From Design Aid for Determination of Reinforcing Steel

Substructure Subtotal 6495.0 LB

Total= 6495 LB

^{*}Assume pile length of 50-ft

RAMP QUANTITY CALCULATIONS: CONROY RD.

SW Orlando from Sand Lake Road to SR 408 Ramp Quantities Calculations - Conroy Rd. (Florida-I 63" Beam)

DES. BY: VLT DATE: 08/22

CHK. BY: MSL DATE: 08/22

Introduction:

This spreadsheet is used to calculate and summarize all quantities for the plans.

<u>Superstructure</u>

CONC CLASS II, BRIDGE SUPERSTRUCTURE- Pay Item No. 0400 2 4

Volume of Cond	crete (Ramp)		
Bridge Length	310.00	ft	310' length = 9 x 30' span with 8 x 5' ramp
Bridge Width	13.75	ft	13'-9" width
Thickness of bridge	1.00	ft	12" thickness
Quantity	157.87	CY	
			_
SubTotal=	157.87	CY	1
<u></u>			_
Tota	ıl= 157.9	CY	

BRIDGE DECK EXPANSION JOINT, NEW CONSTRUCTION, F&I POURED JOINT WITH BACKER ROD- Pay Item No. 0458 111

Length of Expansion Joint			
Number of location	10.0	joint	1
Length of Expansion Joint	13.75	ft	13'-9" widt
Bridge Skew	0.0	deg	bridge skev
Upturn	8.8	in	
Quantity	152.2	LF	

SubTotal=	152.2 LF
Total=	153 LF

COMPOSITE NEOPRENE PADS- Pay Item No. 0400147

Volume of Bear	ing Pad		l
Number of Pads	18.00	pad	2 x 9 spans
Length	13.75	ft	13'-9" width
Width	0.50	ft	6" width
Height	0.04	ft	0.5" height
Quantity	5.16	CF	

SubTotal=	5.16 CF
Total=	5.2 CF

SW Orlando from Sand Lake Road to SR 408 Ramp Quantities Calculations - Conroy Rd. (Florida-I 63" Beam)

DES. BY: VLT DATE: 08/22 CHK. BY: MSL DATE: 08/22

<u>Substructure</u>

CONCRETE CLASS IV, BRIDGE SUBSTRUCTURE- Pay Item No. 0400 4 5

Volume of Pier Co	lumn		
Number of Pier location	9.0	pier	
Width of Column	4.00	ft	4'-0" width
Depth of Column	4.00	ft	4'-0" width
Height of Column	13.39	ft	13'-4 2/3" height avera
Quantity	71.41	CY	

SubTotal=	71.41 CY

Volume of Pie	r Footing		
Number of Pier location	9.0	pier	
Depth of Footing	7.50	ft	7'-6" width
Width of Footing	7.50	ft	7'-6" width
Thickness of Footing	4.00	ft	4'-0" thicknes
Quantity	75.00	CY	

SubTotal-	75 00 CV

Subtotal (Pier 1)=	109.87 CY
Subtotal (Pier 2)=	109.87 CY

Total= 219.7 CY

Volume of Pier	Column Cap		Ī
Number of Pier location	9.0	pier	j
Width of Cap	4.00	ft	4'-0" width
Depth of Cap	4.00	ft	4'-0" width
Length of Cap	13.75	ft	13'-9" width
Quantity	73.33	CY	

SubTotal=	73.33 CY

Foundation

PRESTRESSED CONCRETE PILING, 18" SQ- Pay Item No. 0455 34 3

Piles for Ramp		
Number of Pier location	9.0	pier
Production Pile Length*	50.0	ft
Production Piles	3.0	pile
Quantity of Piles	1350.0	ft

^{*}Assume pile length of 50-ft

SubTotal=	1350.0 LF	
-	•	
Total=	1350 LF	

TEST PILES-PRESTRESSED CONCRETE,18" SQ- Pay Item No. 0455143 3

Piles for Ramp		
Number of Pier location	9.0	pier
Production Pile Length	65.0	ft
Production Piles	1.0	pile
Quantity of Piles	585.0	ft

^{*}Assume pile length of 65-ft

SubTotal=	585.0 LF	
•	•	•
Total=	585 LF	

SW Orlando from Sand Lake Road to SR 408 Ramp Quantities Calculations - Conroy Rd. (Florida-I 63" Beam)

DES. BY: VLT DATE: 08/22

CHK. BY: MSL DATE: 08/22

REINFORCING STEEL - BRIDGE SUPERSTRUCTURE- Pay Item No. 0415 1 4

Total Superstructure Reinforcement			
Standard Deck Slab	205.0	LB/CY	
Superstructure Quantity	157.9	CY	
Quantity	32369.5	LB	

From Design Aid for Determination of Reinforcing Steel

Superstructure Subtotal

Total= 32370 LB

32369.5 LB

REINFORCING STEEL - BRIDGE SUBSTRUCTURE- Pay Item No. 0415 1 5

Total Substructure Reinforcement			
Single Column Piers <25'	150.0	LB/CY	
Substructure Quantity	219.7	CY	
Quantity	32955.0	LB	

rom Design Aid for Determination of Reinforcing Steel

Substructure Subtotal 32955.0 LB

> Total= 32955 LB

Railing/Barrier

CONCRETE PARAPET, PEDESTRIAN/BICYCLE, 27" HEIGHT- Pay Item No. 0521 6 11

Pedestrian Railin	ļ.		ı
Number of Concrete Barrier	2.0	barrier	1
Barrier Length at Ramp	310.0	ft	3
Quantity	620.0	LF	2

10' length ramp length

620.0 LF SubTotal=

BULLET RAIL, DOUBLE RAIL- Pay Item No. 0515 4 2

Pedestrian Railing			Í
Number of Railing	2.0	barrier	
Railing Length at Ramp	310.0	ft	310' length
Quantity	620.0	LF	2 x ramp lengtl

Total=

SubTotal= 620.0 LF

620 CF

Total= 620 CF BRIDGE QUANTITY CALCULATIONS: METROWEST BLVD. (FLORIDA-I 78)

SW Orlando from Sand Lake Road to SR 408 Bridge Quantities Calculations - Metrowest Blvd. (Florida-I 78" Beam)

DATE: 08/2

CHK. BY: MSL DATE: 08/22

Introduction:

This spreadsheet is used to calculate and summarize all quantities for the plans.

Superstructure

PREST BEAMS: FLORIDA-I BEAM 78"- Pay Item No. 0450 2 78

Length of Prestressed Beam (FIB-36)		
# of Spans	1.0	Spans
# of Beams	3.0	beam
Beam Length	175.0	ft
Quantity	525.0	LF

of beams in cross section

CONC CLASS II, BRIDGE SUPERSTRUCTURE- Pay Item No. 0400 2 4

Volume of Concr			
Bridge Length	175.00	ft	175' length
Bridge Width	14.00	ft	14'-0" width
Thickness of bridge	0.67	ft	8" thickness
Quantity	60.49	CY	

| Volume of Concrete (Buildup)
Number of Beams	3.00	beam
Bridge Length	175.00	ft
Width of Top Flange	4.00	ft
Buildup Thickness	1.00	in
Quantity	6.48	CY

SubTotal= 6.48 CY

BRIDGE DECK EXPANSION JOINT, NEW CONSTRUCTION, F&I POURED JOINT WITH BACKER ROD- Pay Item No. 0458 111

Length of Expansion Joint			
2.0	joint	1	
12.0	ft	12' length	
0.0	deg	bridge skew	
8.8	in		
26.9	LF]	
	2.0 12.0 0.0 8.8	2.0 joint 12.0 ft	

SubTotal= 26.9 LF

Total= 27 LF

COMPOSITE NEOPRENE PADS- Pay Item No. 0400147

Volume of Bea	ring Pad		
Number of Pads	6.00	pad	1 spans x 3 beams x 2 pads per beam
Length	2.67	ft	2'-8" length
Width	0.83	ft	10" width
Height	0.16	ft	1+29/32" height (Assume Pad Type E)
Quantity	2.12	CF	

SubTotal=	2.12 CF
Takal-	2.1.CE

SW Orlando from Sand Lake Road to SR 408 Bridge Quantities Calculations - Metrowest Blvd. (Florida-I 78" Beam)

DES. BY: VLT DATE: 08/22

CHK. BY: MSL DATE: 08/22

Railing/Barrier

CONCRETE PARAPET, PEDESTRIAN/BICYCLE, 27" HEIGHT- Pay Item No. 0521 6 11

Pedestrian Parapet a		
Number of Parapet	2.0 barrier	
Barrier Length at Bridge	175.0 ft	175' length
Quantity	350.0 LF	2 x bridge length
·		
SubTota	l= 350.0 LF	
Tota	l= 350 LF	

FENCING, TYPE R, 8.1-10.0', WITH PARTIAL ENCLOSURE, TYPE R ONLY- Pay Item No. 0550 10354

Bridge Fencing			
Number of Fencing	2.0	barrier	
Fencing Length at Bridge	175.0	ft	175' length
Quantity	350.0	LF	2 x bridge length
SubTotal	= 350.0	LF	
Total	= 350	LF	

<u>Substructure</u>

CONCRETE CLASS IV, BRIDGE SUBSTRUCTURE- Pay Item No. 0400 4 5

Volume of Pier Column			
Number of Pier location	2.0	pier	
Width of Column	4.00	ft	4'-0" width
Depth of Column	4.00	ft	4'-0" width
Height of Column	17.50	ft	17'-6" height
Quantity	20.74	CY	

SubTotal-	20.74 CV

Volume of Pier Footing			1
Number of Pier location	2.0	pier	1
Depth of Footing	7.50	ft	7'-6" width
Width of Footing	7.50	ft	7'-6" width
Thickness of Footing	4.00	ft	4'-0" thickness
Quantity	16.67	CY	

SubTotal=	16.67 CY

Subtotal (Pier 1)=	21.67 CY
Subtotal (Pier 2)=	21.67 CY

Total= 43.3 CY	
----------------	--

Volume of Pier Column Cap			
Number of Pier location	2.0	pier	
Width of Cap	4.00	ft	4'-0" width
Depth of Cap	4.00	ft	4'-0" width
Length of Cap	14.00	ft	14'-0" length
Taper Length	4.00	ft	
Untaper Height	2.00	ft	
Quantity	5.93	CY	

SubTotal= 5.93 CY

SW Orlando from Sand Lake Road to SR 408 Bridge Quantities Calculations - Metrowest Blvd. (Florida-I 78" Beam)

DES. BY: VLT DATE: 08/22

CHK. BY: MSL DATE: 08/22

<u>Foundation</u>

PRESTRESSED CONCRETE PILING, 18" SQ- Pay Item No. 0455 34 3

Piles at End Pier	1		
Number of Pier location	1.0	pier	1
Production Pile Length*	50.0	ft	
Production Piles	3.0	pile	
Quantity of Piles	150.0	ft	

1 pier per side

Piles at End Pier 2			
Number of Pier location	1.0	pier	
Production Pile Length*	50.0	ft	
Production Piles	3.0	pile	
Quantity of Piles	150.0	ft	
Quantity of Piles	150.0	ft	

1 pier per side

^{*}Assume pile length of 50-ft

SubTotal=	150.0 LF	
Total=	300 LF	

*Assume pile length of 50-ft

SubTotal=	150.0 LF	

TEST PILES-PRESTRESSED CONCRETE,18" SQ- Pay Item No. 0455143 3

Piles at End Pier 1			ı
Number of Pier location	1.0	pier	1
Production Pile Length	65.0	ft	
Production Piles	1.0	pile	
Quantity of Piles	65.0	ft	

L pier per side

Piles at End Pier	r 2		1
Number of Pier location	1.0	pier	1
Production Pile Length	65.0	ft	1
Production Piles	1	pile	1
Quantity of Piles	65.0	ft	1

1 pier per side

^{*}Assume pile length of 65-ft

SubTotal=	65.0 LF	
Total=	130 LF	

*Assume pile length of 65-ft

SubTotal= 65.0 LF

REINFORCING STEEL - BRIDGE SUPERSTRUCTURE- Pay Item No. 0415 1 4

Total Superstructure Reinforcement				
Standard Deck Slab 205.0 LB/CY				
Superstructure Quantity	67.0	CY		
Quantity	13735.0	LB		

From Design Aid for Determination of Reinforcing Steel

Superstructure Subtotal 13735.0 LB

Total= 13735 LB

REINFORCING STEEL - BRIDGE SUBSTRUCTURE- Pay Item No. 0415 1 5

Total Substructure Reinforcement				
Single Column Piers <25'	150.0	LB/CY		
Substructure Quantity	43.3	CY		
Quantity	6495.0	LB		

From Design Aid for Determination of Reinforcing Steel

Substructure Subtotal 6495.0 LB

Total= 6495 LB

RAMP QUANTITY CALCULATIONS: METROWEST BLVD.

SW Orlando from Sand Lake Road to SR 408 Ramp Quantities Calculations - Metrowest Blvd. (Florida-I 78" Beam)

DES. BY: VLT DATE: 08/22

CHK. BY: MSL DATE: 08/22

Introduction:

This spreadsheet is used to calculate and summarize all quantities for the plans.

<u>Superstructure</u>

CONC CLASS II, BRIDGE SUPERSTRUCTURE- Pay Item No. 0400 2 4

Volume of Co	oncrete (Ramp)		
Bridge Length	345.00	ft	345' length = 10 x 30' span with 9 x 5' ramp
Bridge Width	13.75	ft	13'-9" width
Thickness of bridge	1.00	ft	12" thickness
Quantity	175.69	CY	
SubTotal=	175.69	CY	
-			
T	otal= 175.7	CV	

BRIDGE DECK EXPANSION JOINT, NEW CONSTRUCTION, F&I POURED JOINT WITH BACKER ROD- Pay Item No. 0458 111

	Length of Expansion Joint		
	joint	11.0	Number of location
13'-9" widt	ft	13.75	Length of Expansion Joint
bridge skev	deg	0.0	Bridge Skew
	in	8.8	Upturn
	LF	167.4	Quantity

SubTotal= 167.4 LF

Total= 168 LF

COMPOSITE NEOPRENE PADS- Pay Item No. 0400147

Volume of Bear	ing Pad		l
Number of Pads	20.00	pad	2 x 10 spans
Length	13.75	ft	13'-9" width
Width	0.50	ft	6" width
Height	0.04	ft	0.5" height
Quantity	5.73	CF	

SubTotal= 5.73 CF

Total= 5.7 CF

SW Orlando from Sand Lake Road to SR 408 Ramp Quantities Calculations - Metrowest Blvd. (Florida-I 78" Beam)

DES. BY: VLT DATE: 08/22 CHK. BY: MSL DATE: 08/22

<u>Substructure</u>

CONCRETE CLASS IV, BRIDGE SUBSTRUCTURE- Pay Item No. 0400 4 5

Volume of Pie	r Column	
Number of Pier location	11.0	pier
Width of Column	4.00	ft
Depth of Column	4.00	ft
Height of Column	13.50	ft
Quantity	88.00	CY

SubTotal=	88.00 CY

Volume of Pier F	ooting		
Number of Pier location	11.0	pier	
Depth of Footing	7.50	ft	7'-6" width
Width of Footing	7.50	ft	7'-6" width
Thickness of Footing	4.00	ft	4'-0" thicknes
Quantity	91.67	CY	

SubTotal=	91 67 CV

Subtotal (Pier 1)=	134.65 CY
Subtotal (Pier 2)=	134.65 CY

Total= 269.3 CY

Volume of Pier	Column Cap		
Number of Pier location	11.0	pier	
Width of Cap	4.00	ft	4'-0" width
Depth of Cap	4.00	ft	4'-0" width
Length of Cap	13.75	ft	13'-9" width
Quantity	89.63	CY	

SubTotal=	89.63 CY

Foundation

PRESTRESSED CONCRETE PILING, 18" SQ- Pay Item No. 0455 34 3

Piles for Ramp		
Number of Pier location	11.0	pier
Production Pile Length*	50.0	ft
Production Piles	4.0	pile
Quantity of Piles	2200.0	ft

^{*}Assume pile length of 50-ft

SubTotal=	2200.0 LF	
Total=	2200 LF	

TEST PILES-PRESTRESSED CONCRETE,18" SQ- Pay Item No. 0455143 3

Piles for Ramp		
Number of Pier location	11.0	pier
Production Pile Length	65.0	ft
Production Piles	1.0	pile
Quantity of Piles	715.0	ft

^{*}Assume pile length of 65-ft

SubTotal=	715.0 LF	
Total=	715 LF	

SW Orlando from Sand Lake Road to SR 408 Ramp Quantities Calculations - Metrowest Blvd. (Florida-I 78" Beam)

DES. BY: VLT DATE: 08/22

CHK. BY: MSL DATE: 08/22

REINFORCING STEEL - BRIDGE SUPERSTRUCTURE- Pay Item No. 0415 1 4

Total Superstructure Reinforcement			
205.0	LB/CY		
175.7	CY		
36018.5	LB		
	205.0 205.7 205.0 205.7 36018.5		

From Design Aid for Determination of Reinforcing Steel

Superstructure Subtotal

Total= 36019 LB

36018.5 LB

REINFORCING STEEL - BRIDGE SUBSTRUCTURE- Pay Item No. 0415 1 5

Total Substructure Reinforcement			
Single Column Piers <25'	150.0	LB/CY	
Substructure Quantity	269.3	CY	
Quantity	40395.0	LB	

rom Design Aid for Determination of Reinforcing Steel

Substructure Subtotal 40395.0 LB

> Total= 40395 LB

Railing/Barrier

CONCRETE PARAPET, PEDESTRIAN/BICYCLE, 27" HEIGHT- Pay Item No. 0521 6 11

Pedestrian Railing		
Number of Concrete Barrier	2.0	barrier
Barrier Length at Ramp	345.0	ft
Quantity	690.0	LF

345' length 2 x ramp length

690.0 LF SubTotal=

Total= 690 CF

BULLET RAIL, DOUBLE RAIL- Pay Item No. 0515 4 2

Pedestrian Railing			
Number of Railing	2.0	barrier	
Railing Length at Ramp	345.0	ft	345' length
Quantity	690.0	LF	2 x ramp leng

SubTotal= 690.0 LF

Total= 690 CF

BRIDGE QUANTITY CALCULATIONS: CONROY RD. (PREFABRICATED TRUSS)

SW Orlando from Sand Lake Road to SR 408 Bridge Quantities Calculations - Conroy Rd. (Prefabricated Steel Truss)

Introduction:

This spreadsheet is used to calculate and summarize all quantities for the plans.

Prefabricated Steel Truss

Area of prefabricat	ed structure	
Bridge Length	165.00	ft 165' length
Bridge Width	Bridge Width 12.00 ft	
Total=	1980	SF

CONC CLASS II, BRIDGE SUPERSTRUCTURE- Pay Item No. 0400 2 4

Volume of Concre	ete (Deck)		I
Bridge Length	165.00	ft	165' length
Bridge Width	12.00	ft	12'-0" deck width
Thickness of bridge	0.50	ft	6" thickness
Quantity	36.67	CY	

SubTotal= 36.67 CY

> Total= 36.7 CY

BRIDGE DECK EXPANSION JOINT, NEW CONSTRUCTION, F&I POURED JOINT WITH BACKER ROD- Pay Item No. 0458 1 11

Length of Expansion Joint			Ī
Number of location	2.0	joint	
Length of Expansion Joint	12.0	ft	12' length
Bridge Skew	0.0	deg	bridge skew
Upturn	8.8	in	
Quantity	26.9	LF	

SubTotal= 26.9 LF

Total= 27 LF DES. BY: VLT DATE: 08/22

CHK. BY: MSL DATE: 08/22

SW Orlando from Sand Lake Road to SR 408 Bridge Quantities Calculations - Conroy Rd. (Prefabricated Steel Truss)

DES. BY: VLT DATE: 08/22 CHK. BY: MSL DATE: 08/22

Substructure

CONCRETE CLASS IV, BRIDGE SUBSTRUCTURE- Pay Item No. 0400 4 5

Volume of Pier Column			
Number of Pier location	2.0	pier	
Width of Column	4.00	ft	4'-0" width
Depth of Column	4.00	ft	4'-0" width
Height of Column	17.50	ft	17'-6" heigh
Quantity	20.74	CY	

SubTotal= 20.74 CY

Volume of Pie	r Footing		
Number of Pier location	2.0	pier	
Depth of Footing	7.50	ft	7'-6" width
Width of Footing	7.50	ft	7'-6" width
Thickness of Footing	4.00	ft	4'-0" thickness
Quantity	16.67	CY	

SubTotal= 16.67 CY

 Subtotal (Pier 1)=
 21.67 CY

 Subtotal (Pier 2)=
 21.67 CY

Total= 43.3 CY

Volume of Pier Column Cap			Ī
Number of Pier location	2.0	pier	Ĭ
Width of Cap	4.00	ft	4'-0" width
Depth of Cap	4.00	ft	4'-0" width
Length of Cap	14.00	ft	14'-0" lengtl
Taper Length	4.00	ft	
Untaper Height	2.00	ft	
Quantity	5.93	CY	

SubTotal= 5.93 CY

Foundation

PRESTRESSED CONCRETE PILING, 18" SQ- Pay Item No. 0455 34 3

Piles at End Pier 1]
Number of Pier location	1.0	pier	1 pier per side
Production Pile Length*	50.0	ft	
Production Piles	3.0	pile	
Quantity of Piles	150.0	ft	

*Assume pile length of 50-ft

SubTotal=	150.0 LF	
Total=	300 LF	

*Assume pile length of 50-ft

SubTotal= 150.0 LF	
--------------------	--

TEST PILES-PRESTRESSED CONCRETE,18" SQ- Pay Item No. 0455143 3

Pile	es at End Pier 1		
Number of Pier location	1.0	pier	1 pier per side
Production Pile Length	65.0	ft	
Production Piles	1.0	pile	
Quantity of Piles	65.0	ft	

*Assume pile length of 65-ft

	65.0 LF	
Total=	130 LF	

Piles at End Pier 2			
Number of Pier location	1.0	pier	1 pier per side
Production Pile Length	65.0	ft	
Production Piles	1.0	pile	
Quantity of Piles	65.0	ft	

*Assume pile length of 65-ft

SubTotal=	65.0 LF	

SW Orlando from Sand Lake Road to SR 408 Bridge Quantities Calculations - Conroy Rd. (Prefabricated Steel Truss)

DES. BY: VLT DATE: 08/22

CHK. BY: MSL DATE: 08/22

REINFORCING STEEL - BRIDGE SUPERSTRUCTURE- Pay Item No. 0415 1 4

Total Superstructure Reinforcement				
Standard Deck Slab	205.0	LB/CY		
Superstructure Quantity	36.7	CY		
Quantity	7523.5	LB		

From Design Aid for Determination of Reinforcing Steel

Superstructure Subtotal 7523.5 LB

Total= 7524 LB

REINFORCING STEEL - BRIDGE SUBSTRUCTURE- Pay Item No. 0415 1 5

Total Substructure Reinforcement				
Single Column Piers <25'	150.0	LB/CY		
Substructure Quantity	43.3	CY		
Quantity	6495.0	LB		

From Design Aid for Determination of Reinforcing Steel

Substructure Subtotal 6495.0 LB

Total= 6495 LB

BRIDGE QUANTITY CALCULATIONS: METROWEST BLVD. (PREFABRICATED TRUSS)

SW Orlando from Sand Lake Road to SR 408 Bridge Quantities Calculations - Metrowest Blvd. (Prefabricated Steel Truss)

Introduction:

This spreadsheet is used to calculate and summarize all quantities for the plans.

Prefabricated Steel Truss

Area of prefabricate			
Bridge Length	175.00	ft	175' length
Bridge Width	12.00	ft	12'-0" width
			_
Total=	2100	SF	

CONC CLASS II, BRIDGE SUPERSTRUCTURE- Pay Item No. 0400 2 4

Volume of Concre	ete (Deck)		Ī
Bridge Length	175.00	ft	175' length
Bridge Width	12.00	ft	12'-0" deck width
Thickness of bridge	0.50	ft	6" thickness
Quantity	38.89	CY	

SubTotal= 38.89 CY

Total= 38.9 CY

BRIDGE DECK EXPANSION JOINT, NEW CONSTRUCTION, F&I POURED JOINT WITH BACKER ROD- Pay Item No. 0458 1 11

Length of Expans	Ī		
Number of location	2.0	joint	
Length of Expansion Joint	12.0	ft	12' length
Bridge Skew	0.0	deg	bridge skew
Upturn	8.8	in	
Quantity	26.9	LF	

SubTotal= 26.9 LF

Total= 27 LF DES. BY: VLT DATE: 08/22

CHK. BY: MSL DATE: 08/22

SW Orlando from Sand Lake Road to SR 408 Bridge Quantities Calculations - Metrowest Blvd. (Prefabricated Steel Truss)

DES. BY: VLT DATE: 08/22 CHK. BY: MSL DATE: 08/22

Substructure

CONCRETE CLASS IV, BRIDGE SUBSTRUCTURE- Pay Item No. 0400 4 5

Volume of Pier Column			
Number of Pier location	2.0	pier	
Width of Column	4.00	ft	4'-0" width
Depth of Column	4.00	ft	4'-0" width
Height of Column	17.50	ft	17'-6" heigh
Quantity	20.74	CY	

SubTotal= 20.74 CY

Volume of Pie	r Footing		
Number of Pier location	2.0	pier	
Depth of Footing	7.50	ft	7'-6" width
Width of Footing	7.50	ft	7'-6" width
Thickness of Footing	4.00	ft	4'-0" thickne
Quantity	16.67	CY	

SubTotal= 16.67 CY

 Subtotal (Pier 1)=
 21.67 CY

 Subtotal (Pier 2)=
 21.67 CY

Total= 43.3 CY

Volume of Pier Column Cap			Ī
Number of Pier location	2.0	pier	Ī
Width of Cap	4.00	ft	4'-0" width
Depth of Cap	4.00	ft	4'-0" width
Length of Cap	14.00	ft	14'-0" length
Taper Length	4.00	ft	
Untaper Height	2.00	ft	
Quantity	5.93	CY	

SubTotal= 5.93 CY

Foundation

PRESTRESSED CONCRETE PILING, 18" SQ- Pay Item No. 0455 34 3

Piles at End Pier 1			
Number of Pier location	1.0	pier	1 pier per sic
Production Pile Length*	50.0	ft	
Production Piles	3.0	pile	
Quantity of Piles	150.0	ft	

*Assume pile length of 50-ft

SubTotal=	150.0 LF	
Total=	300 LF	

*Assume pile length of 50-ft

1 pier per side

TEST PILES-PRESTRESSED CONCRETE,18" SQ- Pay Item No. 0455143 3

Piles at End Pier 1			
Number of Pier location	1.0	pier	1 pier per side
Production Pile Length	65.0	ft	
Production Piles	1.0	pile	
Quantity of Piles	65.0	ft	

*Assume pile length of 65-ft

	65.0 LF	
Total=	130 LF	

Piles at End Pier 2		
Number of Pier location	1.0	pier
Production Pile Length	65.0	ft
Production Piles	1.0	pile
Quantity of Piles	65.0	ft

*Assume pile length of 65-ft

SubTotal=	65.0 LF	

SW Orlando from Sand Lake Road to SR 408 Bridge Quantities Calculations - Metrowest Blvd. (Prefabricated Steel Truss)

DES. BY: VLT DATE: 08/22

CHK. BY: MSL DATE: 08/22

REINFORCING STEEL - BRIDGE SUPERSTRUCTURE- Pay Item No. 0415 1 4

Total Superstructure Reinforcement			
Standard Deck Slab	205.0	LB/CY	
Superstructure Quantity	38.9	CY	
Quantity	7974.5	LB	

From Design Aid for Determination of Reinforcing Steel

Superstructure Subtotal 7974.5 LB

Total= 7975 LB

REINFORCING STEEL - BRIDGE SUBSTRUCTURE- Pay Item No. 0415 1 5

Total Substructure Reinforcement			
Single Column Piers <25'	150.0	LB/CY	
Substructure Quantity	43.3	CY	
Quantity	6495.0	LB	

From Design Aid for Determination of Reinforcing Steel

Substructure Subtotal 6495.0 LB

Total= 6495 LB

RAMP QUANTITY CALCULATIONS: (PREFABRICATED TRUSS)

SW Orlando from Sand Lake Road to SR 408 Ramp Quantities Calculations - Prefabricated Steel Truss

DES. BY: VLT DATE: 08/22

CHK. BY: MSL DATE: 08/22

Introduction:

This spreadsheet is used to calculate and summarize all quantities for the plans.

Superstructure

CONC CLASS II, BRIDGE SUPERSTRUCTURE- Pay Item No. 0400 2 4

Volume of Conci	ete (Ramp)		
Bridge Length	275.00	ft	275' length = 8 x 25' span, 1x 30'span, with 9 x 5' ramp
Bridge Width	13.75	ft	13'-9" width
Thickness of bridge	1.00	ft	12" thickness
Quantity	140.05	CY	
SubTotal=	140.05	CY	
-			
Total	= 140.0	CY	

BRIDGE DECK EXPANSION JOINT, NEW CONSTRUCTION, F&I POURED JOINT WITH BACKER ROD- Pay Item No. 0458 111

Length of Expans	ion Joint		Ī
Number of location	9.0	joint	1
Length of Expansion Joint	13.75	ft	13'-9" width
Bridge Skew	0.0	deg	bridge skew
Upturn	8.8	in	1
Quantity	137.0	LF	1
			-
SubTotal=	137.0	LF	J
<u></u>			_
Total=	137	LF	1

COMPOSITE NEOPRENE PADS- Pay Item No. 0400147

Volume of Bearing Pad		
16.00	pad	2 x 8 spans
13.75	ft	13'-9" width
0.50	ft	6" width
0.04	ft	0.5" height
4.58	CF	
	16.00 13.75 0.50 0.04	16.00 pad 13.75 ft 0.50 ft 0.04 ft 4.58 CF

SubTotal= 4.58 CF

Total= 4.6 CF

SW Orlando from Sand Lake Road to SR 408 Ramp Quantities Calculations - Prefabricated Steel Truss

DES. BY: VLT DATE: 08/22

CHK. BY: MSL DATE: 08/22

<u>Substructure</u>

CONCRETE CLASS IV, BRIDGE SUBSTRUCTURE- Pay Item No. 0400 4 5

Volume of Pier Column			
Number of Pier location	8.0	pier	
Width of Column	4.00	ft	4'-0" width
Depth of Column	4.00	ft	4'-0" width
Height of Column	11.75	ft	11'-9" height average
Quantity	55.70	CY	

SubTotal=	55.70 CY

V. I. (B)	F 11		1
Volume of Pie	r Footing		
Number of Pier location	8.0	pier	
Depth of Footing	7.50	ft	7'-6" width
Width of Footing	7.50	ft	7'-6" width
Thickness of Footing	4.00	ft	4'-0" thickness
Quantity	66 67	CV	1

SubTotal=	66.67 CY
Total=	187.6 CY

Volume of Pier Column Cap			Ī
Number of Pier location	8.0	pier	Ī
Width of Cap	4.00	ft	4'-0" width
Depth of Cap	4.00	ft	4'-0" width
Length of Cap	13.75	ft	13'-9" width
Quantity	65.19	CY	

SubTotal= 65.19 CY	
--------------------	--

<u>Foundation</u>

PRESTRESSED CONCRETE PILING, 18" SQ- Pay Item No. 0455 34 3

Piles for Ramp				
Number of Pier location	8.0	pier		
Production Pile Length*	50.0	ft		
Production Piles	4.0	pile		
Quantity of Piles	1600.0	ft		

^{*}Assume pile length of 50-ft

SubTotal=	1600.0 LF	
Total=	1600 LF	

TEST PILES-PRESTRESSED CONCRETE,18" SQ- Pay Item No. 0455143 3

Piles for Ramp			
Number of Pier location	8.0	pier	
Production Pile Length	65.0	ft	
Production Piles	1.0	pile	
Quantity of Piles	520.0	ft	

^{*}Assume pile length of 65-ft

SubTotal=	520.0 LF	
Total=	520 IF	

SW Orlando from Sand Lake Road to SR 408 Ramp Quantities Calculations - Prefabricated Steel Truss

DES. BY: VLT DATE: 08/22

CHK. BY: MSL DATE: 08/22

REINFORCING STEEL - BRIDGE SUPERSTRUCTURE- Pay Item No. 0415 1 4

Total Superstructure	Reinforcement		
Standard Deck Slab	205.0	LB/CY	From Design Aid for Determination of Reinforcing Stee
Superstructure Quantity	140.0	CY	1
Quantity	28700.0	LB	
			=
Superstructure Subtotal	28700.0	LB	7

Total= 28700 LB

REINFORCING STEEL - BRIDGE SUBSTRUCTURE- Pay Item No. 0415 1 5

Total Substructure Reinforcement			
Single Column Piers <25' 150.0 LB/C			
Substructure Quantity	187.6	CY	
Quantity	28140.0	LB	

om Design Aid for Determination of Reinforcing Steel

Substructure Subtotal 28140.0 LB

> Total= 28140 LB

Railing/Barrier

CONCRETE PARAPET, PEDESTRIAN/BICYCLE, 27" HEIGHT- Pay Item No. 0521 6 11

		ailing	Pedestrian Rail
	barrier	2.0	Number of Concrete Barrier
275' length	ft	275.0	Barrier Length at Ramp
2 x ramp length	LF	550.0	Quantity

SubTotal= 550.0 LF Total= 550 CF

BULLET RAIL, DOUBLE RAIL- Pay Item No. 0515 4 2

Pedestrian Railing			
Number of Railing	2.0	barrier	1
Railing Length at Ramp	275.0	ft	275' length
Quantity	550.0	LF	2 x ramp length

SubTotal= 550.0 LF 550 CF Total=

SWITCHBACK RAMP QUANTITY CALCULATIONS: (PREFABRICATED TRUSS)

SW Orlando from Sand Lake Road to SR 408 Ramp Quantities Calculations - Prefabricated Steel Truss (Switchback)

DES. BY: VLT DATE: 08/22 CHK. BY: MSL DATE: 08/22

Introduction:

This spreadsheet is used to calculate and summarize all quantities for the plans.

Superstructure

CONC CLASS II, BRIDGE SUPERSTRUCTURE- Pay Item No. 0400 2 4

Volume of Cond	rete (Ramp)		
Bridge Length	285.00	ft	285' length = 8 x 25' span, 1 x 30' with 11 x 5' ramp
Bridge Width	13.75	ft	13'-9" width
Thickness of bridge	1.00	ft	12" thickness
Quantity	145.14	CY	
	•		=
SubTotal=	145.14	CY	

145.1 CY

168 LF

BRIDGE DECK EXPANSION JOINT, NEW CONSTRUCTION, F&I POURED JOINT WITH BACKER ROD- Pay Item No. 0458 111

Length of Expans	sion Joint		1
Number of location	11.0	joint	1
Length of Expansion Joint	13.75	ft	13'-9" width
Bridge Skew	0.0	deg	bridge skew
Upturn	8.8	in	
Quantity	167.4	LF	
	•	•	•
SubTotal=	167.4	LF	

Total=

COMPOSITE NEOPRENE PADS- Pay Item No. 0400147

Total=

Volume of Bear			
Number of Pads	22.00	pad	2 x 11 spans
Length	13.75	ft	13'-9" width
Width	0.50	ft	6" width
Height	0.04	ft	0.5" height
Quantity	6.30	CF	

SubTotal= 6.30 CF

> Total= 6.3 CF

SW Orlando from Sand Lake Road to SR 408 Ramp Quantities Calculations - Prefabricated Steel Truss (Switchback)

DES. BY: VLT DATE: 08/22

CHK. BY: MSL DATE: 08/22

<u>Substructure</u>

CONCRETE CLASS IV, BRIDGE SUBSTRUCTURE- Pay Item No. 0400 4 5

Volume of Pier			
Number of Pier location	10.0	pier	
Width of Column	4.00	ft	4'-0" width
Depth of Column	4.00	ft	4'-0" width
Height of Column	11.75	ft	11'-9" height average
Quantity	69.63	CY	

SubTotal=	69.63 CY

Volume of Pier	Footing		
Number of Pier location	10.0	pier	
Depth of Footing	7.50	ft	7'-6" width
Width of Footing	7.50	ft	7'-6" width
Thickness of Footing	4.00	ft	4'-0" thickness
Quantity	83.33	CY	

SubTotal=	83.33 CY

Volume of Pier Column Cap			
Number of Pier location	10.0	pier	
Width of Cap	4.00	ft	4'-0" width
Depth of Cap	4.00	ft	4'-0" width
Length of Cap	13.75	ft	13'-9" width
Quantity	81.48	CY	

SubTotal= 81.48 CY	
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<u>Foundation</u>

PRESTRESSED CONCRETE PILING, 18" SQ- Pay Item No. 0455 34 3

Total=

Piles for Ramp		
Number of Pier location	10.0	pier
Production Pile Length*	50.0	ft
Production Piles	4.0	pile
Quantity of Piles	2000.0	ft

234.4 CY

^{*}Assume pile length of 50-ft

SubTotal=	2000.0 LF	
Total=	2000 LF	

TEST PILES-PRESTRESSED CONCRETE,18" SQ- Pay Item No. 0455143 3

-11 6 -		
Piles for Ramp		
Number of Pier location	10.0	pier
Production Pile Length	65.0	ft
Production Piles	1.0	pile
Quantity of Piles	650.0	ft

^{*}Assume pile length of 65-ft

_			
	SubTotal=	650.0 LF	
	Total=	650 LF	

SW Orlando from Sand Lake Road to SR 408 Ramp Quantities Calculations - Prefabricated Steel Truss (Switchback)

DES. BY: VLT DATE: 08/22

CHK. BY: MSL DATE: 08/22

REINFORCING STEEL - BRIDGE SUPERSTRUCTURE- Pay Item No. 0415 1 4

Total Superstructure Reinforcement			
Standard Deck Slab	205.0	LB/CY	
Superstructure Quantity	145.1	CY	
Quantity	29745.5	LB	

From Design Aid for Determination of Reinforcing Steel

Superstructure Subtotal 29745.5 LB

> Total= 29746 LB

REINFORCING STEEL - BRIDGE SUBSTRUCTURE- Pay Item No. 0415 1 5

Total Substructure Reinforcement			
Single Column Piers <25'	150.0	LB/CY	
Substructure Quantity	234.4	CY	
Quantity 35160.0 LB			

om Design Aid for Determination of Reinforcing Steel

Substructure Subtotal 35160.0 LB

> Total= 35160 LB

Railing/Barrier

CONCRETE PARAPET, PEDESTRIAN/BICYCLE, 27" HEIGHT- Pay Item No. 0521 6 11

Pedestrian Railin	3	
Outside Barrier Length at Ramp	340.0	ft
Inside Barrier Length at Ramp	265.0	ft
Quantity	605.0	LF

SubTotal=

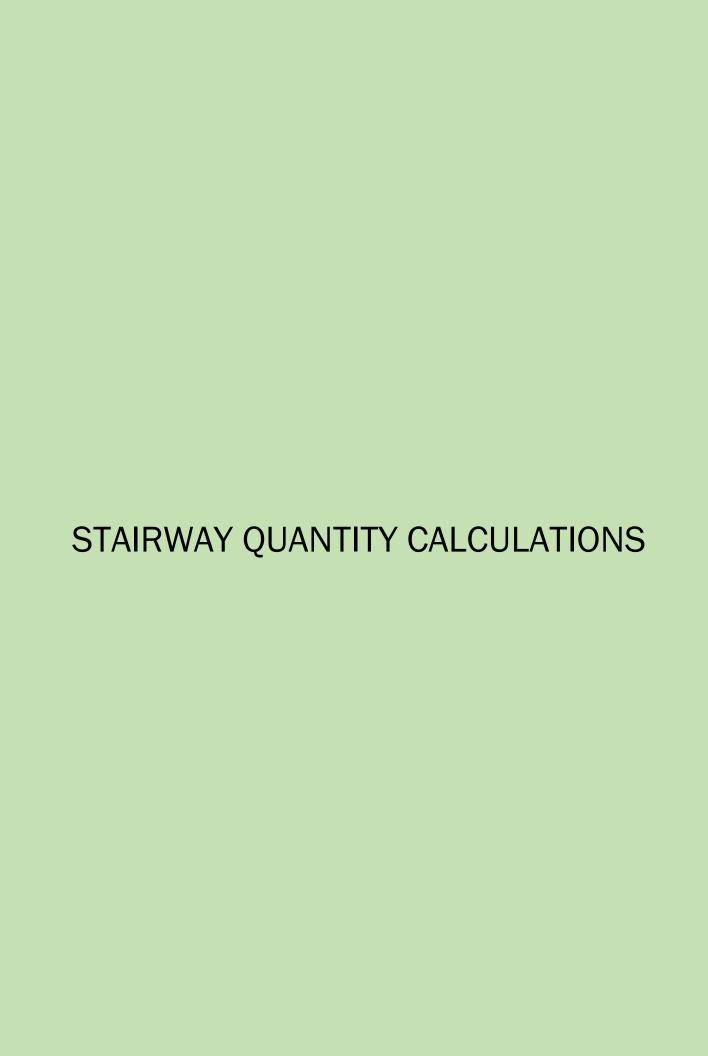
340' length = 8 x 25' span, 1 x 30'span, 11 x 5' ramp, 4 x 13'-9" ramp width 265' length = 8 x 25' span, 1 x 30'span, 7 x 5' ramp

SubTotal= 605.0 LF Total= 605 CF

BULLET RAIL, DOUBLE RAIL- Pay Item No. 0515 4 2

Pedestrian Railing			
Outside Railing Length at Ramp	340.0	ft	340' length = 8 x 25' span, 1 x 30'span, 11 x 5' ramp, 4 x 13'-9" ramp width
Inside Railing Length at Ramp	265.0	ft	265' length = 8 x 25' span, 1 x 30'span, 7 x 5' ramp
Quantity	605.0	LF	

605.0 LF 605 CF Total=



SW Orlando from Sand Lake Road to SR 408 Stairway Quantities Calculations

DES. BY: VLT DATE: 08/22

CHK. BY: MSL DATE: 08/22

Introduction:

This spreadsheet is used to calculate and summarize all quantities for the plans.

Superstructure

CONCRETE CLASS NS, STEPS- Pay Item No. 0400 013

Volume of Concrete	e (Stairway)		
Stair Length	64.33	ft	64
Stair Width	7.58	ft	7'-
Thickness of bridge	0.75	ft	9"
Quantity	13.55	CY	

length =3 x 5' landing + 2 x 5'-8" landing with 2 x 10' stairway and 2 x 9' stairway tairway width

kness

SubTotal= 13.55 CY

> Total= 13.6 CY

<u>Substructure</u>

CONCRETE CLASS IV, BRIDGE SUBSTRUCTURE- Pay Item No. 0400 4 5

Volume of Stairw	ay Column		I
Number of location	5.0	column	1
Width of Column	3.00	ft	3'-0" width
Depth of Column	3.00	ft	3'-0" width
Height of Column	13.13	ft	13'-1.5" height
Quantity	21.88	CY	1

Volume of Stair	I		
Number of location	5.0	footing	Ĩ
Depth of Footing	6.00	ft	6'-0" width
Width of Footing	6.00	ft	6'-0" width
Thickness of Footing	4.00	ft	4'-0" thickness
Quantity	26.67	CY	1

26.67 CY

SubTotal=

Volume of Pier Column Cap			
Number of Pier location	5.0	pier	
Width of Cap	3.50	ft	3'-6" width
Depth of Cap	3.50	ft	3'-6" width
Length of Cap	7.00	ft	7'-0" width
Quantity	15.88	CY	ł

SubTotal= 15.88 CY

SubTotal=	21.88 CY
Total=	64.4 CY

PRESTRESSED CONCRETE PILING, 18" SQ- Pay Item No. 0455 34 3

Piles for Stairway		
Production Pile Length*	50.0	ft
Production Piles	15.0	pile
Quantity of Piles	750.0	ft

Assume 4 total piles per footing (excluding test piles)

<u>Foundation</u>

SubTotal=	750.0 LF	
Total=	750 LF	

^{*}Assume pile length of 50-ft

SW Orlando from Sand Lake Road to SR 408 Stairway Quantities Calculations

DES. BY: VLT DATE: 08/22

CHK. BY: MSL DATE: 08/22

TEST PILES-PRESTRESSED CONCRETE,18" SQ- Pay Item No. 0455143 3

Piles for Stairway		
Production Pile Length	65.0	ft
Production Piles	5.0	pile
Quantity of Piles	325.0	ft

Assume 1 piles per footing

^{*}Assume pile length of 65-ft

SubTotal=	325.0 LF	
Total=	325 LF	

REINFORCING STEEL- MISCELLANEOUS- Pay Item No. 0415 1 6

Total Superstructure Reinforcement			
Standard Deck Slab 205.0 LB/CY			
Superstructure Quantity	13.6	CY	
Quantity	2788.0	LB	

From Design Aid for Determination of Reinforcing Steel

Superstructure Subtotal 2788.0 LB

Total= 2788 LB

REINFORCING STEEL - BRIDGE SUBSTRUCTURE- Pay Item No. 0415 1 5

Total Substructure Reinforcement			
Single Column Piers <25'	150.0	LB/CY	
Substructure Quantity	64.4	CY	
Quantity 9660.0 LB			

From Design Aid for Determination of Reinforcing Steel

Substructure Subtotal 9660.0 LB

Total= 9660 LB

Railing/Barrier

PEDESTRIAN / BICYCLE RAILING, STEEL, 42" TYPE 1- Pay Item No. 0515 2211

Pedestrian Railing									
Railing Length at Stairway	122.5	ft							
Quantity	122.5	LF							

2 x (2 x 10' stairway and 2 x 9' stairway + 2 x 5' landing + 5'-8" landing) + 15'-2" stairway width,2*(10+10+9+9+5+5+5.67)+15.17 = 122.5'

SubTotal= 122.5 LF

Total= 123 CF



SW Orlando from Sand Lake Road to SR 408 Roadway Quantities Calculations - Metrowest Blvd

DES. BY: VLT DATE: 08/22

CHK. BY: MSL DATE: 08/22

Introduction:

This spreadsheet is used to calculate and summarize all quantities for the plans.

CONCRETE SIDEWALK AND DRIVEWAYS, 6" THICK- Pay Item No. 0522 2

Area of Sidewalk (West	- 4		
Area of Sidewalk	3782.7		Refer to sketch
Quantity	420.3	SY	
SubTotal=	420.3	SY	
<u>-</u>			
Total=	420	SY	

EMBANKMENT- Pay Item No. 0120 6

Embankme	nt Fill		
Ditch Length	300.00	ft	300' length (ditch length)
Ditch Width	10.00	ft	10'-0" width (match trail width)
Ditch Depth	1.50	ft	assume 1'-6" depth
Quantity	83.33	CY	

TYPE B STABILIZATION- Pay Item No. 0160 4

Total=

Area of Trail (East of Kirkman Rd.)		
Area of Trail	5481.	5 SF
Quantity	609.	1 SY
SubTotal=	609.	1 SY
	Total= 609	9 SY

OPTIONAL BASE, BASE GROUP 01- Pay Item No. 0285701

Area of Trail (East of Kirkman Rd.)			
Area of Trail	5481.5	SF	
Quantity	609.1	SY	
SubTotal=	609.1	SY	
·			
Tota	l= 609	SY	

SW Orlando from Sand Lake Road to SR 408 Roadway Quantities Calculations - Metrowest Blvd

DES. BY: VLT DATE: 08/22

CHK. BY: MSL DATE: 08/22

SUPERPAVE ASPHALTIC CONC, TRAFFIC B- Pay Item No. 0334 112

Area of Trail (East of Kirkman Rd.)								
Area of Trail	5481.53	SF						
Unit Weight	220.00	LB/SY						
Quantity	67.00	TN						

Refer to sketch
Based on BOE, 2" thickness, 220 lb/yd2

SubTotal= 67.00 TN

Total= 67.0 TN

PERFORMANCE TURF, SOD- Pay Item No. 0570 1 2

Area of Sod									
Area West of Kirkman Rd	18371.6	SF							
Area East of Kirkman Rd	20741.1	SF							
Quantity	4345.9	SY							

Refer to sketch Refer to sketch

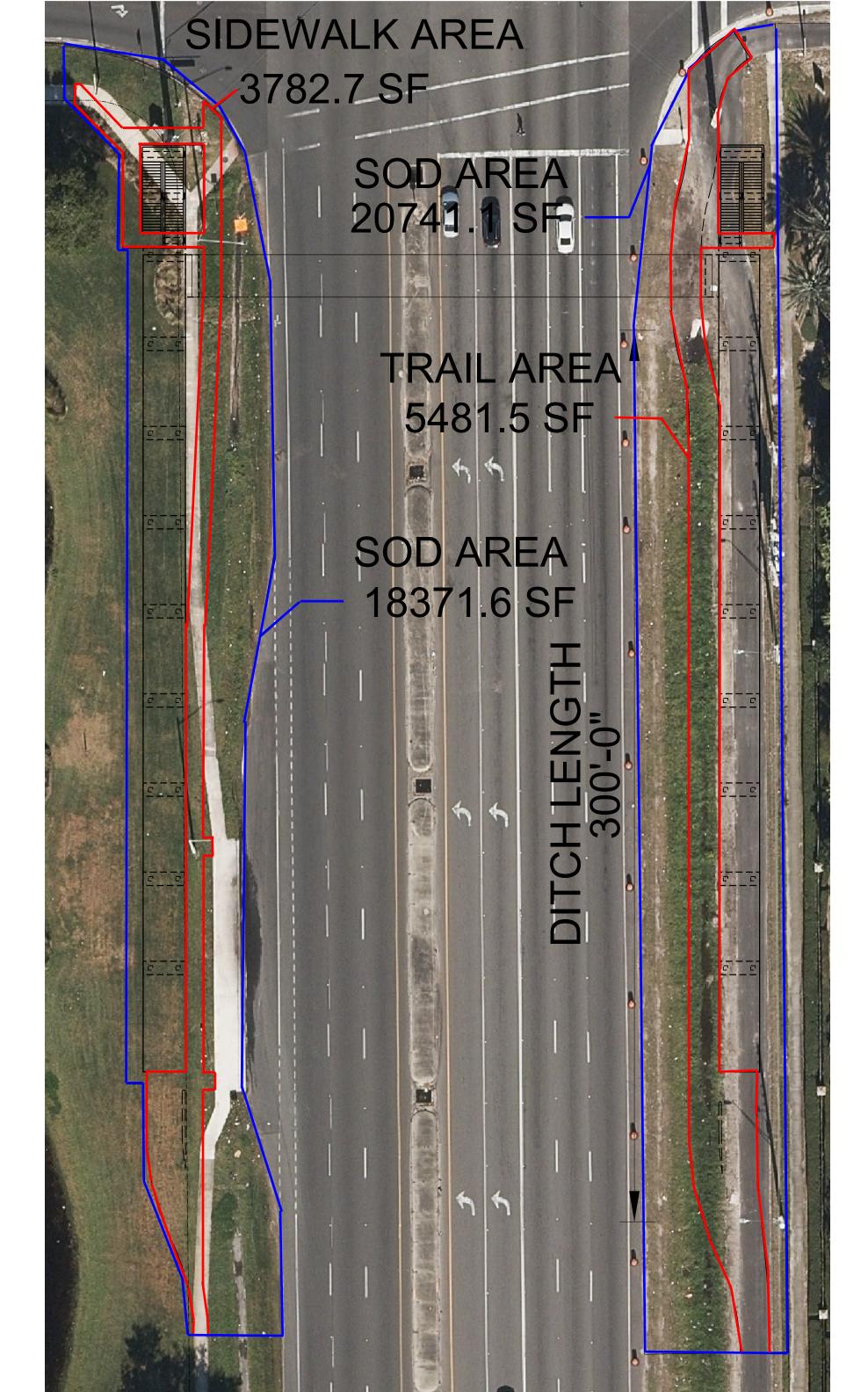
SubTotal= 4345.9 SY

Total= 4346 SY

ROADWAY COST												
PAY ITEM	PAY ITEM DESCRIPTION	UNIT	BDR Cost Estimates	AREA		EA 8	6-MONTH STATEWIDE			QUANTITY	UNIT COST	TOTAL COST
			UNIT PRICE	UNI	IT PRICE	# CONTRACTS	UN	NIT PRICE	# CONTRACTS		1	
0522 2	CONCRETE SIDEWALK AND DRIVEWAYS, 6" THICK	SY	-	\$	82.50	41	\$	62.32	115	420	\$ 82.50	\$ 34,650
0120 6	EMBANKMENT	CY	-	\$	20.01	44	\$	25.26	89	83	\$ 25.26	\$ 2,104
0160 4	TYPE B STABILIZATION	SY	-	\$	13.05	32	\$	7.98	90	609	\$ 13.05	\$ 7,947
0285701	OPTIONAL BASE, BASE GROUP 01	SY	-	\$	26.23	12	\$	13.48	43	609	\$ 26.23	\$ 15,974
0334 112	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	TN	-	\$	112.85	9	\$	106.06	29	67	\$ 112.85	\$ 7,561
0570 1 2	PERFORMANCE TURF, SOD	SY	-	\$	3.87	57	\$	3.53	144	4346	\$ 3.87	\$ 16,819
	ROADWAY SUB-TOTAL \$									ROADWA	\$ 85,055	

25,000 Based on recommendation from roadway

DRAINAGE SUBTOTAL





CITY OF ORLANDO SOUTHWEST BIKE AND PEDESTRIAN STUDY