Picciola Road (CR 466A), located in Lake County, Florida, connects US 27/411 to Lake Unity Road (C.R. 466B) and provides access to Picciola Island. In this report, issues associated with the existing conditions from Sable Palm Drive to Lake Unity Road are identified and engineering solutions are developed that provide an economical and safe facility while minimizing disruption to the motoring public and impacts to the environment.

The existing roadway typical section consists of two 12’-0” lanes with no paved shoulders. The bridge typical section consists of two 11’-6” lanes and 6” shoulders. The existing bridge is located on a tangent segment of roadway between two tight horizontal curves with steep superelevation. Since the existing bridge is tangent and crowned, it does not match the approach roadway and has resulted in accidents. The existing bridge Inventory Load Rating is less than required for the HS20 design vehicle and the bridge railing is not rated to resist the impact of the current design vehicle.

The proposed roadway typical section consists of two 12’-0” lanes with 2’-0” paved shoulders and 6’-0” sodded shoulders. The proposed bridge consists of two 12’-0” lanes with 8’-0” shoulders and 1’-61/2” traffic railing barriers along each side.

Two roadway alignment alternatives, based on a 40 mph design speed, are selected for further study. In Alternative A (Phased Construction), the alignment is shifted north to permit phased construction of the roadway and bridge while maintaining traffic on Picciola Road. Alternative B (Build-in-Place) realigns the existing roadway with only minor lateral adjustments.

### SUMMARY OF ROADWAY ALTERNATIVES

<table>
<thead>
<tr>
<th><strong>Issue</strong></th>
<th><strong>Alternative A (Phased Construction)</strong></th>
<th><strong>Alternative B (Build-in-Place)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>*Estimated Probable Cost</td>
<td>$1,250,000</td>
<td>$775,000</td>
</tr>
<tr>
<td>Traffic Control</td>
<td>4 Phases of construction</td>
<td>5.2 mile detour</td>
</tr>
<tr>
<td></td>
<td>Two -10’-0” lanes maintained</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Periodic lane closures</td>
<td></td>
</tr>
<tr>
<td>Construction Duration</td>
<td>14 months</td>
<td>6 months</td>
</tr>
<tr>
<td>Right-of-Way Acquisition</td>
<td>0.21 acres (9,150 square feet)</td>
<td>None</td>
</tr>
<tr>
<td>Wetlands Impact</td>
<td>0.16 acres (6,970 square feet)</td>
<td>0.01 acres (435 square feet)</td>
</tr>
</tbody>
</table>

*Total Project Cost Inclusive of Bridge Cost and Drainage Cost

Evaluation criteria used to compare the two roadway alternatives include public opinion, cost, constructability, disruption to traffic, right-of-way impact and environmental impacts. The recommendation for the roadway alignment is Alternative A (Phased Construction).

Three drainage design alternatives, exfiltration, swales, and ponds are investigated. An exfiltration system consists of perforated pipe surrounded by crushed stone aggregate wrapped in filter fabric. Swales would be located adjacent to the roadway in areas where the groundwater levels are low enough to permit infiltration. Ponds to treat stormwater generated from the new roadway are impractical since the only available parcels are at the higher elevations within the project limits. Ponds would be used to treat runoff generated from another section of the roadway that is currently not treated.
Evaluation criteria for the three drainage alternatives include cost, constructability, aesthetics, maintenance, right-of-way impact and environmental impacts. **The recommendation for the drainage is to install an exfiltration system under the 6 foot sodded shoulder.**

Due to the age of the existing structure and its geometric incompatibility with the existing roadway’s curved and superelevated geometry, widening the existing is not viable. It is recommended that the existing structure be replaced.

The required bridge length to span the Dead River is approximately 81 feet. One, two or three span arrangements are viable. The single-span structure uses precast prestressed AASHTO Type III beams which support an 8” concrete deck. The increased structure depth requires a higher roadway profile to maintain the same underclearance as the shallower three-span alternative. The AASHTO beams are supported by two end bents founded on 18” prestressed piles. The two span alternative requires a support at the centerline of channel, which would impede boat traffic, and was eliminated from further consideration. The three-span structure consists of a flat slab superstructure, 1’-6” thick, which is approximately equal to the existing structure depth. The flat slab is supported by two end bents and two intermediate bents founded on 18” prestressed concrete piles.

The estimated comparative cost of the structure is higher for roadway Alternative A due to the phased construction. Wall cost includes temporary walls, which are required for phased construction, and permanent walls, which are required to limit right-of-way and wetlands encroachment.
Evaluation criteria for the bridge alternatives include cost, constructability, aesthetics and maintenance. **The recommendation for the bridge is the Single-Span AASHTO Type III Beam Alternative.**

Public Information Meetings were held on June 15, 2004 at the Fruitland Park Casino, in Fruitland Park and November 4, 2004 at the Leesburg Community Center, in Leesburg. During the meetings, the alternatives and recommendations discussed in this report were presented to the public. Over 70% of the respondents preferred the phased construction option citing concerns over a delay in emergency response time, concerns of safety and delay at the intersection of Eagles Nest and US 27/411, driving extra miles, shopping inconvenience, impact to local businesses and increase travel to work or school. Other comments unrelated to the alternative selection included seven residents who wanted the bridge built higher to provide additional underclearance, five who wanted pedestrian facilities and one who wanted lighting added to the bridge.

A Public Hearing was held on December 7, 2004, during a regular meeting of the Lake County Board of County Commissioners. All of those who spoke at the hearing supported Roadway Alternative A (Phased Construction). Following the public comments, the Board of County Commissioners voted unanimously for Roadway Alternative A.
EXECUTIVE SUMMARY

1.0 INTRODUCTION

1.1 Project Location ............................................................................................................... 1
1.2 Scope of Report ................................................................................................................. 1
1.3 Project Goals ...................................................................................................................... 1
1.4 Evaluation Matrix .............................................................................................................. 2

2.0 EXISTING CONDITIONS ..................................................................................................... 3

2.1 Roadway Characteristics ..................................................................................................... 3
2.1.1 Functional Classification .............................................................................................. 3
2.1.2 Typical Section ............................................................................................................. 3
2.1.3 Right-of-Way ................................................................................................................. 3
2.1.4 Horizontal Alignment .................................................................................................. 3
2.1.5 Vertical Alignment ....................................................................................................... 4
2.1.6 Intersection and Signalization .................................................................................... 4
2.1.7 Crash Data .................................................................................................................. 4
2.2 Stormwater Management ................................................................................................... 4
2.3 Environmental Characteristics ........................................................................................... 5
2.4 Geotechnical Characteristics ............................................................................................. 5
2.5 Existing Bridge Characteristics .......................................................................................... 5
2.5.1 Bridge Inspection ......................................................................................................... 6
2.5.2 Load Rating ................................................................................................................ 6
2.5.3 Sufficiency Rating ...................................................................................................... 9
2.6 Utilities ............................................................................................................................. 9
2.7 Establishment of Project Need .......................................................................................... 9

3.0 DESIGN CRITERIA .............................................................................................................. 10

3.1 Roadway Design Criteria .................................................................................................. 10
3.1.1 Traffic Data ................................................................................................................. 10
3.1.2 Geometric Criteria ...................................................................................................... 10
3.2 Drainage Design Criteria .................................................................................................. 12
3.3 Structural Design Criteria ............................................................................................... 13
3.3.1 Design Specifications .................................................................................................. 13
3.3.2 Design Loads .............................................................................................................. 13
3.3.3 Environment .............................................................................................................. 14
3.3.4 Materials ................................................................................................................... 14
3.3.5 Aesthetic Design Criteria .......................................................................................... 14
3.3.6 Geometric Design Criteria ........................................................................................ 15
4.0 COST ESTIMATION

4.1 Historical Price Information

4.2 Proposed Unit Prices

5.0 ROADWAY ALTERNATIVES

5.1 Alternative A (Phased Construction)

5.1.1 Right-of-Way Impacts

5.1.2 Environmental Impacts

5.1.3 Traffic Control Plan

5.1.4 Construction Schedule

5.2 Alternative B (Build-in-Place)

5.2.1 Right-of-Way Impacts

5.2.2 Environmental Impacts

5.2.3 Traffic Control Plan

5.2.4 Construction Schedule

5.3 Evaluation Matrix

5.3.1 Public Opinion

5.3.2 Construction Cost

5.3.3 Constructability

5.3.4 Disruption to Traffic

5.3.5 Right-of-Way Impact

5.3.6 Environmental Impacts

5.4 Roadway Recommendation

6.0 DRAINAGE ALTERNATIVES

6.1 Exfiltration System

6.2 Swales

6.3 Ponds

6.4 Evaluation Matrix

6.4.1 Total Cost

6.4.2 Constructability

6.4.3 Aesthetics

6.4.4 Maintenance

6.4.5 Right-of-Way and Environmental Impact

6.5 Drainage Recommendation

7.0 BRIDGE ALTERNATIVES

7.1 Span Arrangements

7.2 Substructure Types

7.3 Superstructure Types

7.3.1 Three-Span Alternative (Flat Slab)

7.3.2 Single-Span Alternative (AASHTO Type III)
Figure 1-1 Project Location Map.............................................................................................................. 1
Figure 2-1 Existing Curve Locations....................................................................................................... 3
Figure 3-1 Proposed Bridge Typical Section .......................................................................................... 15
Figure 5-1 Alternative A Phased Construction Scheme ........................................................................... 19
Figure 5-2 Alternative B Proposed Detour .............................................................................................. 20
Figure 9-1 Alignment Alternative Preference....................................................................................... 29
Figure 9-2 Reasons Citizens gave to Support Phased Construction ....................................................... 30
Table 1-1 Project Goals .................................................................................................................. 1
Table 2-1 Existing Curve Data ...................................................................................................... 3
Table 2-2 1995 thru 2002 Crash Data Summary ..................................................................... 4
Table 2-3 Load Rating Summary ................................................................................................ 6
Table 2-4 Summary of Structural Deficiencies ....................................................................... 7-8
Table 2-5 Utility Contact Information ....................................................................................... 9
Table 3-1 Traffic Counts .............................................................................................................. 10
Table 3-2 Roadway Design Criteria .......................................................................................... 10-11
Table 3-3 SJWMD Treatment Volume Criteria ..................................................................... 12
Table 3-4 SJWMD Recovery Criteria ....................................................................................... 13
Table 4-1 Roadway Linear Foot Cost ....................................................................................... 16
Table 4-2 Other Roadway Unit Costs ....................................................................................... 16
Table 4-3 Bridge Unit Costs ...................................................................................................... 17
Table 4-4 Estimate of Reinforcing Weights .......................................................................... 17
Table 5-1 Comparative Evaluation of Roadway Alternatives .................................................. 21
Table 6-1 Swale Impacts .......................................................................................................... 23
Table 6-2 Comparative Evaluation of Drainage Alternatives ................................................... 24
Table 7-1 Comparative Evaluation of Bridge Alternatives ......................................................... 26
Table 9-1 Lake County Commitments ....................................................................................... 31
1.0 INTRODUCTION

1.1 Project Location
Picciola Road (CR 466A) is located in Lake County, Florida, east of the City of Fruitland Park. The roadway connects US 27/411 to Lake Unity Road (C.R. 466B) and provides access to Picciola Island.

![Project Location Map](image)

1.2 Scope of Report
The segment of Picciola Road from Sable Palm to Lake Unity Road has been the site of many injury accidents over the past several years. In this report, issues associated with the existing conditions are identified and engineering solutions are developed that provide a functional and safe facility.

Alternative roadway designs, drainage designs, and bridge designs are studied and optimal solutions identified. Alternative roadway alignments are evaluated with the goal of identifying a cost-effective, safe alignment that has the least negative impacts on the surrounding residents and the environment. The roadway alternatives are compared based on cost, constructability disruption to traffic, right of way impact and environmental impact. The drainage alternatives are compared based on cost, constructability, aesthetics, maintenance, right-of-way impact and environmental impact. The existing structure is evaluated for its suitability for rehabilitation and widening. Horizontal and vertical clearance requirements are identified and viable superstructure and substructure alternatives are investigated. The optimal span arrangement, substructure type and superstructure type, are selected based on cost, constructability, maintenance and aesthetics.

1.3 Project Goals
The specific project goals are identified in Table 1-1.

<table>
<thead>
<tr>
<th>Table 1-1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project Goals</strong></td>
</tr>
<tr>
<td>Provide an Alignment with a 40 mph Design Speed</td>
</tr>
<tr>
<td>Provide a Structure with a 75-year Service Life</td>
</tr>
<tr>
<td>Provide 2’-0” of Additional Vertical Clearance over the Dead River</td>
</tr>
<tr>
<td>Minimize Disruption to the Motoring Public during Construction</td>
</tr>
<tr>
<td>Minimize Environmental Impacts</td>
</tr>
<tr>
<td>Minimize Cost</td>
</tr>
</tbody>
</table>
1.4 Evaluation Matrix
It is recognized that alternative selection is based on an evaluation that includes criteria other than just cost. Throughout this report, the Evaluation Matrix is used to consider multiple selection criteria. In the matrices, “Importance Factors” are assigned to “Evaluation Criteria” (e.g. cost, constructability, maintenance etc.). Each competing alternative is assigned a rating from 1 (Low) to 10 (High) for each evaluation criteria in the evaluation matrix. The rating is based on the alternatives relative merits with respect to each criterion. A weighted score (the sum of the Importance Factor x Ratings) for each alternative is compiled and used in recommending the preferred alternative. The maximum possible score for each alternative is 100. The alternative with highest score is the recommended alternative.
2.0 EXISTING CONDITIONS

2.1 Roadway Characteristics
Existing Picciola Road, within the study limits, is a two lane roadway. The posted speed limit varies from 35 mph west of the Picciola Bridge to 45 mph just east of the bridge. In the vicinity of Sable Palm Drive there is an advisory speed sign of 25 miles per hour. This sign is in place due to pedestrian traffic crossing the road from a residential area north of the roadway to Lake Griffin on the south. This segment of Picciola Road serves residential and community based land use, and is an important element of Lake County’s roadway network.

2.1.1 Functional Classification
Picciola Road connects U.S. 27/441 to Lake Unity Road (C.R. 466B) and provides access to Picciola Island. It is classified as a collector roadway. U.S. 27/441 is classified as a principle urban arterial while C.R. 466B is classified as a minor collector.

2.1.2 Typical Section
The typical section of Picciola Road consists of two 12’-0” wide travel lanes with no paved shoulders. There is no well defined stormwater collection system along the corridor. Guardrail exists at the bridge approaches and in areas where the fill slopes are steep. There are no sidewalks or designated bicycle facilities along the corridor.

2.1.3 Right-of-Way
The county owned right-of-way along this portion of Picciola Road is 80 feet wide. Detailed right-of-way maps were prepared by Southeastern Surveying as part of this study and are located in the project file.

2.1.4 Horizontal Alignment
The existing roadway consists of three horizontal curves within the limits of the project separated by tangent segments. Existing curve data can be found in Table 2-1.

<table>
<thead>
<tr>
<th>Curve No.</th>
<th>Radius</th>
<th>Superelevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>410’</td>
<td>9%</td>
</tr>
<tr>
<td>2</td>
<td>410’</td>
<td>10%</td>
</tr>
<tr>
<td>3</td>
<td>478’</td>
<td>5%</td>
</tr>
</tbody>
</table>

The curve radii are very tight and have a steep superelevation. The bridge is situated within a 165 foot tangent segment between Curve Nos. 2 and 3. There is no superelevation across the bridge. When traveling at the posted speed limit of 35 mph, the transition from curve to tangent to curve occurs in 3.2 seconds. The roadway geometry limits both horizontal sight distance and reaction time. The driver expectation is a continuous curve at a constant speed.
superelevation through Curve Nos. 2 and 3 and across the bridge. This unexpected geometric deficiency has contributed to many accidents on Picciola Road as evidenced by eyewitness accounts and collision damage to the guardrail.

2.1.5 Vertical Alignment
The vertical profile of Picciola Road is relatively flat at Sable Palm Drive. The profile grade increases to approximately 1.20% along Horizontal Curve No. 2 at the west approach to the bridge. The profile over the bridge is flat and increases to approximately 1.86% along Horizontal Curve No. 3. These vertical grades are adequate to facilitate drainage of the roadway runoff and present no obstruction to the vertical sight distance.

2.1.6 Intersection and Signalization
There are a total of four intersections on Picciola Road within the project limits: Sable Palm Drive, Mulholland Drive, Stallings Boulevard and Lake Unity Road. The first and last intersections define the project limits. Traffic is controlled at all intersections with stop signs.

2.1.7 Crash Data
Crash data for this segment of Picciola Road was assembled and reviewed. The 1995 through 2002 data was obtained from the Lake County Traffic Engineering Department. The majority of the accidents occurred near Lake Unity Road. See Table 2-2, for a summary of the data described by location and year of accident.

Table 2-2
1995 Thru 2002 Crash Data Summary

<table>
<thead>
<tr>
<th>Year</th>
<th>Sable Palm Drive</th>
<th>Mulholland Drive</th>
<th>Stallings Boulevard</th>
<th>Lake Unity Road</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>1996</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>1997</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>1998</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>1999</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2000</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2001</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>2002</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>1</td>
<td>0</td>
<td>21</td>
<td>30</td>
</tr>
</tbody>
</table>

2.2 Stormwater Management
This project lies within the St. John’s Water Management District (SJRWMD). The portion of the Dead River located north of the project and adjacent to the Lake Griffin State Recreation Area is designated as “Outstanding Florida Waters.” The waters located in Lake Griffin to the south of the project are Class III waters.
There is no stormwater treatment system provided within the project limits. The stormwater currently runs off the existing roadway and into roadside ditches that flow into Lake Griffin or the Dead River. There are scuppers on bridge that discharge stormwater directly into the Dead River.

2.3 Environmental Characteristics
Lotspeich and Associates conducted a preliminary ecological assessment of the study area. Their findings are documented in the “Preliminary Ecological Assessment Report for Picciola Bridge Improvements”, dated July 21, 2004. The referenced report contains a complete discussion of the existing environmental characteristics and regulatory considerations. The following is a summary.

The study area is bordered by undeveloped land, a mobile home park, single family residences, Lake Griffin State Park, and Lake Griffin. The residential land uses occur on both the east and west sides of the existing bridge and a small mobile home park is situated on the southwest side of the bridge. The existing roadway is the primary upland land use within the study area. One wetland and one surface water community occur within the study area. The vast remainder of the study area is dominated by Lake Griffin to the south of Picciola Road and the Dead River to the north of Picciola Road. No threatened or endangered species were observed during the field investigation. The closest bald eagle nest is located approximately 3,500 feet north of the study area near Windy Way - well beyond the 1,500 foot protection zone.

2.4 Geotechnical Characteristics
DEVO Engineering conducted a preliminary geotechnical investigation to evaluate viable foundation and wall types for this project. Their findings are documented in the “Preliminary Geotechnical Structures Report for Picciola Bridge Improvements” dated June 5, 2003, and two letter reports dated July 28, 2003, and March 18, 2004. The following information was obtained from those reports.

The geotechnical investigation included Standard Penetration Test Borings, Power Auger Borings, Hand Augers and Muck Probes. Surficial muck was identified along the edges of the water. The muck thickness ranged from four inches to two feet. Buried Peat was identified on the western approach to the bridge. The pocket begins approximately 17'-6" below the existing roadway and is up to 6 feet in depth. The extent of the buried peat is bounded laterally by the existing roadway embankment. At elevations below the muck and peat, the upper 65 feet is composed of loose to medium dense fine sands and slightly silty fine sands with varying transitions to silty, silty and clayey fine sands. From a depth of 65 feet to the termination of the borings the soil is predominately sandy clays and clays.

Corrosion testing was performed on soil samples obtained from the site. Based on the criteria presented in the Florida Department of Transportation’s Structures Design Guidelines, the environment is classified as “Slightly Aggressive” for both superstructure and substructure.

2.5 Existing Bridge Characteristics
The existing bridge (Bridge No. 114044) is on the tangent segment of roadway that crosses the Dead River perpendicular to the channel. The bridge riding surface is crowned at the centerline and cross-sloped at 3/16" per foot. The existing 75'-0" long structure is comprised of three 25'-0" spans. The first and last spans are constructed over the spill slopes and the center span is over the channel. The cast-in-place concrete T-beam superstructure
is founded on timber pile bents with concrete caps. The overall structure depth, measured from the top of deck to the bottom of the T-Beam, is approximately 2'-6". The bridge deck accommodates two 11'-6" lanes with 6" shoulders. A raised curb, 9" in width, runs along the outside edges of the bridge and a guardrail is mounted to the outside fascia of the bridge deck. The total bridge width is 25'-6". The existing lane widths and shoulders widths are less than current standard and the existing bridge railing is not rated to resist the impact load of the current design vehicle.

2.5.1 Bridge Inspection
We have reviewed the Bridge Inspection Report and conducted a field evaluation. The Bridge Inspection Report dated October 11, 2001, indicates that the main load carrying elements of the bridge are in, at least, satisfactory condition. We confirmed this assessment in our field evaluation. Table 2-4 highlights some of the deficiencies noted in the report.

2.5.2 Load Rating
We have reviewed the latest bridge Load Rating dated May 25, 1994. The Load Rating is a measure of the structural capacity of the bridge to carry the Florida Legal Vehicles which provide both an Operating Rating and an Inventory Rating. The Operating Rating represents the absolute maximum permissible load to which a structure may be subjected. The Inventory Rating represents the load level which can safely utilize an existing structure for an indefinite period of time. Typically, only the HS20 Vehicle is load rated for Inventory.

Table 2-3 lists the Operating Rating for all the Legal Trucks and both the Operating Rating and Inventory Rating for the HS20 vehicle. No load restrictions are currently mandated for this bridge since all of the Operating Load Ratings exceed the permissible vehicle weights. However, the table shows an inventory load rating less than the vehicle weight for the HS20 vehicle. This indicates that the bridge is not structurally sufficient to safely carry the HS20 vehicle for an indefinite period of time. The beam distress noted in the Bridge Inspection Report may be due to repetitive loading that exceeds the Inventory Rating of the bridge.

Table 2-3
Load Rating Summary

<table>
<thead>
<tr>
<th>Vehicle Designation</th>
<th>Vehicle Weight (U.S. Tons)</th>
<th>Moment Rating Factor</th>
<th>Shear Rating Factor</th>
<th>Load Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>SU2</td>
<td>17.0</td>
<td>2.290</td>
<td>2.267</td>
<td>38.539</td>
</tr>
<tr>
<td>SU3</td>
<td>33.0</td>
<td>1.314</td>
<td>1.287</td>
<td>42.471</td>
</tr>
<tr>
<td>SU4</td>
<td>35.0</td>
<td>1.167</td>
<td>1.238</td>
<td>40.845</td>
</tr>
<tr>
<td>C3</td>
<td>28.0</td>
<td>2.095</td>
<td>2.150</td>
<td>58.660</td>
</tr>
<tr>
<td>C4</td>
<td>36.7</td>
<td>1.384</td>
<td>1.543</td>
<td>50.793</td>
</tr>
<tr>
<td>C5</td>
<td>36.6</td>
<td>1.384</td>
<td>1.513</td>
<td>50.654</td>
</tr>
<tr>
<td>ST5</td>
<td>40.0</td>
<td>1.672</td>
<td>1.587</td>
<td>63.480</td>
</tr>
<tr>
<td>HS20</td>
<td>36.0</td>
<td>1.574</td>
<td>1.365</td>
<td>49.140</td>
</tr>
<tr>
<td>HS20 (Inventory)</td>
<td>36.0</td>
<td>0.945</td>
<td>0.819</td>
<td>29.484</td>
</tr>
</tbody>
</table>
### SUMMARY OF STRUCTURAL DEFICIENCIES
(Excerpts from Bridge Inspection Report dated October 11, 2001)

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Deck Surface</strong></td>
<td>The Asphalt Overlay Exhibits $\frac{1}{8}$” to $\frac{1}{2}$” wide transverse cracks over the expansion joints.</td>
</tr>
<tr>
<td><strong>Joint Seals</strong></td>
<td>The expansion joints appear to be leaking as evidenced by water stains on the caps.</td>
</tr>
<tr>
<td><strong>Superstructure</strong></td>
<td>The lower left face of Beam 1-1 exhibits an 8” long, $\frac{1}{16}$” wide diagonal crack above the Bent No. 2 cap, which propagates upwards. The lower right face of Beam 2-4 exhibits a beam height $\frac{1}{32}$” wide vertical crack above the Bent 3 cap, which is located 4” west of the east end of the beam propagating upwards. The vertical faces of the beams exhibit beam height, $\frac{1}{64}$” wide vertical cracks at 7” to 11” intervals.</td>
</tr>
</tbody>
</table>
### SUMMARY OF STRUCTURAL DEFICIENCIES (CONTINUED)

(Excerpts from Bridge Inspection Report dated October 11, 2001)

<table>
<thead>
<tr>
<th>Substructure</th>
<th>Bent Caps:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The top east face of the Bent 3 cap exhibits a 1.4’ L x 1.1’ H x 1” D spall, with no exposed reinforcing.</td>
</tr>
</tbody>
</table>

| Piling:      | Pile 3-1 exhibits a 2.5’ H x 4’’ W x 2’’ D area of decay. Pile 3-2 exhibits a 4’ H x 10’ W x 5’ deep area of delaminating. The intermediate bent piling typically exhibit moderate water saturation from the high water mark to the mudline. The intermediate bent piling typically exhibit soft sections up to 3/8” deep in the splash zone and 1/4” deep from the waterline to the mudline. |

| Slope Protection | The slope protection has failed and collapsed at the waterline. The west slope exhibits erosion underneath the slope protection 12” high and 5’ deep. The lower 6’ of slope pavement is separating from the rest. |
2.5.3 Sufficiency Rating
The Bridge Sufficiency Rating is a numerical indicator of the adequacy of a bridge to remain in service. The rating combines structural adequacy, serviceability, functional obsolescence and essentiality for public use. Valid ratings range from 0 (most deficient) to 100 (most sufficient). The Sufficiency Rating for this structure, as listed on the Bridge Inspection Report dated October 11, 2001, is 50. This low sufficiency rating results from the insufficient load carrying capacity and the substandard lane widths, shoulder widths and barriers.

2.6 Utilities
Table 2-5 is a list of the utility companies that have facilities that may pose a conflict with this project. These companies were from the Sunshine State One Call of Florida.

Table 2-5
Utility Contact Information

<table>
<thead>
<tr>
<th>Utility Name</th>
<th>Contact Name</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Leesburg – Electric</td>
<td>Bob Brook</td>
<td>(352) 729-9830</td>
</tr>
<tr>
<td>City of Leesburg – Gas</td>
<td>Jack Rogers</td>
<td>(352) 729-9830</td>
</tr>
<tr>
<td>Progress Energy</td>
<td>Douglass Ellerbe (Distribution)</td>
<td>(352) 694-8520</td>
</tr>
<tr>
<td></td>
<td>Rosemary Gruebaum (Transmition)</td>
<td>(407) 475-2471</td>
</tr>
<tr>
<td>Comcast Communications</td>
<td>Ed Horton</td>
<td>(352) 728-9755</td>
</tr>
<tr>
<td>Sprint Florida</td>
<td>Doug Van Cleave</td>
<td>(352) 326-1263</td>
</tr>
</tbody>
</table>

2.7 Establishment of Project Need
The segment of Piccoli Road from Sable Palm Drive to Lake Unity Road has been the site of many injury accidents over the past several years. The existing roadway geometry, lane widths, shoulder widths and sight distances are substandard. Likewise, the existing bridge lane widths and shoulders widths are less than current standard. The load carrying capacity of the structure and the bridge railing are not rated to resist the loads of the current design vehicles. Based on these concerns combined with the age and level of deterioration of the existing bridge, improvements to this corridor are warranted.
3.0 DESIGN CRITERIA

3.1 Roadway Design Criteria
The roadway design criteria utilized is based on the Florida Department of Transportation’s Plans Preparation Manual in conjunction with the Florida Department of Transportation’s Design Standards (2002) and the Florida Green Book.

3.1.1 Traffic Data
The traffic data was provided to HNTB by Lake County Public Works from the two permanent traffic count stations located within the project limits. Station 117, is located just north of Picciola Cutoff Road on Picciola Road. Station 167, is located 0.2 miles south of Eagles Nest Road on Lake Unity Road. Table 3-1 summarizes the traffic data.

### Table 3-1
Traffic Counts

<table>
<thead>
<tr>
<th>Year</th>
<th>Station # 117 AADT</th>
<th>Station # 167 AADT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>8,279</td>
<td>N/A</td>
</tr>
<tr>
<td>2001</td>
<td>8,186</td>
<td>4,606</td>
</tr>
<tr>
<td>2002</td>
<td>7,880</td>
<td>4,419</td>
</tr>
<tr>
<td>2003</td>
<td>8,179</td>
<td>4,622</td>
</tr>
</tbody>
</table>

3.1.2 Geometric Criteria

### Table 3-2
Roadway Design Criteria

<table>
<thead>
<tr>
<th>Design Element</th>
<th>Design Standard</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roadway Classification</td>
<td>Collector</td>
<td></td>
</tr>
<tr>
<td>Design Vehicle</td>
<td>HS20</td>
<td></td>
</tr>
<tr>
<td>Design Year</td>
<td>2025</td>
<td>Per Scope of Services</td>
</tr>
<tr>
<td>Design Speed</td>
<td>40 mph</td>
<td>PPM, Vol. I, Section 1.9, page 1-15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Adjustments for grades will be made during design.)</td>
</tr>
<tr>
<td>Horizontal Alignment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum Curvature</td>
<td>10°45'00&quot;</td>
<td>PPM, Vol. I, Table 2.8.3</td>
</tr>
<tr>
<td>Maximum Deflection w/o Horizontal Curve</td>
<td>2°00'00&quot;</td>
<td>PPM, Vol. I, Table 2.8.1a</td>
</tr>
<tr>
<td>Minimum Length of Horizontal Curve</td>
<td>600 ft</td>
<td>PPM, Vol. I, Table 2.8.2a</td>
</tr>
<tr>
<td>Minimum Stopping Sight Distance</td>
<td>305 ft</td>
<td>PPM, Vol. I, Table 2.7.1 (Adjustments for grades will be made during design.)</td>
</tr>
<tr>
<td>Design Element</td>
<td>Design Standard</td>
<td>Sources</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>------------------------------------------------------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td><strong>Vertical Alignment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum Profile Grade</td>
<td>7.0%</td>
<td>PPM, Vol. I, Table 2.6.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PPM, Vol. I, Page’s 8-11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PPM, Vol. I, Table 8.6.4</td>
</tr>
<tr>
<td>Maximum Change in Grade w/o Vertical Curve</td>
<td>0.80%</td>
<td>PPM, Vol. I, Table 2.6.2</td>
</tr>
<tr>
<td>Crest Vertical Curve</td>
<td>K=70, Min. Length 120 ft</td>
<td>PPM, Vol. I, Table 2.8.5</td>
</tr>
<tr>
<td>Sag Vertical Curve</td>
<td>K=64, Min. Length 120 ft</td>
<td>PPM, Vol. I, Table 2.8.6</td>
</tr>
<tr>
<td><strong>Cross Section</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lane Widths</td>
<td>12 ft – Tangent</td>
<td>PPM, Vol. I, Table 2.1.1, Table 2.1.2, Table 2.1.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PPM, Vol. I, Page 8-3</td>
</tr>
<tr>
<td>Shoulder Width - Roadway</td>
<td>Total: 8 ft</td>
<td>PPM, Vol. I, Figure 2.1.1</td>
</tr>
<tr>
<td></td>
<td>Paved: 2 ft</td>
<td></td>
</tr>
<tr>
<td>Typical Roadway Cross Slopes</td>
<td>0.02 to 0.03</td>
<td>PPM, Vol. I, Table 2.11.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(See Table 2.11.10 for adjustments in curves)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PPM, Vol. I, Table 2.11.1 thru Table 2.11.8</td>
</tr>
<tr>
<td>Clear Zone (Min. from edge of travel way)</td>
<td>18 ft</td>
<td></td>
</tr>
<tr>
<td>Border Width</td>
<td>Minimum</td>
<td>PPM, Vol. I, Table 2.5.2</td>
</tr>
<tr>
<td></td>
<td>12 ft from Edge of Travel</td>
<td></td>
</tr>
<tr>
<td>Roadside Slopes</td>
<td>Front Slope</td>
<td>PPM, Vol. I, Fig. 2.4.1</td>
</tr>
<tr>
<td></td>
<td>1:2 not flatter than 1:6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Back Slope</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1:2 not flatter than 1:6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Transverse Slopes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1:4</td>
<td></td>
</tr>
<tr>
<td>Maximum Shoulder “Roll-Over”</td>
<td>7%</td>
<td>2000 FDOT Roadway and Traffic Design Standard Index No. 510, 1 of 2</td>
</tr>
<tr>
<td>Maximum Lane “Roll-Over”</td>
<td>4%</td>
<td>PPM, Vol. I, Section 2.1.5</td>
</tr>
<tr>
<td>Superelevation Transition</td>
<td>Standard</td>
<td>AASHTO (2001) pgs.176-183</td>
</tr>
<tr>
<td>Non-Spiral Tangent Curve</td>
<td>Minimum/Maximum</td>
<td></td>
</tr>
<tr>
<td></td>
<td>80%/50%</td>
<td>PPM, Vol. I, Section 2.9</td>
</tr>
<tr>
<td></td>
<td>20%/50%</td>
<td></td>
</tr>
<tr>
<td>Maximum Superelevation</td>
<td>0.10</td>
<td>PPM, Vol. I, Section 2.9.1</td>
</tr>
<tr>
<td>Superelevation Transition Slope Rates</td>
<td>Minimum</td>
<td>PPM, Vol. I, Table 2.9.3</td>
</tr>
<tr>
<td></td>
<td>1:100</td>
<td>PPM, Vol. I, Table 2.9.4</td>
</tr>
</tbody>
</table>
The proposed typical section will be comprised of two 12’-0” lanes two 2’-0” paved shoulders with Type F curb and gutter and a 6’-0” grassed shoulder behind the curb and gutter. The additional grassed shoulder will allow the guardrail to attach to the bridge without transitioning. See APPENDIX B for the Proposed Roadway Typical Section.

3.2 Drainage Design Criteria
The stormwater management design utilizes FDOT Stormwater Design Criteria and meets the regulations of the Saint John’s River Water Management District (SJRWMD). A summary of the criteria used can be seen in Tables 3-3 and 3-4.

Table 3-3
SJWMD Treatment Volume Criteria

<table>
<thead>
<tr>
<th>Design Element</th>
<th>Design Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet Detention Volume</td>
<td>The greater of:</td>
</tr>
<tr>
<td></td>
<td>First inch of runoff from the developed project</td>
</tr>
<tr>
<td></td>
<td>-Or-</td>
</tr>
<tr>
<td></td>
<td>2.5 inches over the impervious area</td>
</tr>
<tr>
<td></td>
<td>* If directly discharging to Class I, II, III or OFW provide an additional 50%</td>
</tr>
<tr>
<td></td>
<td>of applicable treatment volume and permanent pool volume.</td>
</tr>
<tr>
<td>Dry Detention Volume</td>
<td>The greater of:</td>
</tr>
<tr>
<td></td>
<td>First inch of runoff from the developed project</td>
</tr>
<tr>
<td></td>
<td>-Or-</td>
</tr>
<tr>
<td></td>
<td>2.5 inches over the impervious area</td>
</tr>
<tr>
<td></td>
<td>* If directly discharging to Class I, II, III or OFW provide an additional 50%</td>
</tr>
<tr>
<td></td>
<td>of applicable treatment volume.</td>
</tr>
<tr>
<td>Off-Line Wet Retention Volume</td>
<td>The greater of:</td>
</tr>
<tr>
<td></td>
<td>First 1/2 &quot; from the developed project</td>
</tr>
<tr>
<td></td>
<td>-Or-</td>
</tr>
<tr>
<td></td>
<td>1.25&quot; over the impervious area</td>
</tr>
<tr>
<td>Off-Line DryRetention</td>
<td>First 1/2&quot; runoff from the developed project</td>
</tr>
<tr>
<td></td>
<td>-Or-</td>
</tr>
<tr>
<td></td>
<td>1.25&quot; over the impervious area</td>
</tr>
<tr>
<td></td>
<td>* If directly discharging to Class I, II, III or OFW provide an additional 50%</td>
</tr>
<tr>
<td></td>
<td>of applicable treatment volume.</td>
</tr>
<tr>
<td>Off-Line Exfiltration Trench Volume</td>
<td>The greater of:</td>
</tr>
<tr>
<td></td>
<td>First 1/2&quot; from the developed project</td>
</tr>
<tr>
<td></td>
<td>-Or-</td>
</tr>
<tr>
<td></td>
<td>1.25&quot; over the impervious area</td>
</tr>
<tr>
<td>On-Line Exfiltration Trench Volume</td>
<td>Off-Line Volume plus an additional 1/2&quot; over project area</td>
</tr>
<tr>
<td></td>
<td>* If directly discharging to Class I, II, III or OFW provide an additional 50%</td>
</tr>
<tr>
<td></td>
<td>of applicable treatment volume.</td>
</tr>
</tbody>
</table>
### Table 3-4
SJWMD Recovery Criteria

<table>
<thead>
<tr>
<th>Design Element</th>
<th>Design Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet Detention Volume</td>
<td>Drawdown 1/2 treatment volume between 48 and 60 hours.</td>
</tr>
<tr>
<td>Dry Detention Volume</td>
<td>Drawdown 1/2 treatment volume between 24 and 30 hours.</td>
</tr>
<tr>
<td>Off-Line Wet Retention Volume</td>
<td>Drawdown treatment volume within 72 hours.</td>
</tr>
<tr>
<td>Off-Line Dry Retention</td>
<td>Drawdown treatment volume within 72 hours.</td>
</tr>
<tr>
<td>Off-Line Exfiltration Trench Volume</td>
<td>Drawdown treatment volume within 72 hours.</td>
</tr>
<tr>
<td>On-Line Exfiltration Trench Volume</td>
<td>Drawdown treatment volume within 72 hours.</td>
</tr>
</tbody>
</table>

### 3.3 Structural Design Criteria

The design of the structural elements of this project will be in accordance with the FDOT Structures Design Guidelines and the Detailing Manual. This section includes design data and criteria for the evaluation of bridge superstructures and substructures.

#### 3.3.1 Design Specifications

Structures shall be designed in accordance with FDOT standard practices and procedures. The design is governed by the following design specifications.


#### 3.3.2 Design Loads

The following design loads are utilized in superstructure and substructure alternative investigations:

1. **Dead Loads:**
   - Unit weight of structural concrete: 150 pcf
   - Future Wearing Surface: 15 psf
   - Stay-In-Place Forms: 20 psf
   - Traffic Railing Barrier: 421 plf

2. **Live Loads:**
   - Vehicle: HL93 (HS20 Vehicle)

3. **Wind Loads:**
   - Design wind loads on bridges shall be per LRFD 3.8.

4. **Thermal Forces:**
   - Movements of bridge structures shall be calculated assuming the following temperature ranges:

<table>
<thead>
<tr>
<th>Superstructure Material</th>
<th>Mean</th>
<th>Rise</th>
<th>Fall</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Concrete Only 70°F +25°F -25°F

The coefficients of thermal expansion for concrete shall be taken as $6 \times 10^{-6}/{}^{°}F$

5. Seismic Design:
The connections between the superstructure and substructure shall be designed in accordance with the requirements of the FDOT SDG Section 2.3.

3.3.3 Environment
Based on the “Preliminary Geotechnical Structures Report for Picciola Bridge Improvements” dated June 5, 2003, by DEVO Engineering, environmental classifications are as follows:

Superstructure: Slightly Aggressive
Substructure: Slightly Aggressive

3.3.4 Materials
The following material properties shall be utilized:

1. Concrete:
Concrete shall be in accordance with FDOT Standard Specifications for Road and Bridge Construction, Section 346.

The following concrete properties with Florida Limerock are utilized:

<table>
<thead>
<tr>
<th>Element</th>
<th>Concrete Class</th>
<th>28-day Strength (psi)</th>
<th>Modulus of Elasticity (psi x 10^6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superstructure (CIP)</td>
<td>II (Bridge Deck)</td>
<td>4,500</td>
<td>3.5</td>
</tr>
<tr>
<td>Substructure (CIP)</td>
<td>II</td>
<td>3,400</td>
<td>3.0</td>
</tr>
<tr>
<td>Prestressed Piles</td>
<td>V (Special)</td>
<td>6,000</td>
<td>4.0</td>
</tr>
<tr>
<td>Prestressed Beams</td>
<td>VI</td>
<td>8,500</td>
<td>4.8</td>
</tr>
</tbody>
</table>

2. Reinforcing Steel:
Reinforcement shall be ASTM A615, Grade 60. Concrete cover shall be per Table 1.2 of the FDOT Structures Design Guidelines.

3. Prestressing Strands:
Prestressing strands shall be ASTM A416, Grade 270, low-relaxation.

3.3.5 Aesthetic Design Criteria
It is our opinion that Level One Aesthetic Criteria would apply to this structure. The FDOT Plans Preparation Manual describes Level One Aesthetics as follows:

“...consist of cosmetic improvements to conventional Department bridge types, such as use of color pigments in the concrete, texturing the surfaces, modifications to fascia walls, beams or more pleasing shapes for columns and/or caps”.

This bridge will be seen by minimal boat traffic traveling through the channel; therefore, additional
aesthetic considerations beyond Level One are not warranted.

### 3.3.6. Geometric Criteria
The critical geometric design criteria elements affecting the bridge configurations are as follows:

**Horizontal Alignment:**
The bridge is located on a curved alignment in all the alternatives considered. The bridge length is governed by the dimensions of the existing trapezoidal channel which measures approximately 25' along the bottom. The sides of the channel are sloped at a grade of 1.5 (horizontal):1 (vertical). The riprap intended to protect existing slopes is failing. It is recommended that the side slopes be flattened to the current standard of 2' (horizontal) to 1' (vertical). This increases the required bridge length from the existing 75 feet to approximately 81 feet.

**Vertical Alignment:**
The roadway profile at the bridge location is established to provide a minimum vertical clearance 2'-0" greater than the existing clearance. This criterion was established by Lake County Public Works and has the support of the Lake County Water Authority. This results in a Low Member Elevation of 68.0 NAVD which is 8'-0" above the 100 year Flood Elevation of 60.0 NAVD.

**Bridge Typical Section:**
For this type of facility, the Florida Department of Transportation Plans Preparation Manual recommends a bridge section with two 12'-0" lanes, 8'-0" shoulders and 1'-6 ½" Traffic Railing Barriers along the edge of the deck. The total bridge deck width required for Picciola Road is 43'-1".

![Figure 3-1](image)

**Proposed Bridge Typical Section**
4.0 COST ESTIMATION

4.1 Historical Price Information
An appropriate method for preparing estimates of probable construction cost is essential to the economic analysis performed for each alternative. Preliminary quantities were developed for each alternative and unit prices applied to determine the estimated probable construction costs of the structure.

The unit prices for the roadway and drainage elements are based on FDOT Historic Unit Costs. To standardize the cost estimation process, the roadway items that do not vary between alignment alternatives investigated are combined to establish a roadway linear foot cost that will apply to both alternatives investigated. The costs of the items that vary are then added to the alternative to which they apply. The unit prices for the bridge elements are based on the FDOT Structures Design Guideline Chapter 11 titled “Bridge Development Report Cost Estimating”. A complete listing of the estimated quantities and probable cost estimates are contained in Appendix A of this document.

4.2 Proposed Unit Prices

Table 4-1
Roadway Linear Foot Cost

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Unit</th>
<th>Unit Cost</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control and Abatement of Erosion and Water Pollution</td>
<td>LF</td>
<td>$18.82</td>
<td>$9.41 per LF x 2 sides</td>
</tr>
<tr>
<td>Clearing and Grubbing</td>
<td>LF</td>
<td>$16.08</td>
<td>Entire 80’ of ROW</td>
</tr>
<tr>
<td>Type B Stabilization (Min LBR 40) (12”)</td>
<td>LF</td>
<td>$6.86</td>
<td>31’ Wide Section</td>
</tr>
<tr>
<td>Base Optional (10 in Limerock Base) (Min LBR 100)</td>
<td>LF</td>
<td>$27.71</td>
<td>28’ Wide Section</td>
</tr>
<tr>
<td>Asphalt Concrete Type S-1 (Inc Bit) (2”)</td>
<td>LF</td>
<td>$15.00</td>
<td>28’ Wide Section</td>
</tr>
<tr>
<td>Curb and Gutter (Type F)</td>
<td>LF</td>
<td>$19.44</td>
<td>$9.72 per LF x 2 sides</td>
</tr>
<tr>
<td>Guardrail</td>
<td>LF</td>
<td>$23.60</td>
<td>$11.80 per LF x 2 sides</td>
</tr>
<tr>
<td>Removal of Existing Guardrail</td>
<td>LF</td>
<td>$4.60</td>
<td>$2.30 per LF x 2 sides</td>
</tr>
<tr>
<td>Striping</td>
<td>LF</td>
<td>$9.00</td>
<td>2 - Shldrs. And Centerline</td>
</tr>
<tr>
<td><strong>Total Linear Foot Cost</strong></td>
<td></td>
<td><strong>$141.11</strong></td>
<td></td>
</tr>
</tbody>
</table>

Table 4-2
Other Roadway Unit Costs

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Unit</th>
<th>Unit Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right of Way</td>
<td>Acre</td>
<td>$50,000</td>
</tr>
<tr>
<td>Wetlands Impacts</td>
<td>Acre</td>
<td>$80,000</td>
</tr>
<tr>
<td>Roadway Fill</td>
<td>CY</td>
<td>$6.00</td>
</tr>
</tbody>
</table>
Table 4-3
Bridge Unit Costs

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Unit</th>
<th>Unit Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Superstructure:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Superstructure Concrete</td>
<td>CY</td>
<td>$425.00</td>
</tr>
<tr>
<td>Approach Slab Concrete</td>
<td>CY</td>
<td>$275.00</td>
</tr>
<tr>
<td>AASHTO Type III Beam</td>
<td>LF</td>
<td>$86.00</td>
</tr>
<tr>
<td>Reinforcing Steel (Superstructure)</td>
<td>LB</td>
<td>$0.46</td>
</tr>
<tr>
<td>Reinforcing Steel (Approach Slab)</td>
<td>LB</td>
<td>$0.46</td>
</tr>
<tr>
<td>Traffic Railing Barrier</td>
<td>LF</td>
<td>$44.00</td>
</tr>
<tr>
<td>Expansion Joint (Strip Seal)</td>
<td>LF</td>
<td>$106.00</td>
</tr>
<tr>
<td>Bridge Floor Grooving</td>
<td>SY</td>
<td>$2.50</td>
</tr>
<tr>
<td><strong>Substructure:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prestressed Concrete Piles (18&quot;)</td>
<td>LF</td>
<td>$38.00</td>
</tr>
<tr>
<td>Prestressed Concrete Piles (24&quot;)</td>
<td>LF</td>
<td>$53.00</td>
</tr>
<tr>
<td>HP 14 X 89 H-Piles</td>
<td>LF</td>
<td>$38.00</td>
</tr>
<tr>
<td>16&quot; Pipe Piles – Closed End</td>
<td>LF</td>
<td>$80.00</td>
</tr>
<tr>
<td>Substructure Concrete</td>
<td>CY</td>
<td>$550.00</td>
</tr>
<tr>
<td>Reinforcing Steel (Substructure)</td>
<td>LB</td>
<td>$0.46</td>
</tr>
<tr>
<td><strong>Miscellaneous:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permanent Retaining Walls</td>
<td>SF</td>
<td>$23.00</td>
</tr>
</tbody>
</table>

The quantity of reinforcing steel is based on the ratio of pounds of reinforcing per cubic yard of concrete for each of the concrete elements, as shown in the table below:

Table 4-4
Estimate of Reinforcing Weights

<table>
<thead>
<tr>
<th>Element Description</th>
<th>Pounds per Cubic Yard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pile Abutment</td>
<td>135</td>
</tr>
<tr>
<td>Deck Slab, Standard</td>
<td>205</td>
</tr>
<tr>
<td>Approach Slab</td>
<td>195</td>
</tr>
</tbody>
</table>
Two alignment alternatives were selected for further study. In Alternative A, the alignment is shifted north of the existing to permit phased construction of the roadway and bridge while maintaining traffic on Picciola Road. Alternative B realigns the existing roadway with only minor lateral adjustments. The Preliminary Roadway Plans are included in Appendix B.

5.1 Alternative A (Phased Construction)
In Alternative A, the alignment is shifted north of the existing alignment to permit phased construction of the roadway and bridge while maintaining traffic on Picciola Road. The new alignment is comprised of two curves, both with a radius of 600 feet and a superelevation of 6.0%. This provides a design speed of 40 mph.

5.1.1 Right of Way Impacts
Alternative A will require approximately 9,150 square feet or 0.21 acres of right-of-way acquisition. The encroachment beyond the existing right-of-way results from the alignment shift and wider typical section. Retaining walls are used to minimize the encroachment.

5.1.2 Environmental Impacts
The combination of a wider typical section and northern alignment shift will result in approximately 6,970 square feet or .16 acres of wetland impact. As with the right-of-way, retaining walls are used to minimize encroachment into the wetlands.

5.1.3 Traffic Control Plan
The maintenance of traffic is comprised of four phases with the goal of providing two travel lanes throughout construction of the roadway and bridge. Particular construction activities will require that the existing roadway and bridge be closed for short periods of time.

In Phase 1, traffic will be maintained on the existing roadway while a temporary lane is constructed to the south. In Phase 2, traffic will be shifted to the south with eastbound traffic on the newly constructed temporary lane and westbound traffic on former eastbound lane. With the traffic shifted to the south, the permanent westbound lane and temporary pavement just north of the permanent westbound lane will be constructed. In Phase 3, the traffic is shifted to the newly constructed northern portion. The temporary pavement south of the existing alignment will be removed and permanent pavement constructed along with the type F curb and gutter. In Phase 4, traffic will be shifted to the south onto the permanent eastbound shoulder, eastbound lane and a portion of the westbound lane. With the traffic shifted to the south, the temporary pavement to the north will be removed and the curb and gutter constructed. Finally, traffic is then shifted to the permanent eastbound and westbound lanes. See Figure 5-1 for a graphical representation of the Traffic Control and Construction Phasing.

5.1.4 Construction Schedule
The construction schedule for this alternative is lengthened by the maintenance of traffic on Picciola Road during construction. The contractor must operate in confined work spaces immediately adjacent to an active roadway and materials must be stored off-site. It is estimated that the phased construction will take approximately 14 months to complete. The estimated duration of each phase is shown in Figure 5-1.
5.2 Alternative B (Build-in-Place)
Alternative B involves a realignment of the existing roadway with only minor lateral adjustments. Construction of Alternative B requires closure of Picciola Road in the vicinity of the bridge for the duration of construction. The proposed roadway will be constructed over the existing roadway except where the horizontal curvature deviates from the existing. The bridge will be constructed in the footprint of the existing bridge. The new alignment is comprised of two curves; both with a radius of 660’ and superelevation of 5.8% which provides a design speed of 40 mph.

5.2.1 Right-of-Way Impacts
No additional right-of-way will be required to accommodate Alternative B. The horizontal curves have been designed such that the roadway side slopes stay within the right-of-way limits. Retaining walls are used in the vicinity of the bridge to eliminate encroachment of embankment fill beyond the existing right-of-way limits.

5.2.2 Environmental Impacts
There are minimal impacts associated with this alternative due to the similarity of this to the existing. Wetland impacts will be approximately 435 square feet or 0.01 acres due to the widened footprint of the typical section and curve adjustments that were made to the alignment. As with the right-of-way, retaining walls are used to minimize wetlands encroachment.
5.2.3 Traffic Control Plan

The construction of Alternative B will require that the existing Picciola Bridge and adjoining roadways be closed for the duration of construction. **Figure 5-2** illustrates the detour plan required for the closure. The length of the detour for traffic originating at the intersection of Picciola Road and Lake Unity Road, requiring access to southbound US 27/411, is approximately 5.2 miles in length.

Fire response to Picciola Island (east of the bridge) will most likely be dispatched from Fire Station No. 64, located on Spring Lake Road. Given the location of the station relative to the Picciola Island, the detour should have no impact on fire response time.

According to Lake County Emergency Medical Services (EMS), Emergency Medical could be dispatched from either the Villages Regional Hospital to the north or Leesburg Regional Hospital to the south. Travel length to and from the Villages Regional Hospital will not be impacted by the detour. However, the travel distance to, or from, Leesburg Regional Hospital will be increased from approximately 6.3 miles to approximately 11.5 miles.

5.2.4 Construction Schedule

Since the bridge and roadway will be closed during construction, the contractor has uninterrupted access to the site for construction activities, staging and storage of materials. It is estimated that the build-in-place alternative can be constructed in approximately 6 months.

5.3 Evaluation Matrix

Evaluation criteria for the two roadway alternatives includes public opinion, cost, constructability, disruption to traffic, right-of-way impact and environmental impacts.
Table 5-1
Comparative Evaluation of Roadway Alternatives

<table>
<thead>
<tr>
<th>Alternative</th>
<th>EVALUATION CRITERIA</th>
<th>Score (I.F.X Rating)</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Public Opinion</td>
<td>Cost</td>
<td>Constructability</td>
</tr>
<tr>
<td>Import. Factor (I.F.)</td>
<td>3.0</td>
<td>3.0</td>
<td>1.5</td>
</tr>
<tr>
<td>Alternative A</td>
<td>8.5</td>
<td>6</td>
<td>5</td>
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<tr>
<td>(Phased Construction)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternative B</td>
<td>1.5</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>(Build-in-Place)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.3.1 Public Opinion
Public Information Meetings were held on June 15, 2004, at the Fruitland Park Casino and on November 4, 2004, at the Leesburg Community Center. The public was offered an opportunity to comment verbally or to document their comments on Public Comment Forms that were provided. Comments from 78 area residents were received. Of those that expressed an alternative preference, 85% supported Alternative A and 15% supported Alternative A. Therefore, a value of 8.5 is assigned to Alternative A and 1.5 to Alternative B (Build-in-Place). (For a more complete description of the public involvement process, see Section 9 of this report.)

5.3.2 Construction Cost
The cost of the alignment alternatives cannot be compared without consideration of drainage and bridge costs that will be discussed in sections 6 and 7 of this report. The roadway alternatives are coupled with the recommended drainage alternative and bridge alternative to establish total estimated construction costs. The estimated probable construction cost to reconstruct Picciola Road from Sable Palm to Lake Unity is $1,250,000 for Alternative A and $775,000 for Alternative B. A complete listing of costs is included in Appendix A. A value of 10 is assigned to the least cost option, Alternative B (Build-in-Place). The ranking for the other alternative is proportionally lower based on that alternative’s cost.

5.3.3 Constructability
Alternative A must be constructed with a cumbersome maintenance of traffic scheme. Phased construction must occur in a confined work area immediately adjacent to active an active Picciola Road. Material must be stored off-site and material deliveries will be slowed. In Alternative B, the roadway will be closed during construction. The contractor will have uninterrupted access to the site for construction activities, staging and storage of materials. Ratings have been applied accordingly.

5.3.4 Disruption to Traffic
Disruption to traffic will occur regardless of the alternative selected. In Alternative A, traffic will be maintained in very narrow lanes without shoulders. This will reduce the capacity of roadway and result in delays. Additionally, periodic roadway closures will occur throughout the anticipated fourteen month construction schedule. Alternative B will require a 5.2 mile detour for traffic seeking southbound access to US 27/441. Ratings have been applied accordingly.
5.3.5 Right-of-Way Impact
Ratings were assigned based on the degree of impact. Alternative B received a 10 since the roadway and bridge can be reconstructed in the existing right-of-way. Alternative A received a lower rating since that alignment requires additional right-of-way to construct.

5.3.6 Environmental Impact
Ratings were assigned based on the degree of impact. Alternative A and B received ratings of 5 and 8 since both involved some degree of wetlands impact.

5.4 Roadway Recommendation
The evaluation matrix provides an overall ranking for the alternatives evaluated. A score of 100 is the maximum possible value. Alternative A (Phased Construction) received the highest score and is the recommended alternative.
6.0 DRAINAGE ALTERNATIVES

A thorough review of the existing topography and geotechnical data provided indicate mostly sandy surficial soils that will allow for infiltration. Three drainage design alternatives were investigated: These include exfiltration, roadside swales, and ponds. Preliminary Drainage Plans depicting these alternatives are included in Appendix C.

6.1 Exfiltration System
An exfiltration system consists of perforated pipe surrounded by crushed stone aggregate wrapped in filter fabric. The roadway stormwater is collected by inlets located in the curb and gutter, passed through the pipe and infiltrated through the stone and fabric and into the soil. Most applications of exfiltration systems occur when space is limited and land costs are high. Our typical section shows the trench located within the 6’ sodded shoulder along the roadway. The approximate length of trench needed to treat the entire roadway is 700 linear feet using an 18” pipe. Overflow structures would be provided to prevent the water from backing up in the pipe and onto the roadway. Since the system is contained within the typical section, there is no right-of-way or wetland impacts beyond that discussed in the roadway section of this report.

6.2 Swales
In this alternative, the roadway stormwater would be collected by inlets and discharged into dry retention swales. These swales would be located adjacent to the roadway in areas where the groundwater levels are low enough to permit infiltration. The water would percolate into the ground keeping the swale dry most of the time. There would be overflow structures to prevent the water from backing up in the swale and spilling onto the roadway.

The typical section of the required swale is shown with a 6’ bottom width and 5’ maintenance berm. The footprint of this typical section is larger than what is required for the roadway and shoulder. Therefore, there will be additional wetland impacts and right-of-way required. A summary of these impacts is shown in Table 6-1.

<table>
<thead>
<tr>
<th></th>
<th>Roadway Alternative A</th>
<th>Roadway Alternative B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right-of-Way</td>
<td>0.35 Acres</td>
<td>0.58 Acres</td>
</tr>
<tr>
<td>Wetlands</td>
<td>0.07 Acres</td>
<td>0.13 Acres</td>
</tr>
</tbody>
</table>

6.3 Ponds
The survey indicates that the ground elevations drop from east to west along the full length of the project. Limited right-of-way and a lack of suitable property at the west end of the project preclude the use of ponds to treat the stormwater that falls within the improved roadway. In cases like this, where right-of-way is limited and site conditions are inadequate, compensating stormwater treatment is an option. By capturing and treating an area currently untreated it may be possible to allow runoff from this project to remain untreated. Two possible pond sites were located on field visits. Both locations are at east end of the project and near the highest point of the project. Treatment could be provided for a portion of Picciola Road and/or Lake Unity Drive. By collecting and treating stormwater that falls outside the limits of the project, roadway runoff from within the project would be collected by inlets and discharged into adjacent ditches and into Lake Griffin. There are no environmental impacts associated with this alternative beyond those discussed in the roadway section of this report. Right-of-way to construct the ponds would need to
be acquired.

6.4 Evaluation Matrix
Evaluation criteria for the three drainage alternatives include cost, constructability, aesthetics, maintenance, right-of-way impact and environmental impacts. Separate matrices developed to evaluate the drainage alternatives for both roadway alternatives varied minimally. The matrix presented below is for roadway Alternative B.

<p>| PICCIOLO ROAD BRIDGE IMPROVEMENTS PROJECT |</p>
<table>
<thead>
<tr>
<th>COMPARATIVE EVALUATION OF STORMWATER ALTERNATIVES</th>
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</table>

**Table 6-2**
Comparative Evaluation of Stormwater Alternatives

<table>
<thead>
<tr>
<th>Alternative</th>
<th>EVALUATION CRITERIA</th>
<th>Score (I.F. x Rating)</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cost</td>
<td>Constructability</td>
<td>Aesthetics</td>
</tr>
<tr>
<td>Exfiltration Trench</td>
<td>8</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Roadside Swales</td>
<td>10</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Ponds</td>
<td>7</td>
<td>8</td>
<td>6</td>
</tr>
</tbody>
</table>

6.4.1 Total Cost
For total cost, a value of 10 is assigned to the least cost option, Roadside Swales. The rankings for the other alternatives are proportionally distributed based on the estimated probable costs of each alternative options. A complete listing of costs is included in Appendix A.

6.4.2 Constructability
No alternative has a measurable advantage over another.

6.4.3 Aesthetics
Aesthetics is a very subjective criterion to rank with potential for large differences depending on individual preferences and opinions. The highest ranking goes to the exfiltration system which is a buried system. Both roadside swales and pond are open systems and received lesser ratings.

6.4.4 Maintenance
Both roadside swales and ponds are relatively easy to maintain and received relatively high ratings. Maintenance for these systems normally includes debris removal and mowing. Since the exfiltration system is below ground, if maintenance were required, it would involve an excavation.

6.4.5 Right-of-Way and Environmental Impact
Ratings were assigned based on the degree of impact. Exfiltration received a 10 since the entire system is contained within the roadway typical section. Both other alternative reviewed lower ratings since they required additional right-of-way and involve wetland impacts.

6.5 Drainage Recommendation
The evaluation matrix provides an overall ranking for the alternatives evaluated. A score of 100 is the maximum possible value. The exfiltration system received the highest score and is the recommended alternative.
As discussed in Section 3, the Florida Department of Transportation Plans Preparation Manual recommends a bridge section consisting of two 12'-0” lanes, 8'-0” shoulders and 1'-6 ½” Traffic Railing Barriers along the edge of the deck. The total bridge deck width required for Picciola Road is 43'-1” or nearly twice as wide as the existing structure. The proposed bridge width can be obtained in one of two ways - by widening the existing structure or by replacing the existing structure.

Due to the age of the existing structure and the timber foundation, it is difficult to accurately assess the load carrying capacity and remaining service life. Additionally, the existing bridge has a crowned section located on a tangent segment of the roadway. Both roadway alternatives located the proposed bridge on a curved alignment with a section that is superelevated. Given the age of the structure and the proposed geometric improvements, it is recommended that the existing structure be replaced.

The factors effecting the selection of bridge alternatives include the required bridge length, available support locations and channel characteristics. These site specific constraints have been identified and the required bridge length and span arrangement have been established for each alternative. Furthermore, we have determined the most cost effective substructure and superstructure type for each span arrangement. Preliminary bridge plans that depict the alternatives studied are included in Appendix D.

In roadway alignment Alternative A, the bridge is constructed in two phases while in Alternative B, the bridge is constructed in a single phase. The bridge types considered for this project are compatible with a single phase or dual phase construction.

7.1 Span Arrangements
The required bridge length to carry Picciola Road over the Dead River is approximately 81 feet (see section 3.3.6). The bridge length is similar for both Roadway Alternative A and B. Viable bridge alternatives for a structure of this length include one, two or three span arrangements. The two span alternative is eliminated from further consideration since it would require a support at the centerline of channel which would impede boat traffic. The three span structure consists of three 27’-0” spans for a total bridge length of 81’-0”. The single span structure consists of one 81’-0” span.

7.2 Substructure Types
DEVO Engineering evaluated the viable foundation types and sizes for this project as part of their study referenced in Section 2.4. Many foundation types can feasibly support the proposed bridge. Square precast prestressed concrete piles are the most widely used deep foundation system for short to medium span structures in central Florida. Concrete piles are a cost effective and constructible solution for this project. Both 18” and 24” piles were evaluated. When comparing pile lengths required to carry the design loads, the 24” piles are from 10% to 25% shorter than the 18” piles. The cost to supply and install 24” piles, however, is 50% greater than 18” piles. Therefore, 18” precast prestressed concrete piles are the recommended foundation type.

7.3 Superstructure Types
For the three-span alternative, both precast and cast-in-place flat slab superstructures are evaluated. For the single span alternative, AASHTO Type III beams with a cast-in-place deck are evaluated.

7.3.1 Three-Span Alternative (Flat Slab)
The flat slab superstructure necessary for the 27’-0” spans of this alternative can be constructed as either precast or cast-in-place. Precast construction is most cost effective when the application involves the fabrication of many similar structural elements. The precast slab option is eliminated from further consideration since it is less cost effective than the cast-in-place alternative due to the horizontal curvature and superelevation required on the proposed bridge.
The required thickness of the three-span cast-in-place flat slab is 1’-6” which is approximately equal to the existing structure depth. Therefore, selection of this alternative would have minimal impact on the vertical roadway geometry. The flat slab is supported by two end bents and two intermediate bents. Each of these bents is founded on four 18” prestressed piles.

The estimated comparative construction cost of the structure varies based on the roadway alignment due to the phased construction required for Alternative A. The bridge cost, excluding walls, for roadway Alternatives A and B are $337,000 ($96.57 per square foot) and $270,000 ($77.37 per square foot), respectively. The costs, including walls, for the alignment alternatives A and B, are $677,000 and $387,000, respectively. The wall cost includes temporary walls which are required for phased construction and permanent walls which are required to limit right-of-way and wetlands encroachment.

7.3.2 Single-Span Alternative (AASHTO Type III)
The single-span structure is composed of precast prestressed AASHTO Type III beams. This beam type results in a bridge with a greater structure depth than the existing bridge. The increased depth requires a higher roadway profile to maintain the same underclearance as the shallower three-span alternative resulting in additional embankment and wall heights. The AASHTO Type III beams are spaced at 7’-3” with 3’-5” cantilevers. The beams support an 8” cast-in-place concrete deck. The superstructure is supported by two end bents founded on seven 18” prestressed piles.

As with the three-span alternative, the estimated comparative construction cost varies based on phased construction. The bridge cost, excluding walls, for roadway Alternatives A and B are $290,000 ($83.10 per square foot) and $232,000 ($66.48 per square foot), respectively. The costs, including walls, for the alignment alternatives A and B, are $734,000 and $388,000, respectively. The wall cost includes temporary walls which are required for phased construction and permanent walls which are required to limit right-of-way and wetlands encroachment.

7.4 Evaluation Matrix
Evaluation criteria for the bridge alternatives include cost, constructability, aesthetics and maintenance.

| PICCIOLA BRIDGE IMPROVEMENTS PROJECT COMPARATIVE EVALUATION OF BRIDGE ALTERNATIVES |
|-----------------------------------------------|--------|--------|--------|--------|--------|
| Alternative                  | Cost   | Constructability | Aesthetics | Maintenance | Score ( I.F. x Rating ) | Ranking |
| Importance Factor (I.F.) | 4.0    | 3.0           | 2.0         | 1.0         |                    |        |
| Alt. A - Flat Slab          | 5.7    | 6             | 8           | 8           | 64.8               | 4       |
| Alt. A - AASHTO Type III    | 5.3    | 8             | 9           | 10          | 73.2               | 3       |
| Alt. B - Flat Slab          | 10     | 8             | 8           | 8           | 88.0               | 2       |
| Alt. B - AASHTO Type III    | 10     | 10            | 9           | 10          | 98.0               | 1       |

7.4.1 Construction Cost
For total cost, a value of 10 is assigned to the least cost option. The cast-in-place flat slab and the AASHTO Type III alternative with Alignment B were approximately the same least cost. The rankings for the other alternatives are proportionally distributed based on the estimated probable costs of each of the options. A complete listing of costs is included in Appendix A.

7.4.2 Constructability
Construction of the flat slab alternative involves driving piling in the channel. The piles are placed in the exact design location using a template made of welded steel members that is driven into the channel
bottom. A crane, located on the embankment, would “reach” out over the water to drive the piling. The construction of the flat slab would also require falsework to support the deck reinforcing and concrete during placement. The falsework would likely be supported by the newly placed channel bents and would constrict the navigable envelope during construction of the bridge.

The construction of the AASHTO beam bridge will occur from the roadway approaches since no piles are driven in the channel. The beams are delivered and lifted into place over the channel directly from the delivery trailer on the bank. The forms for the deck are supported on the beams and will have no impact on the channel below.

Constructability for both alternatives would be adversely impacted if roadway Alternative A was selected. Phased construction must occur in a confined work area immediately adjacent to active traffic on Picciola Road. Material must be stored offsite and deliveries will be slowed. Periodic lanes closures would be required to deliver all precast elements. Both bridge types received proportionately lower ratings for Alternative A.

7.4.3 Aesthetics
Aesthetics is a very subjective criterion to rank with potential for large differences depending on individual preferences and opinions. The aesthetics of the flat slab and AASHTO beams options are comparable. Since, the AASHTO beam alternative will span the Dead River with no obstructions in waterway, it is given a higher rating.

7.4.4 Maintenance
The AASHTO Type III alternative received a 10 due to minimal future maintenance concerns. The flat slab alternative was rated lower due to the piles in the water. Although the water is considered “slightly aggressive”, concrete piling located in similar locations have experienced some level of deterioration due to environment. Additionally, the piles are an obstruction to boat traffic and could experience impact damage.

7.5 Bridge Type Recommendation
The evaluation matrix provides an overall ranking for the alternatives evaluated. A score of 100 is the maximum possible value. The Single-Span (AASHTO Type III Beam) option received the highest score and is the recommended alternative.
8.0 RETAINING WALLS

8.1 Wall Parameters
Retaining walls will be used on this project to minimize the encroachment of the roadway embankment into wetlands and to contain the typical section footprint within the limits of the existing right-of-way.

8.2 Wall Type Study
Two types of walls are considered feasible, conventional cast-in-place (CIP) walls, which can be a gravity type or cantilever, and proprietary walls. The required wall height and area, as well as the foundation soil conditions, determine what type of wall is best suited for this application.

Gravity walls are most cost effective for wall heights less than or equal to 5 feet. Otherwise, a conventional cantilever or proprietary wall should be used. Proprietary walls are traditionally more economical than cantilever walls for heights in excess of 5 feet and when the wall area exceeds 1000 square feet. Additionally, proprietary walls offer an aesthetic advantage, require less maintenance, are easier to construct than conventional walls and can accommodate some differential settlement of the foundation soil.

8.3 Wall Recommendations
The maximum height of the walls for this project exceeds 5 feet and the total area of wall exceeds 1000 square feet. Furthermore, differential settlement of the embankment along the west bridge approach is anticipated. Therefore, proprietary walls are recommended on this project. The aesthetic surface treatment will be selected during final design.
Public Information Meetings were held on June 15, 2004 at the Fruitland Park Casino, in Fruitland Park and November 4, 2004 at the Leesburg Community Center, in Leesburg. The meetings were advertised in the print media and by placing signage at the existing bridge. Each meeting was attended by over 150 citizens as well as Lake County and consultant staff. During the meetings, the alternatives presented in this report were presented to the public. The public was offered an opportunity to comment verbally or to document their comments on Public Comment Forms that were provided. We received comments from 78 area residents. Copies of the completed forms are included in Appendix F. In addition to the Public Information Meetings, a Public Hearing was held on December 7, 2004.

9.1 Summary of Public Comments
The comments from the public are summarized by whether Roadway Alternative A (phased construction) or Roadway Alternative B (build-in-place) is preferred. As shown in the following figures, 68% of the respondents preferred phased construction. The reason given most often was concern over a delay in emergency response time. Others cited concerns of safety and delay at the intersection of Eagles Nest and US 27/411, driving extra miles, shopping inconvenience, impact to local businesses and increase travel to work or school. Other comments unrelated to the alternative selection included seven residents who wanted the bridge built higher to provide additional underclearance, five who wanted pedestrian facilities and one who wanted lighting added to the bridge.

Figure 9-1
Alignment Alternative Preference

<table>
<thead>
<tr>
<th>Preference</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prefer Phased Construction</td>
<td>68%</td>
</tr>
<tr>
<td>Prefer Build-in-Place Alternative</td>
<td>12%</td>
</tr>
<tr>
<td>No Preference</td>
<td>20%</td>
</tr>
</tbody>
</table>
Figure 9-2
Reasons Citizens gave to Support Phased Construction

Reasons Citizens gave to Support Phased Construction
(Total of 78 Respondents)

Number of Respondents

- Delay in Emergency Services Response Time
- Safety/Delay at US27/441 Eagles Nest Intersection
- Driving Extra Miles
- Shopping Inconvenience
- Impact to Local Businesses
- Increase Travel Time to Work/School

(Total of 78 Respondents)
9.2 Petition
Subsequent to the first Public Information Meeting, a petition with 486 signatures was forwarded to the Lake County Department of Public Works, the Lake County Board of County Commissioners and HNTB Corporation. The petition statement is as follows:

“This petition represents the objections of the Lake County property owners listed below that will potentially be negatively impacted if both lanes of the “Picciola Bridge” are simultaneously closed. Local business within 100 ft of the bridge could face severe financial difficulties. One lane should remain open during construction allowing traffic to alternately flow both directions. Emergency vehicles (fire, ambulances) would be significantly delayed, possibly putting lives at risk. School busses would be adversely affected. The petitioners below request this document became a permanent part of the records with all governmental agencies involved as well as HNTB. Please refer to the map reflecting the specific location of the bridge.”

9.3 Public Hearing
A Public Hearing was held on December 7, 2004, during a regular meeting of the Lake County Board of County Commissioners. All of those who spoke at the hearing supported Roadway Alternative A (phased construction). Following the public comments, the Board of County Commissioners voted unanimously for Roadway Alternative A (phased construction).
In this report, issues associated with the segment of Picciola Road from Sable Palm to Lake Unity Road have been identified. Typical sections were developed for both the roadway and the bridge. Roadway, drainage and structural alternatives were evaluated with the goal of providing a functionally safe, low maintenance facility while minimizing disruption to the motoring public and impacts to the environment.

The recommendations are to construct Roadway Alternative A (Phased Construction) using exfiltration to treat the stormwater and a single-span AASHTO Type III Bridge to span the Dead River. It is estimated that this alternative can be constructed in 14 months at an estimated probable construction cost of $1,250,000.
APPENDIX A

ESTIMATED COMPARATIVE CONSTRUCTION COST
## Estimated Probable Construction Cost

### Alternative A

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Unit</th>
<th>Unit Cost</th>
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<tbody>
<tr>
<td>Control and Abatement of Erosion and Water Pollution</td>
<td>LF</td>
<td>$18.82</td>
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<tr>
<td>Closering and Grubbing</td>
<td>LF</td>
<td>$18.08</td>
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<td>Asphalt Concrete Type S-1 (Inc Bit) (2&quot;)</td>
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<td>Curb and Gutter (Type F)</td>
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<tr>
<td>Guardrail</td>
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<td>Guardrail Removal</td>
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<tr>
<td>Striping</td>
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<td>$9.00</td>
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</table>

Subtotal Linear Foot Cost = $141.11  

Cost per linear foot of roadway

### Alternative A (Phased Construction)

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
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<tbody>
<tr>
<td>Roadway</td>
<td>$200,376</td>
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<tr>
<td>Right of Way</td>
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<td>Drainage (Exfiltration)</td>
<td>$84,000</td>
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<tr>
<td>Wetland Impacts</td>
<td>$5,600</td>
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<tr>
<td>Fill</td>
<td>$96,600</td>
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<tr>
<td>Structures (AASHTO Type III)</td>
<td>$290,000</td>
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<tr>
<td>Walls (Temp. and Perm.)</td>
<td>$443,700</td>
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<tr>
<td>MOT</td>
<td>$101,000</td>
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</table>

Total Cost = $1,238,776

Temp pavement, barrier wall, plus 40% for misc. appurtenances.

Rounded Total Cost = $1,250,000
## Estimated Probable Construction Cost
### Alternative B

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Unit</th>
<th>Unit Cost</th>
</tr>
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<tbody>
<tr>
<td>Control and Abatement of Erosion and Water Pollution</td>
<td>LF</td>
<td>$18.82</td>
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<tr>
<td>Clearing and Grubbling</td>
<td>LF</td>
<td>$16.08</td>
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<tr>
<td>Type B Stabilization (min LBR 40) (12&quot;)</td>
<td>LF</td>
<td>$6.86</td>
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<td>Optional Base (10 in Lime Rock Base) (Min LBR 100)</td>
<td>LF</td>
<td>$27.71</td>
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<tr>
<td>Asphalt Concrete Type S-1 (Inc Bit) (2&quot;)</td>
<td>LF</td>
<td>$15.00</td>
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<tr>
<td>Curb and Gutter (Type F)</td>
<td>LF</td>
<td>$19.44</td>
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<tr>
<td>Guardrail</td>
<td>LF</td>
<td>$23.60</td>
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<tr>
<td>Guardrail Removal</td>
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<tr>
<td>Striping</td>
<td>LF</td>
<td>$9.00</td>
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Subtotal Linear Foot Cost = $141.11 Cost per linear foot of roadway

### Alternative B (Build in Place)

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<tr>
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<tr>
<td>Roadway</td>
<td>$200,376</td>
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<tr>
<td>Right of Way</td>
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<tr>
<td>Drainage (Exfiltration)</td>
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<td>Wetland Impacts</td>
<td>$10,400</td>
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<td>Fill</td>
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<td>Structures (AASHTO Type III)</td>
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<tr>
<td>Walls (Temp. and Perm.)</td>
<td>$156,000</td>
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<tr>
<td>MOT</td>
<td>$2,000</td>
</tr>
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</table>

Total Cost = $774,976

Rounded Total Cost = $775,000
## Estimated Comparative Construction Cost

**Picciola Bridge Improvements**  
**Drainage Alternatives**

### Alternative A

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<tr>
<th>Description</th>
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<tbody>
<tr>
<td>Total Cost</td>
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<tr>
<td>Exfiltration Trench</td>
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<td>Roadside Swales</td>
<td>$17,500</td>
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<td>ROW</td>
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<td>Total</td>
<td>$70,300</td>
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<td>Pond</td>
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### Alternative B

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<td>Total Cost</td>
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<tr>
<td>Exfiltration Trench</td>
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<td>$29,000</td>
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<td>ROW</td>
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<td>Total</td>
<td>$82,400</td>
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<td>Pond</td>
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### Phase 1 - Estimated Comparative Construction Cost

**Piccola Bridge Improvements**

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Unit</th>
<th>Alt A CIP Flat Slab on Pile Bents</th>
<th>Alt A AASHTO Type III Beams (Simple Span)</th>
<th>Alt B CIP Flat Slab on Pile Bents</th>
<th>Alt B AASHTO Type III Beams (Simple Span)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superstructure</td>
<td></td>
<td>Quantity</td>
<td>Cost</td>
<td>Quantity</td>
<td>Cost</td>
</tr>
<tr>
<td>Concrete</td>
<td>CY</td>
<td>$425.06</td>
<td>103.9</td>
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<td>Precast Slab</td>
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<td>95.7</td>
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<td>AASHTO Type III Beam</td>
<td>LF</td>
<td>$89.00</td>
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<tr>
<td>AASHTO Type IV Beam</td>
<td>LF</td>
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<td>Florida Bulb-T 72 Beam</td>
<td>LF</td>
<td>$120.00</td>
<td>$0.00</td>
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<tr>
<td>Florida U 48 Beam</td>
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<td>Overall Cost</td>
<td>CF</td>
<td>$506.00</td>
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**Substructure**

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<tr>
<th>Item Description</th>
<th>Unit</th>
<th>Quantity</th>
<th>Cost</th>
<th>Quantity</th>
<th>Cost</th>
<th>Quantity</th>
<th>Cost</th>
<th>Quantity</th>
<th>Cost</th>
<th>Quantity</th>
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<tbody>
<tr>
<td>Prestressed Concrete Piers (18&quot;)</td>
<td>LF</td>
<td>$36.00</td>
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<td>Prestressed Concrete Piers (24&quot;)</td>
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<td>Prestressed Concrete Piers (20&quot;)</td>
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<tr>
<td>12&quot; Pipe Piers -  Closed End</td>
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<tr>
<td>Prestressed Concrete</td>
<td>CY</td>
<td>$125.00</td>
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<td>Prestressed Reinforcing</td>
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<tr>
<td>Prestressed Reinforcing</td>
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<tr>
<td>Prestressed Prestressed</td>
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<td>Post-Tensioning Steel (strands)</td>
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**Miscellaneous**

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Unit</th>
<th>Quantity</th>
<th>Cost</th>
<th>Quantity</th>
<th>Cost</th>
<th>Quantity</th>
<th>Cost</th>
<th>Quantity</th>
<th>Cost</th>
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<td>Temporary Water</td>
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<td>$443,700.00</td>
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<td>$117,200.00</td>
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<td>$117,200.00</td>
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<td>Contingency (5%)</td>
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<td>Passsed Construction (20%)</td>
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</tbody>
</table>

**Total Estimated Comparative Construction Cost**

- **Total Estimated Comparative Construction Cost - Bridge Only**
  - $337,000.00
  - $230,000.00
  - $270,000.00
  - $212,000.00

**Total Estimated Comparative Construction Unit Cost - Bridge Only**

- $96,578.76
- $83,108.76
- $77,578.76
- $66,458.76

*Unit Costs Based on SDG BDR Est. Guide*
APPENDIX B

PRELIMINARY ROADWAY PLANS
APPENDIX C

PRELIMINARY DRAINAGE PLANS
TYPICAL SECTION
PICCIOLA ROAD

STA. XX+XX.XX TO STA. XX+XX.XX

TRAFFIC DATA
CURRENT YEAR ESTIMATE = 2003 AADT = XX
OPENING YEAR ESTIMATE = 2005 AADT = XX
DESIGN YEAR ESTIMATE = 2025 AADT = XX
K = X X, D = X X, T = X X (24 HOUR)
DESIGN SPEED = 35-50 MPH

NEW CONSTRUCTION
OPTIONAL BASE GROUP XX WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC X XXX (lbs/yr))
AND FRICTION COURSE FC-B XXX (lbs/271 RUBBER)

1/2 OR TO SUIT PROPERTY OWNER,
NOT FLATTER THAN 1/8
TYPICAL SECTION
PICCIOLA ROAD
STA. XX+XX.XX TO STA. XX+XX.XX

NEW CONSTRUCTION
OPTIONAL BASE GROUP XX WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC X) (XX LBS/SD)
AND FRICTION COURSE PC-5 (XX LBS/SD) (RUBBER)

TRAFFIC DATA
CURRENT YEAR ESTIMATE = 2003 AADT = XX
OPENING YEAR ESTIMATE = 2005 AADT = XX
DESIGN YEAR ESTIMATE = 2025 AADT = XX
K = X X D = X T = X X (24 HOUR)
DESIGN HOURS T = X X
DESIGN SPEED = 40 MPH
APPENDIX D

PRELIMINARY BRIDGE PLANS
**PHASE I**
- Maintain Traffic on the Existing Structure
- Partially Construct Proposed Structure

**PHASE II**
- Shift Traffic onto Partially Constructed New Bridge
- Remove Existing Bridge

**PHASE III**
- Complete Construction of New Bridge

**PHASE IV**
- Shift Traffic to Final Location
APPENDIX E

CALCULATIONS
Picciola Bridge Improvements

Quantity & Cost Calculations for
Bridge Alternatives and Walls
| Item Description | Unit | Alternate A CIP Flat Slab | | | Alternate A AASHTO Type III Beam | | | Alternate B CIP Flat Slab | | | Alternate B AASHTO Type III Beam | | |
|------------------|------|----------------------------|---|---|-------------------------------|---|---|-------------------------------|---|---|
| Superstructure |      |                            |   |   |                               |   |   |                               |   |   |
| Superstructure Reinforced Concrete | CY | $425.00 | 123.9 | $92,290.87 | 90.1 | $42,113.90 | 123.9 | $82,366.87 | 90.1 | $42,113.98 |
| Asphalt Slab Concrete | CY | $375.00 | 95.7 | $26,328.70 | 95.7 | $56,328.70 | 95.7 | $26,328.70 | 95.7 | $56,328.70 |
| AASHTO Type II Beam | LF | $90.00 | $0.63 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 |
| AASHTO Type III Beam | LF | $86.00 | $2.05 | $466.0 | $41,765.0 | $0.00 | $0.00 | $0.00 | $0.00 | $41,765.0 |
| AASHTO Type IV Beam | LF | $100.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 |
| AASHTO Type V Beam | LF | $120.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 |
| AASHTO Type VI Beam | LF | $130.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 |
| Florida Bridge 72 Beam | LF | $120.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 |
| Florida Bridge 78 Beam | LF | $135.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 |
| Florida U-48 Beam | LF | $200.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 |
| Florida U-64 Beam | LF | $235.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 |
| Florida U-72 Beam | LF | $400.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 |
| Structural Steel Plate Girders (Grade 50) | LB | $1.04 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 |
| Structural Steel Box Girders (Grade 50) | LB | $1.32 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 |
| Structural Steel (Grade 50) | LB | $3.90 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 |
| Reinforcing Steel (Super Slab) | LB | $9.45 | 397.44 | $18,762.41 | 20.34 | $3,740.34 | 32.70 | $18,725.34 | 20.34 | $3,722.34 |
| Reinforcing Steel (Appl. Slab) | LB | $0.65 | 18.63 | $9,987.52 | 18.63 | $9,987.52 | 18.63 | $9,987.52 | 18.63 | $9,987.52 |
| Trolley RailingBarrier | LF | $44.00 | 185 | $7,728.00 | 185 | $7,728.00 | 185 | $7,728.00 | 185 | $7,728.00 |
| Expansion Joint (Strip Seal) | LF | $165.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 |
| Bridge Floor Grouting | CY | $2.50 | 361 | $951.87 | 361 | $951.87 | 361 | $951.87 | 361 | $951.87 |
| Neoprene Pads | CY | $600.00 | 0.245 | $142.45 | 0.245 | $230.45 | 0.245 | $230.45 | 0.245 | $230.45 |
| TOTAL (Superstructure) | | $1,437,504.47 | | $136,512.32 | | $1,437,504.47 | | $136,512.32 | | $1,437,504.47 | | $136,512.32 |
| Substructure | | | | | | | | | | |
| Precast Concrete Piles (18") | LF | $33.00 | 1,258 | $43,970.00 | 934 | $35,451.60 | 1,298 | $40,270.00 | 934 | $35,484.00 |
| Precast Concrete Piles (24") | LF | $33.00 | 1,295 | $43,970.00 | 934 | $35,451.60 | 1,298 | $40,270.00 | 934 | $35,484.00 |
| 16" Pipe Piles - Closed End | LF | $33.00 | 1,258 | $43,970.00 | 934 | $35,451.60 | 1,298 | $40,270.00 | 934 | $35,484.00 |
| Substructure Concrete | CY | $425.00 | 68.8 | $28,368.10 | 44.0 | $16,711.66 | 65.8 | $25,388.10 | 44.0 | $16,711.66 |
| Substructure Reinforced Concrete | CY | $325.00 | 0.0 | $0.00 | 0.0 | $0.00 | 0.0 | $0.00 | 0.0 | $0.00 |
| Reinforcing Steel (Substructure) | LB | $2.50 | 361 | $951.87 | 361 | $951.87 | 361 | $951.87 | 361 | $951.87 |
| Post-Tensioning Steel (Grade) | LB | $2.50 | 361 | $951.87 | 361 | $951.87 | 361 | $951.87 | 361 | $951.87 |
| TOTAL (Substructure) | | $82,769.50 | | $33,230.17 | | $82,769.50 | | $33,230.17 | | $82,769.50 |
| Miscellaneous | | | | | | | | | | |
| Permanent & Temporary Walls | LS | $349,900.00 | | $443,700.00 | | $117,200.00 | | $155,700.00 |
| Mobilization (10%) | LS | $22,452.00 | | $18,944.36 | | $2,752.00 | | $18,944.36 |
| Contingency (10%) | LS | $22,452.00 | | $18,944.36 | | $2,752.00 | | $18,944.36 |
| Final Design Construction (30%) | LS | $67,884.69 | | $56,039.05 | | $6,325.64 | | $56,039.05 |
| TOTAL (Miscellaneous) | | $451,260.60 | | $540,437.11 | | $262,104.00 | | $540,437.11 |
| TOTAL ESTIMATED COMPARATIVE CONSTRUCTION COST | | $877,000.00 | | $734,000.00 | | $387,000.00 | | $288,000.00 |
| COST FACTOR FOR MATRIX | | 5.7 | | 5.7 | | 10.0 | | 10.0 |
| TOTAL ESTIMATED COMPARATIVE CONSTRUCTION COST + BRIDGE ONLY | | $337,000.00 | | $290,000.00 | | $270,000.00 | | $239,000.00 |
| TOTAL ESTIMATED COMPARATIVE CONSTRUCTION UNIT COST + BRIDGE ONLY | | $96.57 /SF | | $83.18 /SF | | $77.37 /SF | | $66.48 /SF |

* Unit Costs Based on SDG EDR Est. Guide
**Piccola Bridge Improvement Project**  
Piccola Road over the Dead River  
Estimated Quantities

### Alternate: AASHTO Type III Beams

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<tr>
<th>Pile Bent</th>
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<tbody>
<tr>
<td>18&quot; Square Prestressed Concrete Piles</td>
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</tbody>
</table>

### Span Arrangement:

| No. of Spans: | 3 |
| Span Length: | 81.0 ft |
| No. of Beams per Span: | 6 |
| Bridge Compliment of View: | 0,0000 degrees |

| Superstructure Type: | 4 |
| Pier Type: | 3 |
| Foundation Type: | 1 |

#### Superstructure Type:
1. Precast Slabs  
2. CIP Flat Slab  
3. AASHTO Type II Beams  
4. AASHTO Type III Beams  
5. AASHTO Type IV Beams  
6. AASHTO Type V Beams  
7. AASHTO Type VI Beams  
8. Florida Bulb-T 72 Beams  
9. Florida Bulb-T 76 Beams  
10. Florida U 48 Beams  
11. Florida U 54 Beam  
12. Florida U 72 Beam  
13. Steel Plate Girder  
14. Steel Box Girder

#### Pier Type:
1. Multi-Column Pier  
2. Aesthetically Enhanced Pier  
3. Pile Bent

#### Foundation Type:
1. 18" Square Prestressed Concrete Piles  
2. 24" Square Prestressed Concrete Piles

### Deck:

| Bridge Length: | 81.0 ft |
| Bridge Width: | 43.1 ft |
| Deck Thickness: | 8.6 in |
| Diaphragm, Haunch & Misc: | 15% |
| Deck Volume: | 2675.5 cf |
| Raised Median Width: | 0.0 ft |
| Raised Median Depth: | 0.0 in |
| Raised Median Volume: | 0.0 cf |

Total Volume Superstructure Concrete: 2675.5 cf  
99.1 cy

Rebar (Lbs per cy): 200 lbs/cy  
Reinforcing Steel (Superstr.) 20,314 lbs

### Barriers:

| No. of S/W Parapets: | 0 |
| No. of Trl. Rig. Barriers: | 2 |

S/W Parapet Length: 6.0 ft  
Traffic Railing Barrier Length: 162.0 ft
### Piccola Bridge Improvement Project
#### Piccola Road over the Dead River
#### Estimated Quantities

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AASHTO Type III Beams</td>
</tr>
<tr>
<td></td>
<td>Pile Bent</td>
</tr>
<tr>
<td></td>
<td>18” Square Prestressed Concrete Piles</td>
</tr>
</tbody>
</table>

**Floor Grooving:**
- Bridge Width: 43.1 ft
- Portions omitted from grooving:
<table>
<thead>
<tr>
<th>ITEM</th>
<th>No.</th>
<th>Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW Parapet</td>
<td>0</td>
<td>1.0 ft</td>
</tr>
<tr>
<td>Sidewalk</td>
<td>0</td>
<td>6.0 ft</td>
</tr>
<tr>
<td>Sidewalk</td>
<td>0</td>
<td>10.0 ft</td>
</tr>
<tr>
<td>Barrier</td>
<td>2</td>
<td>1.5 ft</td>
</tr>
<tr>
<td>Raised Median</td>
<td>0</td>
<td>17.0 ft</td>
</tr>
</tbody>
</table>
- Width to be grooved: 40.1 ft
- Bridge Floor Grooving: 3246.7 sq ft
- Expansion Joint Length: 360.7 sq yd

**Expansion Joint:**
- No. of Joints: 0
- Expansion Joint Length: ft
  - (Include in Cost for Strip Seal Only)

**Neoprene Bearing Pads:**
- Equivalent No. of Beams: 6 total
- No. of Pads: 2 (2 per beam)
<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Depth</th>
<th>Volume (each)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.0 in</td>
<td>18.0 in</td>
<td>3.000 in</td>
<td>0.31 cf</td>
</tr>
</tbody>
</table>
- Neoprene Pads: 0.63 cf

**Precast Flat Slabs:**
- No. of Panels: 0 per span
- Size of Panels: 0.0 ft X 0.0 in
- Length: 0 ft

**Approach Slabs:**
- No. per Bridge: 2
<table>
<thead>
<tr>
<th>Length</th>
<th>Thickness</th>
<th>Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 ft</td>
<td>12 in</td>
<td>43.0833 ft</td>
</tr>
</tbody>
</table>
- Total Volume Approach Slab Concrete: 2585 cf
- Reinforcing Steel (Appr. Slab): 18,669 lbs
## Piccola Bridge Improvement Project
### Piccola Road over the Dead River
#### Estimated Quantities

**Alternate:**
- AASHTO Type III Beams
- Pile Bent
- 18" Square Prestressed Concrete Piles

### Prestressed Beams:

<table>
<thead>
<tr>
<th>No. of Beams:</th>
<th>6 per span</th>
<th>AASHTO Type III Beams</th>
<th>486.0 ft</th>
</tr>
</thead>
</table>

### Structural Steel Girder:

<table>
<thead>
<tr>
<th>No. of Girders</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight of Girder</td>
<td>0 lbs/girder</td>
</tr>
<tr>
<td>Weight of Details</td>
<td>15% lbs/girder</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Structural Steel Girder (Grade 50):</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0 lbs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Structural Steel Girder (Grade 36):</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0 lbs</td>
</tr>
</tbody>
</table>

### End Bent:

<table>
<thead>
<tr>
<th>No. of End Bents</th>
<th>2</th>
</tr>
</thead>
</table>

### End Bent Cap:

<table>
<thead>
<tr>
<th>Footing Width:</th>
<th>0.0 ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Footing Depth:</td>
<td>0.0 ft</td>
</tr>
<tr>
<td>Cap Width:</td>
<td>5.0 ft</td>
</tr>
<tr>
<td>Average Cap Depth:</td>
<td>2.0 ft</td>
</tr>
<tr>
<td>Cap Length:</td>
<td>43.1 ft</td>
</tr>
<tr>
<td>Average Backwall Height:</td>
<td>3.5 ft</td>
</tr>
<tr>
<td>Backwall Width:</td>
<td>1.0 ft</td>
</tr>
<tr>
<td>Backwall Length:</td>
<td>43.1 ft</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area of Footing=</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Perimeter of Footing= V/S=</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Footing Concrete</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Footing Mass Concrete</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cap and Backwall Concrete</th>
</tr>
</thead>
<tbody>
<tr>
<td>540.337 cf -- ea End Bent Cap</td>
</tr>
</tbody>
</table>

### Left Wing:

<table>
<thead>
<tr>
<th>Footing Width:</th>
<th>0.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Footing Depth:</td>
<td>0.0</td>
</tr>
<tr>
<td>Cap Width:</td>
<td>0.0</td>
</tr>
<tr>
<td>Average Cap Depth:</td>
<td>0.0</td>
</tr>
<tr>
<td>Cap Length:</td>
<td>0.0</td>
</tr>
<tr>
<td>Wingwall Height:</td>
<td>0.0</td>
</tr>
<tr>
<td>Wingwall Width:</td>
<td>0.0</td>
</tr>
<tr>
<td>Wingwall Length:</td>
<td>0.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area of Footing=</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Perimeter of Footing= V/S=</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Footing Concrete</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Footing Mass Concrete</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cap and Wingwall Concrete</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.000 cf -- ea Left Wing</td>
</tr>
</tbody>
</table>

### Right Wing:

<table>
<thead>
<tr>
<th>Footing Width:</th>
<th>0.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Footing Depth:</td>
<td>0.0</td>
</tr>
<tr>
<td>Cap Width:</td>
<td>0.0</td>
</tr>
<tr>
<td>Average Cap Depth:</td>
<td>0.0</td>
</tr>
<tr>
<td>Cap Length:</td>
<td>0.0</td>
</tr>
<tr>
<td>Wingwall Height:</td>
<td>0.0</td>
</tr>
<tr>
<td>Wingwall Width:</td>
<td>0.0</td>
</tr>
<tr>
<td>Wingwall Length:</td>
<td>0.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area of Footing=</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Perimeter of Footing= V/S=</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Footing Concrete</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Footing Mass Concrete</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cap and Wingwall Concrete</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.000 cf -- ea Right Wing</td>
</tr>
</tbody>
</table>

### Pads Cheeks & Misc.

<table>
<thead>
<tr>
<th>Concrete+Mass Concrete Volume:</th>
</tr>
</thead>
<tbody>
<tr>
<td>554.37 cf -- ea End Bent</td>
</tr>
</tbody>
</table>

| 22.0 cy -- ea End Bent |

| 44.0 cy -- total All Bents |

### End Bent Rebar (Lbs per cy): 135 lbs/cy

<table>
<thead>
<tr>
<th>Weight:</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,972 lbs -- ea</td>
</tr>
<tr>
<td>5,944 lbs -- total all Bents</td>
</tr>
</tbody>
</table>
## Picciola Bridge Improvement Project

**Picciola Road over the Dead River**

### Estimated Quantities

<table>
<thead>
<tr>
<th>Alternate:</th>
<th>AASHTO Type III Beams</th>
<th>Pile Bent</th>
<th>18&quot; Square Prestressed Concrete Piles</th>
</tr>
</thead>
</table>

### Piers

- **No. of Piers:**
  - 0

- **Cap:**
  - **Cap Width:** 0.0 ft
  - **Cap Height:** 0.0 ft
  - **Cap Length:** 0.0 ft

- **Check for Mass Concrete:**
  - **Volume:**
  - **Surface Area:**
  - **V/S:**

- **Peds & Misc (add):** 15%

### Volume Increase for Non Standard Shapes:

- **Volume Concrete:** 0.00 cf - ea Pier
- **Volume Mass Concrete:** 0.00 cf - ea Pier

- **Pier Rebar (Lbs per cy):** 145 lbs/cy
  - **Weight:**
  - 0.00 cy - ea Pier
  - 0 Lbs - ea Pier
  - 0 lbs - total

### Total Substructure Concrete:

- **Total Volume Concrete:** 1158.74 cf
- **Total Volume Mass Concrete:** 0.00 cf
- **Total Volume Substructure Concrete:** 44.0 cy
- **Total Volume Substructure Mass Concrete:** 0.0 cy

### Total Substructure Reinforcing:

- **Total Weight Substructure Reinforcing:** 5,944 lbs
## Piccolo Bridge Improvement Project
### Piccolo Road over the Dead River
#### Estimated Quantities

<table>
<thead>
<tr>
<th>Alternate</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AASHTO Type III Beams</td>
<td></td>
</tr>
<tr>
<td>Pile Bent</td>
<td></td>
</tr>
<tr>
<td>18&quot; Square Prestressed Concrete Piles</td>
<td></td>
</tr>
</tbody>
</table>

### Piles:

#### End Bent:

<table>
<thead>
<tr>
<th>Piles:</th>
<th>7 No. 18&quot; Prestressed Concrete Piles per End Bent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approximate Cut-Off:</td>
<td>67 NAVD</td>
</tr>
<tr>
<td>Approximate Tip:</td>
<td>8 NAVD</td>
</tr>
<tr>
<td>Length:</td>
<td>58 18&quot; Prestressed Concrete Piles (each)</td>
</tr>
<tr>
<td>Tot Length:</td>
<td>812.0 ft, 18&quot; Prestressed Concrete Piles (Total All End Bents)</td>
</tr>
</tbody>
</table>

#### Pier:

<table>
<thead>
<tr>
<th>Piles:</th>
<th>0 No. of 18&quot; Prestressed Concrete Piles per Pier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approximate Cut-Off:</td>
<td>6 NAVD</td>
</tr>
<tr>
<td>Approximate Tip:</td>
<td>6 NAVD</td>
</tr>
<tr>
<td>Length:</td>
<td>0.0 ft, 18&quot; Prestressed Concrete Piles (each)</td>
</tr>
<tr>
<td>Tot Length:</td>
<td>0.0 ft, 18&quot; Prestressed Concrete Piles (Total All Int. Bents)</td>
</tr>
</tbody>
</table>

Additional For Preformed and Splices: 15%

18" Prestressed Concrete Piles (TOTAL): 933.8 ft
# Piccola Bridge Improvement Project
## Piccola Road over the Dead River
### Estimated Quantities

<table>
<thead>
<tr>
<th>Alternate</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CIP Flat Slab</td>
<td></td>
</tr>
<tr>
<td>Pile Bent</td>
<td></td>
</tr>
<tr>
<td>18&quot; Square Prestressed Concrete Piles</td>
<td></td>
</tr>
</tbody>
</table>

#### Span Arrangement:
- **No. of Spans:** 3
- **Span Length:** 27.0 ft
- **No. of Bms per Span:** 0
- **Bridge Compliment of Skew:** 0.0000 degrees

<table>
<thead>
<tr>
<th>Superstructure Type</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pier Type</td>
<td>3</td>
</tr>
<tr>
<td>Foundation Type</td>
<td>1</td>
</tr>
</tbody>
</table>

**Superstructure Type:**
1. Precast Slabs
2. CIP Flat Slab
3. AASHTO Type II Beams
4. AASHTO Type III Beams
5. AASHTO Type IV Beams
6. AASHTO Type V Beams
7. AASHTO Type VI Beams
8. Florida Bulb-T 72 Beams
9. Florida Bulb-T 78 Beams
10. Florida U 46 Beams
11. Florida U 54 Beam
12. Florida U 72 Beam
13. Steel Plate Girder
14. Steel Box Girder

**Pier Type:**
1. Multi-Column Pier
2. Aesthetically Enhanced Pier
3. Pile Bent

**Foundation Type:**
1. 18" Square Prestressed Concrete Piles
2. 24" Square Prestressed Concrete Piles

#### Deck:
- **Bridge Length:** 81.0 ft
- **Bridge Width:** 43.1 ft
- **Deck Thickness:** 18.0 in
- **Diaphragm, Haunch & Misc.:** 0%
- **Deck Volume:** 5234.6 cf
- **R Raised Median Width:** 0.0 ft
- **Raised Median Depth:** 0.0 in
- **Raised Median Volume:** 0.0 cf

**Total Volume Superstructure Concrete:** 5234.6 cf

| Rebar (Lbs per cy) | 205 lbs/cy | Reinforcing Steel (Superstr.) | 39,744 lbs |

**Barriers:**
- **No. of S/W Parapets:** 0
- **No. of Tfr. Rlg. Barriers:** 2
- **S/W Parapet Length:** 0.0 ft
- **Traffic Railing Barrier Length:** 162.0 ft
**Piccola Bridge Improvement Project**  
**Piccola Road over the Dead River**  
**Estimated Quantities**

### Alternate:
- **CIP Flat Slab**
- **Pile Bent**
- **18" Square Prestressed Concrete Piles**

#### Floor Grooving:
- **Bridge Width:** 43.1 ft
- **Portions omitted from grooving:**
  - **ITEM** | **No.** | **Width**
  - S/W Parapet: | 0 | 1.0 ft
  - Sidewalk: | 0 | 6.0 ft
  - Sidewalk: | 0 | 10.0 ft
  - Barrier: | 2 | 1.5 ft
  - Raised Median: | 0 | 17.0 ft
- **Width to be grooved:** 40.1 ft
- **Bridge Floor Grooving:** 3245.7 sf  
  - **360.7 sy**

#### Expansion Joint:
- **No. of Joints:** 0
- **Expansion Joint Length:** ft
  - (Include in Cost for Strip Seal Only)

#### Neoprene Bearing Pads:
- **No. of Beams:** 0 total
- **No. of Pads:** 2 (2 per beam)
- **Length:** 43.1 in
- **Width:** 10.0 in
- **Depth:** 0.500 in
- **Volume (each):** 0.12 cf
- **Neoprene Pads:** 0.25 cf

#### Precast Flat Slabs:
- **No. of Panels:** 0 per span
- **Size of Panels:** 0 ft X 0 in
- **Length:** 0 ft

#### Approach Slabs:
- **No. per Bridge:** 2
- **Length:** 30 ft
- **Thickness:** 12 in
- **Width:** 43.0833 ft
- **Total Volume Approach Slab Concrete:** 2585 cf  
  - **95,74074 cy**
- **Rebar (Lbs per cy):** 195 lbs/cy
- **Reinforcing Steel (Appr. Slab):** 18,669 lbs
### Prestressed Beams:

| No. of Beams: | 0 per span | Not a Beam Bridge | 0.0 ft |

### Structural Steel Girders:

| No of Girders | 0 |
| Weight of Girder | 0 lbs/girder |
| Weight of Details | 15% lbs/girder |

### End Bents:

| No. of End Bents: | 2 |

#### End Bent Cap:

| Footing Width: | 0.0 ft |
| Footing Depth: | 0.0 ft |
| Cap Width: | 3.0 ft |
| Average Cap Depth: | 3.0 ft |
| Cap Length: | 43.1 ft |
| Average Backwall Height: | 0.8 ft |
| Backwall Width: | 0.0 ft |
| Backwall Length: | 43.1 ft |

*Cap and Backwall Concrete: 414.677 cf -- ea End Bent Cap*

#### Left Wing:

| Footing Width: | 0.0 |
| Footing Depth: | 0.0 |
| Cap Width: | 0.0 |
| Average Cap Depth: | 0.0 |
| Cap Length: | 0.0 |
| Wingwall Height: | 0.0 |
| Wingwall Width: | 0.0 |
| Wingwall Length: | 0.0 |

*Cap and Wingwall Concrete: 0.000 cf -- ea Left Wing*

#### Right Wing:

| Footing Width: | 0.0 |
| Footing Depth: | 0.0 |
| Cap Width: | 0.0 |
| Average Cap Depth: | 0.0 |
| Cap Length: | 0.0 |
| Wingwall Height: | 0.0 |
| Wingwall Width: | 0.0 |
| Wingwall Length: | 0.0 |

*Cap and Wingwall Concrete: 0.000 cf -- ea Right Wing*

### Pads, Check & Misc.:

| 10% |

*Concrete + Mass Concrete Volume: 456.14 cf -- ea End Bent 16.9 cf -- ea End Bent 33.8 cf -- total All Bents*

### End Bent Rebar (Lbs per cy):

| 135 lbs/cy |

*Weight: 2,261 lbs -- ea 4,561 lbs -- total all Bents*
**Alternate:** CIP Flat Slab

**Pile Bent**

**18” Square Prestressed Concrete Piles**

<table>
<thead>
<tr>
<th>Piers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Piers</td>
<td>2</td>
</tr>
</tbody>
</table>

**Cap:**
- Cap Width: 3.0 ft
- Cap Height: 3.0 ft
- Cap Length: 43.08 ft

**Check for Mass Concrete:**
- Volume = 387.75
- Surface Area = 535.00
- V/S = 0.72 (Not Mass Concrete)

**Pads & Misc (add’l):** 15%

**Volume Increase for Non Standard Shape:**

- Volume Concrete: 445.91 cf – ea Pier
- Volume Mass Concrete: 0.00 cf – ea Pier

**Pier Rebar (Lbs per cy):** 145 lbs/cy
- Weight:
  - Total: 2,395 Lbs – ea Pier
  - Total: 4,780 lbs – total

**Total Substructure Concrete:**
- Total Volume Concrete: 1804.11 cf
- Total Volume Mass Concrete: 0.00 cf
- Total Volume Substructure Concrete: 66.8 cy
- Total Volume Substructure Mass Concrete: 0.0 cy

**Total Substructure Reinforcing:**
- Total Weight Substructure Reinforcing: 9,351 lbs
## Picciola Bridge Improvement Project
**Picciola Road over the Dead River**

### Estimated Quantities

<table>
<thead>
<tr>
<th>Alternate:</th>
<th>CIP Flat Slab</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pile Bent</td>
</tr>
<tr>
<td></td>
<td>18&quot; Square Prestressed Concrete Piles</td>
</tr>
</tbody>
</table>

### Piles:

#### End Bent:

<table>
<thead>
<tr>
<th>Piles:</th>
<th>5 No. 18&quot; Prestr. Concr. Piles per End Bent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approximate Cut-Off=</td>
<td>67 NAVD</td>
</tr>
<tr>
<td>Approximate Tip=</td>
<td>18 NAVD</td>
</tr>
<tr>
<td>Length:</td>
<td>49 18&quot; Prestr. Concr. Piles (each)</td>
</tr>
<tr>
<td>Tot Length:</td>
<td>490.0 ft, 18&quot; Prestr. Concr. Piles (Total All End Bents)</td>
</tr>
</tbody>
</table>

#### Pier:

<table>
<thead>
<tr>
<th>Piles:</th>
<th>5 No. of 18&quot; Prestr. Concr. Piles per Pier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approximate Cut-Off=</td>
<td>67 NAVD</td>
</tr>
<tr>
<td>Approximate Tip=</td>
<td>6 NAVD</td>
</tr>
<tr>
<td>Length:</td>
<td>61.0 ft, 18&quot; Prestr. Concr. Piles (each)</td>
</tr>
<tr>
<td>Tot Length:</td>
<td>610.0 ft, 18&quot; Prestr. Concr. Piles (Total All Int. Bents)</td>
</tr>
</tbody>
</table>

Additional For Prefabricated and Splices | 15% |

18" Prestr. Concr. Piles (TOTAL): 1285.0 ft
**Picciola Bridge Replacement**

**Phase 1 Study**

**Alternate A - Retaining Wall Quantities**

**AASHTO Type III Alternate**

<table>
<thead>
<tr>
<th>Retaining Wall Information</th>
<th>Free Height Scaled from Roadway Typical Sec.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$H_{AVS}$ $H_{AVS} + H_{Level Pad}$</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Station</th>
<th>Left $H$</th>
<th>Left $H_{AVS}$</th>
<th>$H_{AVS} + H_{Level Pad}$</th>
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**TOTALS:** 8112.38

Additional MSE Wall in Front of End Bent = 1375.00

Total MSE Wall = 9487.38

---

**Approx. Steel**

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**TOTALS:** 25361.21

Permanent Cantilever Wall (Steel) = 3666.00 SF

**Wall Quantity Summary:**

- Permanent MSE Wall = 6487/0F
- Temporary Cantilever Wall (Steel) = 25361 SF
- Permanent Cantilever Wall (Steel) = 3666 SF
## Piccola Bridge Replacement
### Phase 1 Study
#### Alternate A - Retaining Wall Quantities

**Flat Slab Alternate**

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<th>Retaining Wall Information</th>
<th>Free Height Scaled from Roadway Typical Sec.</th>
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<tr>
<td>$h_{adj}$</td>
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### Left Wall

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<tr>
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<th>MSE Wall Ht.</th>
<th>H</th>
<th>H AVG</th>
<th>H AVG = H AVG + H adj</th>
<th>H AVG + H level + H pad</th>
<th>Wall Length</th>
<th>Wall Area</th>
</tr>
</thead>
<tbody>
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<td>Left</td>
<td>ft</td>
<td>ft</td>
<td>ft</td>
<td>ft</td>
<td>ft</td>
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<td>ft</td>
<td>ft</td>
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<td>100.00</td>
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**TOTALS:** 6086.50

**Additional MSE Wall in Front of End Bent =** 1375.00

**Total MSE Wall =** 7441.50

### Approx. Steel Sheet Pile Wall

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<thead>
<tr>
<th>Station</th>
<th>Free Height</th>
<th>MSE Wall Ht.</th>
<th>H</th>
<th>H AVG</th>
<th>H AVG = H AVG + H adj</th>
<th>H AVG + H level + H pad</th>
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<th>Wall Area</th>
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<td>ft</td>
<td>ft</td>
<td>ft</td>
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</table>

**Total Temporary Steel Wall =** 15896.51 SF

**Permanent Cantilever Wall (Steel) =** 3666.00 SF

### Wall Quantity Summary
- **Permanent MSE Wall =** 7442 SF
- **Temporary Cantilever Wall (Steel) =** 15897 SF
- **Permanent Cantilever Wall (Steel) =** 3666 SF

---

Sheet: RW-ALT-A-FS
File: Phase 1 - Quantities and Cost - Final.xls
10/12/04 3:15 PM
Picciola Bridge Replacement  
Phase 1 Study  
Alternate B - Retaining Wall Quantities  
AASHTO Type III Alternate

Retaining Wall Information  
Free Height Scaled from Roadway Typical Sec.  
\( h_{\text{Level Pad}} = 2 \) ft

### Left Wall

<table>
<thead>
<tr>
<th>Station</th>
<th>Free Height</th>
<th>Approx.</th>
<th>MSE Wall Ht.</th>
<th>Wall Length</th>
<th>Wall Area</th>
</tr>
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<tbody>
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**TOTALES:** 5102.88  
Additional MSE Wall in Front of End Bent = 1406.00  
Total MSE Wall = 6508.88

### Wall Quantity Summary

- Permanent MSE Wall = 6509 SF  
- Temporary Cantilever Wall (Steel) = 0 SF  
- Permanent Cantilever Wall (Steel) = 300 SF
# Picciola Bridge Replacement
## Phase 1 Study
### Alternate B - Retaining Wall Quantities
#### AASHTO Type III Alternate

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<td>H AVG + h' level/h pad</td>
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<td>ft</td>
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**Additonal MSE Wall in Front of End Bent = 1406.00**

**Total MSE Wall = 4832.87**

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Sheet: RW-ALT-B-FS   File: Phase 1 - Quantities and Cost - Final.xls   10/12/04 3:15 PM
## Picciola Bridge Over the Dead River
### Retaining Wall Quantities and Costs

#### Alternate A

**AASHTO Type III Alternate**

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#### Flat Slab Alternate

<table>
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<th>Cost</th>
<th>Total</th>
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#### Alternate B

**AASHTO Type III Alternate**

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#### Flat Slab Alternate

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<th>Wall Type</th>
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<th>Cost</th>
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<tr>
<td>Permanent MSE Wall</td>
<td>SF</td>
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<td>Temporary Cantilever Wall</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>$117,200.00</strong></td>
</tr>
</tbody>
</table>
Piccola Bridge Improvements

Bridge Design Calculations
Picciola Bridge Improvements

C.I.P. Flat Slab Alternative
Slab Design
Slab Section Properties:

\[ f_y = 60 \text{ksi} \]
\[ f'_c = 4500 \text{psi} \]
\[ E_c = 0.9 \times 1820 \times \sqrt{f'_c} \text{ksi} \]
\[ E_c = 3475 \text{ksi} \]
\[ h_{\text{slab}} = 18\text{ in} \]

Bridge Width = 43.0833 ft (Use for Longitudinal Design)

Cover Top = 2 in  
Cover Bottom = 2 in

\[ E_S = 29,000 \text{kpsi} \]
\[ n = \frac{E_S}{E_c} \]
\[ n = 8.346 \]

Span Length = 27 ft

Number of Spans = 3

\[ Z = 170 \frac{\text{kip}}{\text{in}} \] (Slightly Aggressive Superstructure)

\[ \beta_1 = \begin{cases} 0.85 & \text{if } f'_c \leq 4 \text{ksi} \\ 0.85 - \left[ 0.05 \left( f'_c - 4 \text{ksi} \right) \right] & \text{if } 8 \text{ksi} > f'_c > 4 \text{ksi} \\ 0.65 & \text{if } f'_c \geq 8 \text{ksi} \end{cases} \]
\[ \beta_1 = 0.825 \]

\[ \phi = 0.9 \] (Phi factor - 0.9 for flexure AASHTO LRFD 5.5.4.2.1)

Traditional Minimum Depths for Constant Depth Superstructure (AASHTO LRFD 2.5.2.6.3)

\[ h_{\text{min}} = \begin{cases} \left( \frac{\text{Span Length}}{30} + 10 \right) \text{ft} & \text{if } h_{\text{slab}} \geq 0.54 \text{ ft} \\ \left( \frac{\text{Span Length}}{30} + 10 \right) \text{ft} & \text{if } 0.54 \text{ ft} \end{cases} \]

\[ h_{\text{min}} = 14.8 \text{ in} \]

check = if \( h_{\text{slab}} \geq h_{\text{min}}\) "OK", "Increase Slab Depth"

check = "OK"
Equivalent Strip Width for Slab-Type Bridges (AASHTO LRFD 4.6.2.3):

For More Than One Lane Loaded

\[ W := \text{Bridge Width} \quad W = 43.083 \text{ ft} \]

\[ W_1 := \begin{cases} W \quad \text{if} (W < 60\text{ft}, W, 60\text{-ft}) \quad W_1 = 43.083 \text{ ft} \\
3 
\end{cases} \]

\[ N_L := 3 \]

\[ L := \text{Span Length} \quad L = 27 \text{ ft} \]

\[ L_1 := \begin{cases} L \quad \text{if} (L < 60\text{ft}, L, 60\text{-ft}) \quad L_1 = 27 \text{ ft} \\
\end{cases} \]

\[ E := 84.0 \text{-in} + 1.44 \text{-in} \cdot \sqrt{\frac{(L_1 \cdot W_1)}{\text{ft}^2}} \quad E = 133.113 \text{ in} \]

\[ E := \begin{cases} \frac{W}{N_L} \quad \text{if} \frac{E}{N_L} \
E, 12.0 \cdot \frac{W}{N_L} \quad E = 133.113 \text{ in} \\
\end{cases} \]

\[ b := E \quad b = 133.113 \text{ in} \]

\( E \) is the equivalent strip of concrete that resists one lane of live-load

Slab:

\[ DL_{\text{Slab}} := b \cdot h_{\text{slab}} \left( \frac{1.50 \cdot \text{kip}}{\text{ft}^3} \right) \quad DL_{\text{Slab}} = 2.496 \text{ kip/ft} \]

Traffic Railing Barrier:

\[ DL_{\text{TRB}} := \begin{cases} \frac{(2) \cdot (0.421) \cdot \text{kip}}{\text{Bridge Width} \cdot \text{ft}} \end{cases} \cdot b \quad DL_{\text{TRB}} = 0.217 \text{ kip/ft} \]

Future Wearing Surface:

\[ DL_{\text{FWS}} := \begin{cases} \frac{(\text{Bridge Width} - 3.0833 \cdot \text{ft}) \cdot (0.015 \text{ kip/ft}^2)}{\text{Bridge Width} \cdot \text{ft}} \cdot b \end{cases} \quad DL_{\text{FWS}} = 0.154 \text{ kip/ft} \]

Dead Load of Structural Components:

\[ \omega_{\text{DC}} := DL_{\text{Slab}} + DL_{\text{TRB}} \]

\[ M_{\text{DC,Pos}} := 0.06 \cdot \omega_{\text{DC}} \cdot \text{Span Length}^2 \quad M_{\text{DC,Neg}} := 0.1 \omega_{\text{DC}} \cdot \text{Span Length}^2 \]

\[ M_{\text{DC,Pos}} = 158.203 \text{ ft} \cdot \text{kip} \quad M_{\text{DC,Neg}} = 197.753 \text{ ft} \cdot \text{kip} \]
Dead Load of Wearing Surfaces:

\[
\omega_{DW} := DL_{FWS}
\]

\[
M_{DW, Pos} := 0.08 \cdot \omega_{DW} \cdot \text{Span Length}^2
\]

\[
M_{DW, Pos} = 9.009 \, \text{ft.kip/ft}
\]

\[
M_{DW, Neg} := 0.1 \omega_{DW} \cdot \text{Span Length}^2
\]

\[
M_{DW, Neg} = 11.262 \, \text{ft.kip/ft}
\]

Live Load:

Truck Load (See AISC Table 3.0):

\[
M_{\text{Truck, Pos}} := 228.1 \, \text{ft.kip}
\]

\[
M_{\text{Truck, Neg}} := 184.4 \, \text{ft.kip}
\]

Lane Load (AASHTO LRFD 3.6.1.2.4):

\[
\omega_{\text{Lane}} := 640 \, \text{kips/ft}
\]

\[
M_{\text{Lane, Pos}} := 0.1013 \cdot \omega_{\text{Lane}} \cdot \text{Span Length}^2
\]

\[
M_{\text{Lane, Pos}} = 47.263 \, \text{ft.kip}
\]

\[
M_{\text{Lane, Neg}} := 0.1167 \cdot \omega_{\text{Lane}} \cdot \text{Span Length}^2
\]

\[
M_{\text{Lane, Neg}} = 54.448 \, \text{ft.kip}
\]

(AISC Beam Tables)

Combine Lane and Truck with Impact and Multiple Presence Factor (AASHTO LRFD Table 3.4.4.1):

(Assumes that maximum truck and lane loads occur at the same location along the span)

\[
M_{\text{LL, Pos}} := 1.33 \cdot M_{\text{Truck, Pos}} + M_{\text{Lane, Pos}}
\]

\[
M_{\text{LL, Pos}} = 350.636 \, \text{ft.kip}
\]

\[
M_{\text{LL, Neg}} := 1.33 \cdot M_{\text{Truck, Neg}} + M_{\text{Lane, Neg}}
\]

\[
M_{\text{LL, Neg}} = 299.7 \, \text{ft.kip}
\]

Factored Positive Moment:

\[
M_u, Pos := 1.25 \cdot M_{\text{DC, Pos}} + 1.5 \cdot M_{\text{DW, Pos}} + 1.75 \cdot M_{\text{LL, Pos}}
\]

\[
M_u, Pos = 824.88 \, \text{ft.kip}
\]

(Strength-I)

Factored Negative Moment:

\[
M_u, Neg := 1.25 \cdot M_{\text{DC, Neg}} + 1.5 \cdot M_{\text{DW, Neg}} + 1.75 \cdot M_{\text{LL, Neg}}
\]

\[
M_u, Neg = 788.559 \, \text{ft.kip}
\]

(Strength-I)
Service Load Positive Moment:

\[ M_{s,\text{Pos}} := M_{DC,\text{Pos}} + M_{DW,\text{Pos}} + M_{LL,\text{Pos}} \quad M_{s,\text{Pos}} = 517.848 \text{ ft-kip} \]  
(Service-I)

Service Load Negative Moment:

\[ M_{s,\text{Neg}} := M_{DC,\text{Neg}} + M_{DW,\text{Neg}} + M_{LL,\text{Neg}} \quad M_{s,\text{Neg}} = 508.715 \text{ ft-kip} \]  
(Service-I)

Design Positive Moment Reinforcing

\[ \text{Long}_{\text{Bottom}} := 8 \quad (\text{Trial Bar Size}) \]

\[ \text{Long}_{\text{Bottom,Spacing}} := 6 \text{-in} \quad (\text{Trial Bar Spacing}) \]

\[ A_{s,\text{Long,Bottom}} := \frac{\bar{a}_{\text{bar,Long,Bottom}}}{\text{Long}_{\text{Bottom,Spacing}}} \quad A_{s,\text{Long,Bottom}} = 1.58 \text{ in}^2/\text{ft} \]

\[ d_{\text{Bottom}} = h_{\text{slab}} - \text{Cover}_{\text{Bottom}} - 0.25 \bar{a}_{\text{bar,Long,Bottom}} \quad d_{\text{Bottom}} = 15.5 \text{ in} \]

\[ M_{n,\text{Pos}} := \frac{|M_{u,\text{Pos}}|}{\phi \cdot b} \quad M_{n,\text{Pos}} = 82.624 \text{ ft-kip/ft} \]

\[ M_{\text{Prov,Pos}} := A_{s,\text{Long,Bottom}} f_y \left( d_{\text{Bottom}} - \frac{A_{s,\text{Long,Bottom}} f_y}{2 \cdot 0.85 f_{c'}} \right) \quad M_{\text{Prov,Pos}} = 114.292 \text{ ft-kip/ft} \]

\[ \text{check} := \text{if}\left( M_{\text{Prov,Pos}} > M_{n,\text{Pos}}, "OK", "No Good!" \right) \quad \text{check} = "OK" \]

Check Maximum Reinforcement  
(AASHTO LRFD 5.7.3.3.1)

\[ a := \frac{A_{s,\text{Long,Bottom}} f_y}{0.85 f_{c'}} \quad a = 2.065 \text{ in} \quad c := \frac{a}{\beta_1} \quad c = 2.503 \text{ in} \quad \frac{c}{d_{\text{Bottom}}} = 0.162 \]

\[ \text{check} := \text{if}\left( \frac{c}{d_{\text{Bottom}}} \leq 0.42, "OK", "Max reinforcement exceeded" \right) \quad \text{check} = "OK" \]
Check Minimum Reinforcement \hspace{1cm} (AASHTO LRFD 5.7.3.3.2)

\[ f_t := 0.24 \sqrt{f_c \cdot ksi} \hspace{1cm} f_t = 0.509 ksi \]

\[ l_g := \frac{1}{12} h_{slab} \cdot 3 \hspace{1cm} l_g = 5.832 \times 10^{-3} \text{ in}^3 / \text{ft} \]

\[ y_t := \frac{h_{slab}}{2} \hspace{1cm} y_t = 9 \text{ in} \]

\[ M_{cr} := f_t \cdot \frac{l_g}{y_t} \hspace{1cm} M_{cr} = 27.492 \text{ kip-ft / ft} \]

check := \text{if} \left( (M_{\text{prov.Pos}} > 1.2 \cdot M_{cr}) \lor (M_{\text{prov.Pos}} > 1.33 \cdot M_{n,Pos}) \right) \text{"OK", "Need more steel"} \hspace{1cm} \text{check = "OK"}

Check Crack Control \hspace{1cm} (AASHTO LRFD 5.3.4)

\[ d_c := \text{if} \left( \text{Cover}_{\text{Bottom}} \leq 2\text{ in}, \text{Cover}_{\text{Bottom}} + \frac{\text{d}_{\text{bar}, \text{LongBottom}}}{2}, 2\text{ in} + \frac{\text{d}_{\text{bar}, \text{LongBottom}}}{2} \right) \hspace{1cm} d_c = 2.5 \text{ in} \]

\[ A := \frac{2 \cdot d_c \cdot b}{\text{LongBottom.Spacing}} \hspace{1cm} A = 30 \text{ in}^2 \]

\[ f_{sa, allow} := \frac{Z}{(d_c \cdot A)^3} \hspace{1cm} f_{sa, allow} = 40.311 \text{ ksi} \]

\[ f_{sa, allow} := \text{if} \left( f_{sa, allow} \leq 0.6f_y, f_{sa, allow}, 0.6f_y \right) \hspace{1cm} f_{sa, allow} = 36 \text{ ksi} \]

\[ \rho := \frac{A_{s, \text{LongBottom}}}{d_{\text{Bottom}}} \hspace{1cm} \rho = 0.00849 \]

\[ k := \sqrt{2 \cdot \rho \cdot n + (\rho \cdot n)^2} - \rho \cdot n \hspace{1cm} k = 0.312 \]

\[ j := 1 - \frac{k}{3} \hspace{1cm} j = 0.896 \]

\[ f_{s, actual} := \frac{|M_{s, Pos}|}{A_{s, \text{LongBottom}} \cdot j \cdot d_{\text{Bottom}} \cdot b} \hspace{1cm} f_{s, actual} = 25.532 \text{ ksi} \]

check := \text{if} \left( f_{s, actual} < f_{sa, allow}, \text{"OK", "No Good"} \right) \hspace{1cm} \text{check = "OK"}
Design Negative Moment Reinforcing

\[ \text{Long}_{\text{Top}} := 8 \]  
(Trial Bar Size)

\[ \text{Long}_{\text{Top}} \text{Spacing} := 6 \text{-in} \]  
(Trial Bar Spacing)

\[ A_s_{\text{Long,Top}} = \frac{\text{ab} \cdot \text{Long}_{\text{Top}}}{\text{Long}_{\text{Top}} \text{Spacing}} \quad A_s_{\text{Long,Top}} = 1.58 \text{in}^2 \text{/ft} \]

\[ d_{\text{Top}} := h_{\text{slab}} - \text{Cover}_{\text{Top}} - 0.5 \cdot \text{dbar}_{\text{Long,Top}} \quad d_{\text{Top}} = 15.5 \text{in} \]

\[ M_{\text{n,Neg}} := \frac{|M_{u,Neg}|}{b} \quad M_{u,Neg} = 78,986 \text{ ft-kip} \]

\[ M_{\text{Prov,Neg}} := A_s_{\text{Long,Top}} \cdot f_y \left( d_{\text{Top}} - \frac{A_s_{\text{Long,Top}} f_y}{2 \cdot 0.85 f_c} \right) \quad M_{\text{Prov,Neg}} = 114,292 \text{ ft-kip} \]

\[ \text{check} := \text{if} \left( M_{\text{Prov,Neg}} > M_{\text{n,Neg}} \text{ "OK", "No Good!"} \right) \quad \text{check} = "\text{OK}" \]

Check Maximum Reinforcement  
(AASHTO LRFD 5.7.3.3.1)

\[ a := \frac{A_s_{\text{Long,Top}} f_y}{0.85 f_c} \quad a = 2.065 \text{ in} \]
\[ c := \frac{a}{\beta_1} \quad c = 2.503 \text{ in} \]
\[ \frac{c}{d_{\text{Top}}} = 0.162 \]

\[ \text{check} := \text{if} \left( \frac{c}{d_{\text{Top}}} \leq 0.42, \text{ "OK", "Max reinforcement exceeded"} \right) \quad \text{check} = "\text{OK}" \]

Check Minimum Reinforcement  
(AASHTO LRFD 5.7.3.3.2)

\[ f_r := 0.24 \cdot \sqrt{f_c} \text{ ksi} \quad f_r = 0.509 \text{ ksi} \]

\[ I_g := \frac{1}{12} h_{\text{slab}}^3 \quad I_g = 5.832 \times 10^3 \text{ in}^4 \text{ /ft} \]
\[ \gamma_i := \frac{h_{\text{slab}}}{2} \quad \gamma_i = 9 \text{ in} \]
\[
M_{cr} := f_t \cdot \frac{z}{y_t} \quad M_{cr} = 27.492 \, \text{kip-ft}
\]

check := if \left[ M_{Prov.Neg} > 1.2 \cdot M_{cr} \lor \left( M_{Prov.Neg} \right) > 1.33 \left| M_{n.Neg} \right| \cdot b \right] \text{ "OK", "Need more steel"}

Check Crack Control (AASHTO LRFD 5.7.3.4)

\[
d_c := \frac{\text{Cover}_{Top} \leq 2 \, \text{in}, \text{Cover}_{Top} + \frac{\text{d}_{\text{bar,Long}_{Top}}}{2}, 2 \frac{\text{in} + \frac{\text{d}_{\text{bar,Long}_{Top}}}{2}}{2}}
\]

\[d_c = 2.5 \, \text{in}\]

\[A := \frac{2 \cdot d_c \cdot b}{(\text{Long}_{Top, \text{Spacing}})} \quad A = 30 \, \text{in}^2\]

\[f_{sa, \text{allow}} := \frac{Z}{\left(d_c \cdot A \right)^3} \quad f_{sa, \text{allow}} = 40.311 \, \text{ksi}\]

\[f_{sa, \text{allow}} := \begin{cases} f_{sa, \text{allow}} & \text{if} \left( f_{sa, \text{allow}} \leq 0.6 f_y \right) f_{sa, \text{allow}, 0.6 f_y} \\ & f_{sa, \text{allow}} = 36 \, \text{ksi} \end{cases}\]

\[
p := \frac{A_{s, \text{Long}_{Top}}}{d_{\text{Top}}} \quad p = 0.00849\]

\[k := \sqrt{2 \cdot p \cdot n + (p \cdot n)^2} - p \cdot n \quad k = 0.312\]

\[j := 1 - \frac{k}{3}\]

\[f_{s, \text{actual}} := \frac{M_{s, \text{Neg}}}{A_{s, \text{Long}_{Top}} \cdot d_{\text{Top}} \cdot b} \quad f_{s, \text{actual}} = 25.082 \, \text{ksi}\]

check := if \left( f_{s, \text{actual}} < f_{sa, \text{allow}} \right) \text{ "OK", "No Good!"}

Check Deflection (AASHTO 2.5.2.6.2)

Load Lanes Gutter to Gutter Use Service I w/Impact (IM) and Multiple Presence Factor:
(Conservatively assume 3 axles at midspan of a simple span model)

Gutter_to_Gutter_Width := 40 \, \text{ft}\]

\[\text{No}_\text{Lanes} := \text{floor} \left( \frac{\text{Gutter_to_Gutter_Width}}{12 \, \text{ft}} \right) \quad \text{No}_\text{Lanes} = 3\]

\[\text{MPF}_{\text{No}_\text{Lanes}} = 0.85 \quad \text{(Multiple Presence Factor)}\]

\[\text{Truck_Load} := (32 + 32 + 16) \, \text{kips}\]

\[P := 1.33 \left( \frac{\text{Truck_Load}}{\text{MPF}_{\text{No}_\text{Lanes}}} \right) \left( \text{No}_\text{Lanes} \right) \quad P = 271.32 \, \text{kips}\]
\[ I_g = \left( \frac{1}{12} \right) \text{Bridge Width} \cdot h_{\text{slab}}^3 \]
\[ I_g = 2.513 \times 10^5 \text{ in}^4 \]

\[ \Delta_{\text{max}} = \frac{P \cdot \text{Span Length}^3}{48 \cdot E_c \cdot I_g} \]
\[ \Delta_{\text{max}} = 0.22 \text{ in} \]

\[ \Delta_{\text{Allowable}} = \frac{\text{Span Length}}{800} \]
\[ \Delta_{\text{Allowable}} = 0.405 \text{ in} \]

\[ \text{check} := \text{if} \left( \Delta_{\text{Allowable}} \geq \Delta_{\text{max}}, \text{"OK"}, \text{"No Good!"} \right) \]
\[ \text{check} = \text{"OK"} \]

**Reinforcement Summary:**

**Top Longitudinal Reinforcing:**

\[ L_{\text{longTop}} = 8 \text{ (Bar Size)} \]
\[ L_{\text{longTop.Spacing}} = 6 \text{ in (Bar Spacing)} \]

**Bottom Longitudinal Reinforcing:**

\[ L_{\text{longBottom}} = 8 \text{ (Bar Size)} \]
\[ L_{\text{longBottom.Spacing}} = 0.5 \text{ ft (Bar Spacing)} \]
Picciola Bridge Improvements

C.I.P. Flat Slab Alternative
Int. and End Bent Design
### Piccola Bridge Replacement
### Determination of Maximum Pile Reactions for End Bent Design

#### Pile Information

<table>
<thead>
<tr>
<th>Pile No.</th>
<th>Dist. from</th>
<th>Pile 1</th>
<th>Pile 2</th>
<th>Pile 3</th>
<th>Pile 4</th>
<th>Pile 5</th>
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<tbody>
<tr>
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<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
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<td>10</td>
<td>10</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>40</td>
</tr>
<tr>
<td>3</td>
<td>20</td>
<td>20</td>
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<td>50</td>
<td>60</td>
</tr>
<tr>
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<td>80</td>
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<tr>
<td>5</td>
<td>40</td>
<td>50</td>
<td>60</td>
<td>70</td>
<td>80</td>
<td>90</td>
</tr>
</tbody>
</table>

#### Pile Group Properties

- **Pile Group** = 60 ft
- **I = 25 ft²**
- **n = 5**

**Reaction Due to One Design Truck & Lane Load on Two Spans**

- **P** = 84.0 kips
- **M** = 1260.0 kN-ft

#### LL Case A

<table>
<thead>
<tr>
<th>Pile</th>
<th>DC</th>
<th>c</th>
<th>LL+M+PL</th>
<th>Pile</th>
<th>DC</th>
<th>c</th>
<th>LL+M+PL</th>
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</thead>
<tbody>
<tr>
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<td>-20.00</td>
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<td>2</td>
<td>98</td>
<td>-10.00</td>
<td>75.10</td>
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<td>59</td>
<td>0.00</td>
<td>103.15</td>
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<tr>
<td>4</td>
<td>60.1</td>
<td>10.00</td>
<td>129.68</td>
<td>5</td>
<td>57.6</td>
<td>20.00</td>
<td>145.50</td>
</tr>
</tbody>
</table>

#### LL Case B

- **P** = 140.0 kips
- **M** = 1260.0 kN-ft

#### LL Case C

- **P** = 178.5 kips
- **M** = 335.5 kN-ft

#### Overall Max Pile Reaction

<table>
<thead>
<tr>
<th>Pile</th>
<th>DC</th>
<th>c</th>
<th>LL+M+PL</th>
</tr>
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<tbody>
<tr>
<td>1</td>
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<td>4</td>
<td>60.1</td>
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<tr>
<td>5</td>
<td>57.6</td>
<td>20.00</td>
<td>153.22</td>
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</table>

Overall Max Pile Reaction

- **P** = 165.10 kips
- **\( c = 0.65 \)**
- **Downdrag** = 0 kips
- **UBC** = 254 kips
- **UBC** = 127 Tons
# Piccola Bridge Replacement

## Determination of Maximum Pile Reactions for Intermediate Bent Design

### Pile Information

<table>
<thead>
<tr>
<th>Pile No.</th>
<th>Dist. From Piles</th>
<th>Dist. From Pile 1</th>
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<th>DC</th>
<th>Pile Group Properties</th>
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<td>ft</td>
<td></td>
<td>kips</td>
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<td>2</td>
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<td>-10</td>
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<tr>
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<td>10</td>
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<td>88</td>
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### LL Cases

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<th>No. of Trx Lanes</th>
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<th>eLL+M+PL</th>
<th>MLL+M+PL</th>
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<th>RLL+M+PL</th>
<th>MLL+M+PL</th>
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<td>ft</td>
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### Overall Max Pile Reaction

\[ P_{\text{Max}} = 248.15 \text{ kips} \]

\[ \delta = 0.66 \]

\[ \text{Downdrag} = 0 \]

\[ \text{UBC} = 382 \text{ kips} \]

\[ \text{UBC} = 191 \text{ Tons} \]
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71. Average 72
72. Average 73
73. Average 74
74. Average 75
75. Average 76
PRELIMINARY-Pictola 88-Flat-Slab Alt-89ft Bridge.mn

76 AVERAGE 76 77
77 AVERAGE 77 78
78 AVERAGE 78 79
79 AVERAGE 79 80
80 AVERAGE 80 81
81 AVERAGE 81 82
82 AVERAGE 82 83
83 AVERAGE 83 84
84 AVERAGE 84 85
85 AVERAGE 85 86
86 AVERAGE 86 87
87 AVERAGE 87 88
88 AVERAGE 88 89

ALL MATE 1

SUPPORT JOINTS 5 EX
SUPPORT JOINTS 25 45 65 85

TYPE SUPPORT
NUMBER OCCURRENCE
1005 5
1025 25
1045 45
1065 65
1085 85

SECTION PROPERTIES
# Springs are used to simulate rigid cap behavior
σk = A2/E = (12.26*12)*/(77723842)*/(5062) = 20000 kips/ft

ASSUMED STIFFNESS MATRIX

LOADING 1 DCL
DEAD LOADING
ALL FT -3.0

MEMBER LOAD
SLAB WEIGHT 0.4*0.15kcf*1.35ft*12.67ft*0.68kips/ft
1 TO 88 FT UNIF LOAD W -3.47

STU BARREIRS 0.4*2*.418ft/ft*12.67ft*0.68kips
JOINT LOADS
1 90 FT 0.92

MEMBER LOAD
88 FT APPROACH SLAB 51t*1.125ft*0.15kcf*0.84kips/ft
4 TO 85 FT UNIF LOAD W -0.844

LOADING 2 ON
MEMBER LOAD
5062-0.4*0.0388*12.67ft*0.176kips/ft
4 TO 85 FT UNIF LOAD W -0.176

SOLVE

OUTPUT
FINISH
## Preliminary Piccola EB-Flat-Slab Alt-864 Bridge.out

### RESULTS OF LATEST ANALYSIS

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Preliminary Piccola EB-Flat-Slab Alt-864 Bridge.out

Page 1
Preliminary-Piccola Bridge Flat Slab Alt.

FILE: Preliminary-Piccola-18-Flat-Slab Alt.in
Made by: GMB 03-25-04
Checked by:
Handchecked by:

UNITS FEET KIPS DEG FAHRENHEIT
GENERATE NODES
1 0.0 0.0 0.0 REPEAT 55 INCR 1 0.5 0.0 0.0

TYPE PLANE FRAME

NAMES INCIDENCES
1 2 REPEAT 88 INCR 1 1 1

UNITS INCHES

MATERIAL PROPERTIES
1 E=294.1 $v=0.3$ E=2920*G0(5.5)=3892ksi
1 DENS 8.698

UNITS FEET KIPS DEG FAHRENHEIT

SECTION PROPERTIES
TABL 1 RECT WIDT 1.0 DEPTH 0.005

MEMBER PROPERTIES

ALL TABLE 1

ALL HATE 1

SUPPORT JOINTS 2 6X
SUPPORT JOINTS 25 45 65 85

TYPE SUPPORT

MEMBER INCIDENCE
1095 8
1025 25
1045 45
1065 65
1085 85

SECTORS PROPERTIES
Springs are used to simulate rigid cap behavior.

\[ k = k_{eff} \cdot \left( \frac{W_{eff}}{k_{eff}} \right) \]

TABLE 1000 KY 25000 0.00

MEMBER PROPERTIES

1000 TO 2000 BY 20 TABLE 1000

ASSEMBLE STIFFNESS MATRIX

LOADING 1 ON
DEAD LOADING
ALL FY -1.0

MEMBER LOAD
$\text{SLAB WEIGHT} = 3.1 + 0.15 \text{kfs} / \text{ft} \times 1.0 \text{ft} = 3.075 \text{ kips/ft}$
1 TO 87 FY UNIF OLCB W -7.24

$\text{WIND LOAD} = 1.1 \times 0.418 \text{kips/ft} \times 29.67 \text{ ft} = 12.7 \text{kips}$
JOIN LOADS
2 87 FY -27.28

LOADING 2 ON
MEMBER LOAD
$\text{S90-1.1} + 0.35\text{ kfs} / \text{ft} \times 19.67 \text{ ft} = 0.49 \text{kips/ft}$
4 TO 85 FY UNIF OLCB W -0.49

SOLVE
OUTPUT
FINISH
### Preliminary-Piccola-In-Flat-Slab Alt-Slitt Bridge-alt.cut

**RESULTS OF LAST ANALYSIS**

#### LOAD NO. 1

**BC STRUCTURE 1**

**SUPPORT REACTIONS - GLOBAL COORDINATE SYSTEM**

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**INPUT FILE:** preliminary-piccola-in-flat-slab

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**LOAD NO. 2**

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**SUPPORT REACTIONS - GLOBAL COORDINATE SYSTEM**

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**INPUT FILE:** preliminary-piccola-in-flat-slab

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**PROGRAM TITPCC 2.0 (STANDARD)**

**PAGE 17**

**RUN 09:39:28 04/29/04**

**PICTOILLA BRIDGE PLAT SLAB ALT.**
IDENTIFICATION Picciola Bridge Flat Slab Alt.

$This TIP7 file models calculates the live load

$reactions for a three 3 continuous structure.

$File: Preliminary-Picciola-30-Flat-Slab Alt.

$Made by: CCM 2.30-91

$Checked by:

$Reckoned by:

UNITS FEST KIPS DAY DEG FAHRENHEIT

GENERATE MODES

1 6.0 9.0 0.0 REPEAT 61 INCR 1 1.463 9.0 0.0

SUPPORT JOINTS 1 DK BY

SUPPORT JOINTS 21 41 61 DY

TYPE PLANK FRANK

MESH INCLUSIONS

1 1 2 REPEAT 60 INCR 1 1 1

UNITS IMPORS

MATERIAL PROPERTIES

1 EN 3475 $ E=0.315280 50FT(4.5)13475ksi

UNITS FEST KIPS DAY DEG FAHRENHEIT

SECTION PROPERTIES

TABLE 1 RECT WIDTH 43.00 DEPTH 1.500

WEIGHT PROPERTIES

ALL TARGE 1

ALL NATE 1

ASSEMBLY STIFFNESS MATRIX

TRANSLATE 50 $ Removes impact from results

SPC LAVE LOAD FILE

PATH 1 TO 61

FIER 1 21 42 61

TRUCK HIG

LANE LOAD 0.00 0.00 1.0 1 LANE

ADVANCE TRUCK

SOLVE

FINISH
### Preliminary - Piccola LI Flat Slab Alt-8811 Bridge Analyses

**RESULTS OF LATEST ANALYSIS**

**LOAD NO. 22**  
**LIVE LOAD - MAXIMUM REACTION FORCE-Y**  
**STRUCTURE 1**

**SUPPORT REACTIONS - GLOBAL COORDINATE SYSTEM**

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**INPUT FILE:** preliminary-piccola-li-flat-slab Alt-8811 Bridge Analyses

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**LOAD NO. 4**  
**DESIGN TRUCK - MAXIMUM REACTION FORCE-Y**  
**STRUCTURE 1**

**SUPPORT REACTIONS - GLOBAL COORDINATE SYSTEM**

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**INPUT FILE:** preliminary-piccola-li-flat-slab Alt-8811 Bridge Analyses

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**LOAD NO. 4**  
**DOUBLE TRUCK - MAXIMUM REACTION FORCE-Y**  
**STRUCTURE 1**

**SUPPORT REACTIONS - LOCAL COORDINATE SYSTEM**

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</tr>
<tr>
<td>21</td>
<td>0.000</td>
<td>63.082</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>ST</td>
</tr>
<tr>
<td>41</td>
<td>0.000</td>
<td>63.082</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>UT</td>
</tr>
<tr>
<td>61</td>
<td>0.000</td>
<td>47.170</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>UT</td>
</tr>
</tbody>
</table>

**TOTAL**  
0.000  
219.284  
0.000

**INPUT FILE:** preliminary-piccola-li-flat-slab Alt-8811 Bridge Analyses

---

Page 1
Picciola Bridge Improvements

AASHTO Type III Alternative Girder Design
AASHTO TYPE III ALTERNATIVE
<table>
<thead>
<tr>
<th>Span Length =</th>
<th>89 ft</th>
<th>Input Values for Edit.md</th>
<th>Interior</th>
<th>Exterior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bearing Width =</td>
<td>14 in</td>
<td>Material Properties - Concrete</td>
<td>Florida</td>
<td>Florida</td>
</tr>
<tr>
<td>Dist. End to FFBW =</td>
<td>5.5 in</td>
<td>Aggregate Type =</td>
<td>Florida</td>
<td>Florida</td>
</tr>
<tr>
<td>Dist. End to FFBW =</td>
<td>5.5 in</td>
<td>f_c =</td>
<td>4.5</td>
<td>4.5 ksi</td>
</tr>
<tr>
<td>Dist. End to Edge of Pad =</td>
<td>2.5 in</td>
<td>f_{beam} =</td>
<td>8.5</td>
<td>8.5 ksi</td>
</tr>
<tr>
<td>K = Dist. CL Brdg to FFBW =</td>
<td>15 in</td>
<td>f_{beam} =</td>
<td>9.5</td>
<td>6.5 ksi</td>
</tr>
<tr>
<td>K = Dist. CL Brdg to FFBW =</td>
<td>15 in</td>
<td>Y_{beam} =</td>
<td>0.15</td>
<td>0.15 ksi</td>
</tr>
<tr>
<td>J = Dist. CL Brdg to End =</td>
<td>9.5 in</td>
<td>Y_{beam} =</td>
<td>0.15</td>
<td>0.15 ksi</td>
</tr>
<tr>
<td>J = Dist. CL Brdg to End =</td>
<td>9.5 in</td>
<td>Environment =</td>
<td>slightly</td>
<td>slightly</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Input Values for Edit.md</th>
<th>Interior</th>
<th>Exterior</th>
<th>Material Properties - Prestressing Tendons</th>
</tr>
</thead>
<tbody>
<tr>
<td>l_{beam} =</td>
<td>68.083</td>
<td>66.083</td>
<td>ft</td>
</tr>
<tr>
<td>Bearing Distance =</td>
<td>9.5</td>
<td>9.5</td>
<td>in</td>
</tr>
<tr>
<td>Pad Width =</td>
<td>14</td>
<td>14</td>
<td>in</td>
</tr>
<tr>
<td>Beam Spacing =</td>
<td>7.25</td>
<td>7.25</td>
<td>ft</td>
</tr>
<tr>
<td>Overhang =</td>
<td>3.417</td>
<td>3.417</td>
<td>ft</td>
</tr>
<tr>
<td>h_{beam} =</td>
<td>7.75</td>
<td>7.75</td>
<td>in</td>
</tr>
<tr>
<td>B_{dural} =</td>
<td>0</td>
<td>0</td>
<td>in</td>
</tr>
<tr>
<td>d_{g} =</td>
<td>1.9583</td>
<td>1.9583</td>
<td>ft</td>
</tr>
<tr>
<td>Beam Position =</td>
<td>Interior</td>
<td>Exterior</td>
<td>A_{beam} =</td>
</tr>
<tr>
<td>Beam Type =</td>
<td>Type III</td>
<td>Type III</td>
<td>d_{beam} =</td>
</tr>
<tr>
<td>Integral ws =</td>
<td>0.25</td>
<td>0.25</td>
<td>in</td>
</tr>
<tr>
<td>Weight PWS =</td>
<td>0.015</td>
<td>0.015</td>
<td>ksf</td>
</tr>
<tr>
<td>Number of Beams =</td>
<td>6</td>
<td>6</td>
<td>Bars Size =</td>
</tr>
<tr>
<td>Section Type =</td>
<td>transformed</td>
<td>transformed</td>
<td></td>
</tr>
<tr>
<td>Skew =</td>
<td>0</td>
<td>0</td>
<td>dog</td>
</tr>
<tr>
<td>User Beam =</td>
<td>Default</td>
<td>Default</td>
<td></td>
</tr>
<tr>
<td>User Skew =</td>
<td>Default</td>
<td>Default</td>
<td></td>
</tr>
<tr>
<td>Add Wind =</td>
<td>0.06</td>
<td>0.06 ksf</td>
<td></td>
</tr>
<tr>
<td>Add Wind =</td>
<td>0</td>
<td>0 ksf</td>
<td></td>
</tr>
</tbody>
</table>

Looked at
Int. Beam only.
Calculation of the Dimensions J and K at End Bents

$L_{Pad} := 14$-in  
$L_{Pad}$ is the Length of the Bearing along the CL Beam. Assume Type B Pad Type.

$BeamEnd := 2.5$-in  
$BeamEnd$ is the distance from edge of bearing to end of beam and is a minimum of 2.5".

$StrandExt := 2.5$-in  
$StrandExt$ is the distance the prestressed strand extend beyond the concrete.

$ConcCover := 2$-in  
$ConcCover$ is the required cover for the end diaphragms.

$JointWidth := 1$-in  
$JointWidth$ is the assumed width of the expansion joint.

\[ J := \frac{L_{Pad}}{2} + BeamEnd \]
\[ J = 9.5 \text{ in} \]

\[ K := J + StrandExt + ConcCover + JointWidth \]
\[ K = 15 \text{ in} \]

$ClearDistBehindBeam := K - J$  
$ClearDistBehindBeam = 5.5$-in
LRFD English Prestressed
Beam Design
Program

Legend
Tan = DataEntry
Yellow = CheckValues
Grey = Comments + Graphs
The CR values displayed are Capacity Ratios which give the ratio of the provided capacity divided by the required

Bridge Layout and Dimensions
Reference: C:\FDOT_STR\Programs\LRFDBeamE1.85\ProgramFiles\section1.mcd(R)

Comment = "Picciula Bridge - Preliminary Design AASHTO Type III Interior 89 ft spans and 7.25 ft spacing"
filename = "C:\CJM\FDOT Beam Runs\Prelim-Picciula-T3-Int-89.dat"

The top of the precast beam is the location of the origin

Beam Elevation

L_beam = 89 ft
BearingDistance = 9.5 in
Span = 87.42 ft
PadWidth = 14 in

Partial Section

Overhang = 3.417 ft
BeamSpacing = 7.25 ft
\( t_{slab} = 7.75 \) in
\( h_{buildup} = 0 \) in
Skew = 0 deg
\( t_{integral.ws} = 0.25 \) in
NumberOfBeams = 6
\( t_{slab.delta} = 0 \) in
BeamTypeTog = "III"

These are typically the FDOT
designations found in our standards. The
user can also create a coordinate file for
a custom shape. In all cases the top of the
beam is at the y=0 ordinate.

BeamPosition = "Interior"

For calculating
distribution factors must
be either interior or
exterior

SectionType = "transformed"

b_e = 7.25 ft
effective slab width
LRFD 4.6.2.6

user_Smom = 0
user_Shears = 0

If user_Smom (the moment distribution factor) or user_Shears (the shear
distribution factor) is set to zero the program's calculated value will be used. If
they are other than zero then this user inputed value will be used.

Section Properties - Beam and Slab

Material Properties - Concrete

Corrosion Classification

Environment = "slightly"

density of slab
concrete

\[ \gamma_{slab} = 0.15 \frac{\text{kip}}{\text{ft}^3} \]

density of beam
concrete

\[ \gamma_{beam} = 0.15 \frac{\text{kip}}{\text{ft}^3} \]

weight of future
wearing surface

Weight_{future ws} = 0.015 \frac{\text{kip}}{\text{ft}^2}

\[ \nu_d = 1.374 \]

relative humidity

H = 75

---

strength of slab
concrete

\[ f_c, \text{slab} = 4.5 \text{ksi} \]

strength of beam
concrete

\[ f_c, \text{beam} = 8.5 \text{ksi} \]

release beam strength

\[ f_c, \text{beam} = 6.5 \text{ksi} \]

initial conc. modulus of
elasticity

\[ E_{si} = 4176 \text{ksi} \]

cement modulus of
elasticity

\[ E_c = 4776 \text{ksi} \]

type of coarse aggregate,
either "Florida" or
"Standard"

AggregateType = "Florida"
Material Properties - Prestressing Tendons and Mild Steel

tendon ultimate tensile strength  \( f_{pu} = 270 \text{ ksi} \)
tendon modulus of elasticity  \( E_p = 28500 \text{ ksi} \)
time in days between jacking and transfer  \( t_j = 1.5 \)
ratio of tendon modulus to beam concrete modulus  \( n_p = 5.968 \)
mild steel yield strength  \( f_y = 60 \text{ ksi} \)
mild steel modulus of elasticity  \( E_s = 29000 \text{ ksi} \)
ratio of rebar modulus to beam concrete modulus  \( n_m = 6.073 \)
distance from top of slab to centroid of slab reinf.  \( d_{\text{slab, rebar}} = 0 \text{ in} \)
area per unit width of longitudinal slab reinf.  \( A_{\text{slab, rebar}} = \frac{0 \text{ in}^2}{\text{ft}} \)
distance from top of beam to centroid of mild flexural tension reinf.  \( d_{\text{long}} = 0 \text{ in} \)
area of mild reinf. lumped at centroid of bar locations  \( A_{s, \text{long}} = 0 \text{ in}^2 \)

Number of wheel loads that comprise the permit truck  \( \text{PermitAxles} = 2 \)
PermitUniformLoad = \( 0 \frac{\text{lbf}}{\text{ft}} \)

PermitAxleLoad\( ^T = (8 \quad 32) \text{ kip} \)
PermitAxleSpacing\( ^T = (0 \quad 14 \quad 0) \text{ ft} \)

Loads - Release, Non composite, Composite, and Live Load (truck and lane)

Release Dead Load Moments and Shears

\[ M_{\text{release}} = \frac{w_{\text{beam}} M_{\text{release}}}{k\text{ip-ft}} \]
\[ V_{\text{release}} = \frac{w_{\text{beam}} V_{\text{release}}}{\text{kip}} \]

\[ w_{\text{beam}} = 0.583 \frac{\text{kip}}{\text{ft}} \]
\[ \max(M_{\text{release}}) = 577.3 \text{kip-ft} \]

Note: at release, span length is the full length of the beam

Noncomp. Dead Load Moments and Shear

\[ M_{\text{vl, non-comp}} = \frac{w_{\text{beam}} M_{\text{vl, non-comp}}}{k\text{ip-ft}} \]
\[ V_{\text{vl, non-comp}} = \frac{w_{\text{beam}} V_{\text{vl, non-comp}}}{\text{kip}} \]
$w_{\text{slab}} = 0.725 \text{ kip/ft}$  
$w_{\text{beam}} = 0.583 \text{ kip/ft}$  
$w_{\text{forms}} = 0.118 \text{ kip/ft}$  
$w_{\text{noncomposite}} = 1.476 \text{ kip/ft}$  

$\text{Add } w_{\text{noncomp}} = 0.05 \text{ kip/ft}$

$\max(M_{\text{dl.non.comp}}) = 1409.9 \text{ kip-ft}$  
$\max(V_{\text{dl.non.comp}}) = 64.5 \text{ kip}$

$\frac{M_{\text{comp}}}{\text{kip-ft}}$  
$\frac{V_{\text{comp}}}{\text{kip}}$

$w_{\text{barrier}} = 0.108 \text{ kips/ft}$  
$w_{\text{future,ws}} = 0.109 \text{ kips/ft}$  
$w_{\text{composite}} = 0.22 \text{ kips/ft}$  

$\text{Add } w_{\text{comp}} = 0.0 \text{ kips/ft}$

$\max(M_{\text{dl.comp}}) = 207 \text{ kip-ft}$  
$\max(V_{\text{dl.comp}}) = 9 \text{ kip}$

$M_{\text{dist.live.pos}} \text{ kip-ft}$  
$V_{\text{dist.live.pos}} \text{ kip}$  
$V_{\text{dist.live.neg}} \text{ kip}$  
$M_{\text{shf dist.live.pos}} \text{ kip-ft}$  
$M_{\text{shf dist.live.neg}} \text{ kip-ft}$

$\text{Reaction}_L = 87.46 \text{ kip}$  
(service value includes truck impact)

$\text{Reaction}_{DL} = 75.345 \text{ kip}$  
(service value)
A suggested method of iteration is to fill the beam with tendons beginning in the middle of the bottom row, filling the row outward, then continuing on to the middle of the next lowest row. Typically, the minimum number of tendon is reached when midspan tensile stress is below the LRFD Service III Limit stress. Next, tendons should be debonded in pairs according to the Structures Design Guidelines until the end compression stress are below the LRFD Service I Limit stress. These two limits typically control the design (see graph below).

**Design Prestress Tendon Geometry**

Double click on the Strand Geometry icon to specify type, location, size, and deboning of strands. Then click on Stranddata and press F9 to read in the data.

Reference: C:\FDOT_\STR\Programs\LRFDBeamE1.85\ProgramFiles\section. 

**Summary of Initial Compression and Final Tension Prestress for Iteration Purposes.** These two stress checks usually control. See graphs in proceeding sections for full details.

\[ \frac{f_{\text{bot, beam}}}{\text{ksi}} \]
\[ \frac{f_{\text{all, comp}}}{\text{ksi}} \]
\[ \frac{f_{\text{bot, beam, stage}}}{\text{ksi}} \]
\[ \frac{f_{\text{all, tension}}}{\text{ksi}} \]

\[ \min(CR, f_{\text{tension, stage}}) = 1.451 \quad \text{Check } f_{\text{tension, stage}} = "OK" \]

Check strand pattern for debonding limits (per row and total) and for debonded strands on outside edge of strand pattern

- Check0 - No Debonded tendon on outside row, Check1 - less than 40% Debonded in any row, Check2 - less than 25% Debonded total

- CheckPattern\(_0\) = "OK"
- CheckPattern\(_1\) = "OK"
- CheckPattern\(_2\) = "OK"
Section and tendon properties

\[ A_{\text{beam}} = 3.887 \text{ ft}^2 \quad \text{Concrete area of beam} \]
\[ l_{\text{beam}} = 1.252 \times 10^5 \text{ in}^4 \quad \text{Gross Moment of Inertia of Beam} \]
\[ Y_{\text{comp}} = -11.367 \text{ in} \quad \text{Dist. from top of beam to CG of composite section} \]
\[ l_{\text{comp}} = 3.415 \times 10^5 \text{ in}^4 \quad \text{Gross Moment of Inertia Composite Section} \]
\[ A_{\text{deck}} = 3.407 \text{ ft}^2 \quad \text{Concrete area of deck slab} \]
\[ A_{\text{ps}} = 5.6 \text{ in}^2 \quad \text{total area of strands} \]
\[ d_{b,\text{ps}} = 0.6 \text{ in} \quad \text{diameter of Prestressing strand} \]
\[ \min(\text{PrestressType}) = 0 \quad 0 - \text{low lax} \quad 1 - \text{stress relieved} \]
\[ f_{\text{py}} = 243 \text{ ksi} \quad \text{tendon yield strength} \]
\[ f_{\text{pj}} = 203 \text{ ksi} \quad \text{prestress jacking stress} \]

\[ L_{\text{shielding}} = (20 \ 0 \ 12 \ 0 \ 0 \ 0) \text{ ft} \]

\[ A_{\text{ps,row}}^T = (0.7 \ 1.3 \ 0.7 \ 1.3 \ 1.5 \ 0.2) \text{ in}^2 \]

\[ d_{\text{ps,row}} = \begin{array}{cccccccc}
0 & -3.5 & -3.5 & -3.5 & -3.5 & -3.5 & -3.5 & -3.5 \\
1 & -3.5 & -3.5 & -3.5 & -3.5 & -3.5 & -3.5 & -3.5 \\
5 & -3 & -3 & -3 & -3 & -3 & -3 & -3 \\
\end{array} \text{ ft} \]

Tendon Layout

- TotalNumberOfTendons = 26
- NumberOfDebondedTendons = 6
- NumberOfDrapedTendons = 0
- StrandSize = "0.6 in low lax"
- StrandArea = 0.217 in²
- JackingForce_per_strand = 43.943 kip
SERVICE LIMIT STATE

\[
\max(M_{\text{pos. Ser 1}}) = 3059 \text{ kip-ft} \quad \max(M_{\text{pos. Ser 3}}) = 2770 \text{ kip-ft}
\]
**Prestress Losses (LRFD 5.9.5)**

\[ f_{pj} = 202.5 \text{ksi} \quad \Delta f_{pR1} = -2.2 \text{ksi} \quad \Delta f_{pES} = -19.4 \text{ksi} \quad \Delta f_{p1} = -22 \text{ksi} \quad f_{pj} = 181 \text{ksi} \]

\[ \Delta f_{pCR} = -25.2 \text{ksi} \quad \Delta f_{pSR} = -5.8 \text{ksi} \quad \Delta f_{pR2} = -1.8 \text{ksi} \quad \Delta f_{pTot} = -54 \text{ksi} \quad f_{pe} = 148 \text{ksi} \]

**Percentage Losses**

\[ \frac{\Delta f_{p1}}{f_{pj}} = -10.698\% \quad \frac{f_{p1}}{f_{pj}} = 89.302\% \quad \frac{\Delta f_{pTot}}{f_{pj}} = -26.873\% \quad \frac{f_{pe}}{f_{pj}} = 73.127\% \]

**Stress Limitations for P/S tendons (LRFD 5.9.3)**

Check \( f_{p1} = "OK" \)

0.8 \( f_{py} = 194 \text{ksi} \)

Check \( f_{pe} = "OK" \)

**Stress Limitations for Concrete - Release and Final (LRFD 5.9.4)**

**Release**

**Release Stresses (Top, Bot., Allow.)**

- \( f_{top \text{ beam} \text{ rel}} \)
- \( f_{bot \text{ beam} \text{ rel}} \)
- \( f_{tall \text{ tension} \text{ rel}} \)
- \( f_{tall \text{ comp} \text{ rel}} \)

**Location**

\[ \min(CR \_f_{tension \text{ rel}}) = 1.331 \]

Check \( f_{tension \text{ rel}} = "OK" \)

\[ \min(CR \_f_{comp \text{ rel}}) = 1.111 \]

Check \( f_{comp \text{ rel}} = "OK" \)

**Final**

- \( \min(CR \_f_{tension \text{ stage8}}) = 1.451 \)
  
  Check \( f_{tension \text{ stage8}} = "OK" \) \( (Service \ III, PS + DL + LL \ast 0.8) \)

- \( \min(CR \_f_{comp \text{ stage8.c1}}) = 1.652 \)
  
  Check \( f_{comp \text{ stage8.c1}} = "OK" \) \( (Service \ I, PS + DL) \)

- \( \min(CR \_f_{comp \text{ stage8.c2}}) = 1.764 \)
  
  Check \( f_{comp \text{ stage8.c2}} = "OK" \) \( (Service \ I, PS + DL + LL) \)

- \( \min(CR \_f_{comp \text{ stage8.c3}}) = 1.962 \)
  
  Check \( f_{comp \text{ stage8.c3}} = "OK" \) \( (Service \ I, (PS + DL) \ast 0.5 + LL) \)
Final Stresses (Top, Bot., Allowable)

Summary of Values at Midspan

<table>
<thead>
<tr>
<th>Stage</th>
<th>Top of Beam (ksi)</th>
<th>Bott of Beam (ksi)</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-0.104</td>
<td>-3.258</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>-0.3</td>
<td>-2.577</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>-0.252</td>
<td>-2.614</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>-2.233</td>
<td>-1.093</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>-2.891</td>
<td>0.381</td>
<td></td>
</tr>
</tbody>
</table>

Compression stresses are negative and tensile stresses are positive

Stage 1 — At release with the span length equal to the length of the beam. Prestress losses are elastic shortening and overnight relax.
Stage 2 — Same as release with the addition of the remaining prestress losses applied to the transformed beam.
Stage 4 — Same as stage 2 with supports changed from the end of the beam to the bearing locations.
Stage 6 — Stage 4 with the addition of non-composite dead load excluding beam weight which has been included since Stage 1.
Stage 8 — Stage 6 with the addition of composite dead load and live loads applied to the composite section.

Prestress Force =

<table>
<thead>
<tr>
<th>Condition</th>
<th>Axial (kip)</th>
<th>Moment (kip*ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Release&quot;</td>
<td>-1011.694</td>
<td>-1300.8739</td>
</tr>
<tr>
<td>&quot;Final (about composite centroid)&quot;</td>
<td>-835.4864</td>
<td>-1941.7541</td>
</tr>
</tbody>
</table>

9
Camber and Shrinkage and dead Load Deflections
Moment Nominal Resistance versus Ultimate Strength Cases I and II

Nominal and Ultimate Moment Strength

\[ \phi_{mom} \left( M_{mn} \right) \]

kip ft

\[ 1.2M_{er_{mn}} \]

kip ft

\[ M_{pos. Str_{mn}} \]

kip ft

\[ M_{pos. Str_{2mn}} \]

kip ft

\[ M_{reqd_{mn}} \]

kip ft

\[ \bullet \bullet \bullet \]

kip ft

Location_{mn}

ft

max\left( M_{pos. Str_{1}} \right) = 4571 \text{ kip-ft}

\min \left( C_{R, str. mom} \right) = 1.098

Check Moment Capacity = "OK"

Strength Shear and Associated Moment

Strength Shear and Associated Moment

\[ V_{u, Str_{n}} \]

kip

\[ M_{shr_u, Str_{n}} \]

kip ft

max\left( V_{u, Str} \right) = 225 \text{ kip}

max\left( M_{shr_u, Str} \right) = 4186 \text{ kip-ft}
Check and Design Shear, Interface and Anchorage Reinforcement

Locally assigned stirrup sizes and spacings (Values less than 0 are ignored)
To change the values from the input file enter the new values into the vectors below. Input only those that you wish to change, values that are less than one will not alter the original input values.

A stirrup
S1 stirrup
S2 stirrup
S3 stirrup
S4 stirrup

Reference: CAFDOT STR\Programs\LRFDBeamEl1.85\ProgramFiles\section4.mod(R)

Stirrup sizes and spacings used in analysis

\[
\begin{align*}
A_{\text{stirrup}} & = \begin{pmatrix} 3 \\ 10 \end{pmatrix} \\
S1_{\text{stirrup}} & = \begin{pmatrix} 9 \\ 10 \end{pmatrix} \\
S2_{\text{stirrup}} & = \begin{pmatrix} 9 \\ 35 \end{pmatrix} \\
S3_{\text{stirrup}} & = \begin{pmatrix} 10 \end{pmatrix} \\
S4_{\text{stirrup}} & = \begin{pmatrix} 2.2 \end{pmatrix}
\end{align*}
\]

Assumed all shear steel was Interface steel, may need to add interface steel for final.

EndCover = 2 in

The number of spaces for the S4 stirrup is calculated by the program to complete the half beam length.

Shear Steel Required vs. Provided

\[
\begin{align*}
A_{\text{reqd,ht}} & = \sqrt{\frac{A_{\text{provid,ht}}}{\text{StirLocArea}}} \\
A_{\text{min}} & = \frac{A_{\text{reqd,ht}}}{\text{Location}_{\text{ht}}}
\end{align*}
\]
\[ \min(CR_{\text{shearCapacity}}) = 1.348 \]
\[ \min(CR_{\text{StirArea}}) = 1.564 \]
\[ \min(CR_{\text{StirrupArea}}) = 2.881 \]

CheckShearCapacity = "OK"  
CheckStirArea = "OK"  
CheckMinStirArea = "OK"  
CheckMaxStirSpacing = "OK"  
CheckAnchorageSteel = "OK"

**Check Longitudinal Steel**

\[ \min(CR_{\text{LongSteel}}) = 1.123 \]

CheckLongSteel = "OK"  
*NG can also adjust with shear reinforcing*
Check Interface Steel

MinInterfaceReinReqd = "Yes"

Typically shear steel is extended up into the deck slab. These calculations are based on that assumption that the shear steel functions as interface reinforcing. The interface factor can be used to adjust this assumption.

\[
A_{v,f,\text{min}} = 0.16 \text{ in}^2 / \text{ft} \quad \text{max}(A_{v,d,\text{es}}) = 0.9 \text{ in}^2 / \text{ft}
\]

If \( A_{v,d,\text{es}} \) design or \( A_{v,f,\text{min}} \) is greater than \( 0 \text{ in}^2 / \text{ft} \), interface steel is required.

MinLegsPerRow = 0 CheckInterfaceSpacing = "OK"

CheckInterfaceSteel := if \left( \frac{\text{Total Interface Steel Provided}}{\text{Total Interface Steel Required} + 0.001 \text{ in}^2} \geq 1 \right., "OK" ; "No Good"

CheckInterfaceSteel = "OK"

Check Anchorage Steel for Bursting and Calculate Confinement Steel

use #3 bars @ 6 in for confinement

Summary of Design Checks

AcceptInteriorM = "OK" AcceptExteriorM = "OK" AcceptInteriorV = "OK"

Check \(_{fp} = "OK"

Check \(_{f,\text{pe}} = "OK"

Check \(_{\text{comp}, \text{rel}} = "OK"

Check \(_{\text{comp}, \text{stage}8} = "OK"

Check \(_{\text{comp}, \text{stage}8, c1} = "OK"

CheckMaxCapacity = "OK"

CheckStirArea = "OK"

CheckMinStirArea = "OK"

CheckInterfaceSpacing = "OK"

CheckInterfaceSteel = "OK"

CheckAnchorageSteel = "OK"

CheckAnchorageSpacing = "OK"

CheckStrandFit = "OK"

TotalCheck = "OK"
Picciola Bridge Improvements

AASHTO Type III Alternative
End Bent Design
Calculations For: Picciola Bridge AASHTO Type III End Bent Info.

**Input:**

- $t_{slab} = 8\text{-in}$
- $\gamma_{conc} = 0.150\text{-kcf}$
- $Bridge\_width = 43\text{-ft} + 1\text{-in}$
- $Span\_Length = 89\text{-ft}$
- $No\_of\_Beams = 6$

- $\omega_{DC\_Beam} = 0.584\frac{\text{kip}}{\text{ft}}$
- $Cap\_Depth = 3\text{-ft}$
- $Cap\_Depth\_Add = 4.5\text{-ft}$
- $t_{bw} = 1\text{-ft}$
- $BW\_Ht = \left(3.75 + 0.25 + \frac{8}{12} - 1.125\right)\text{-ft}$
- $BW\_Ht = 3.542\text{ ft}$

**Dead Load:**

- $DC\_Slab = t_{slab} \cdot \gamma_{conc} \cdot Bridge\_width \frac{Span\_Length}{2}$
- $DC\_Beams = No\_of\_Beams \cdot \omega_{DC\_Beam} \frac{Span\_Length}{2}$
- $DC\_Cap = Cap\_Length \cdot Cap\_Width \cdot Cap\_Depth \cdot \gamma_{conc}$
- $DC\_Cap\_Add = \frac{Cap\_Depth\_Add \cdot Cap\_Length \cdot Cap\_Width \cdot \gamma_{conc}}{2}$
- $DC\_BW = BW\_Ht \cdot t_{bw} \cdot Cap\_Length \cdot \gamma_{conc}$
- $M_{DC\_Cap\_Add} = DC\_Cap\_Add \cdot Cap\_Length \left(\frac{1}{2} - \frac{1}{3}\right)$
- $DC\_Appr\_Slab = 1.125\text{-ft} \cdot Cap\_Length \cdot \gamma_{conc}$
- $P_{DC} = DC\_Slab + DC\_Beams + DC\_Cap + DC\_Cap\_Add + DC\_Appr\_Slab + DC\_BW$
- $M_{DC} = M_{DC\_Cap\_Add}$

\[DC\_Slab = 191.721\text{ kip}\]
\[DC\_Beams = 155.928\text{ kip}\]
\[DC\_Cap = 59.4\text{ kip}\]
\[DC\_Cap\_Add = 44.55\text{ kip}\]
\[DC\_BW = 23.375\text{ kip}\]
\[M_{DC\_Cap\_Add} = 326.7\text{ kip-ft}\]
\[DC\_Appr\_Slab = 37.125\text{ kip}\]
\[P_{DC} = 512.099\text{ kip}\]
\[M_{DC} = 326.7\text{ kip-ft}\]
**Live Load:**

\[
\omega_{LL} := 0.64 \text{ kip/ft}
\]

\[
P_{LL\text{-Axle 1}} := 32 \text{ kip}
\]

\[
P_{LL\text{-Axle 2}} := 32 \text{ kip}
\]

\[
d_2 := \frac{\text{Span}_\text{Length} - 14 \text{ ft}}{\text{Span}_\text{Length}}
\]

\[
d_2 = 0.843
\]

\[
P_{LL\text{-Axle 3}} := 8 \text{ kip}
\]

\[
d_3 := \frac{\text{Span}_\text{Length} - 28 \text{ ft}}{\text{Span}_\text{Length}}
\]

\[
d_3 = 0.685
\]

\[
P_{LL\text{-Lane}} := \frac{\omega_{LL} \cdot \text{Span}_\text{Length}}{2}
\]

\[
P_{LL\text{-Lane}} = 28.48 \text{ kip}
\]

\[
P_{LL\text{-Truck}} := P_{LL\text{-Axle 1}} \cdot d_1 + P_{LL\text{-Axle 2}} \cdot d_2 + P_{LL\text{-Axle 3}} \cdot d_3
\]

\[
P_{LL\text{-Truck}} = 64.449 \text{ kip}
\]

\[
P_{LL\text{-IM}} := P_{LL\text{-Truck}} \cdot IM + P_{LL\text{-Lane}}
\]

\[
P_{LL\text{-IM}} = 114.198 \text{ kip}
\]
# Piccola Bridge Replacement

## Determination of Maximum Pile Reactions for End Bent Design

### Pile Information

<table>
<thead>
<tr>
<th>Pile No.</th>
<th>Dist From</th>
<th>c (ft)</th>
<th>DC (kips)</th>
<th>Pile Group Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>File 1</td>
<td></td>
<td>522 kips</td>
<td>1244.444444 k'</td>
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</tbody>
</table>

### Pile Group Properties

<table>
<thead>
<tr>
<th>c (kips)</th>
<th>Reaction Due to One Design Truck &amp; Lane Load on Two Spans</th>
</tr>
</thead>
<tbody>
<tr>
<td>110.3 kips</td>
<td></td>
</tr>
</tbody>
</table>

### LL Cases

<table>
<thead>
<tr>
<th>Lanes</th>
<th>No. of Trk</th>
<th>R_kn</th>
<th>S_kn</th>
<th>M_kn</th>
<th>LL_kn</th>
<th>USF_kn</th>
<th>R_kn</th>
<th>S_kn</th>
<th>M_kn</th>
<th>LL_kn</th>
<th>USF_kn</th>
<th>R_kn</th>
<th>S_kn</th>
<th>M_kn</th>
<th>LL_kn</th>
<th>USF_kn</th>
<th>R_kn</th>
<th>S_kn</th>
<th>M_kn</th>
<th>LL_kn</th>
<th>USF_kn</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### LL Case A

<table>
<thead>
<tr>
<th>P =</th>
<th>R_kn</th>
<th>LL_kn</th>
<th>M =</th>
<th>USF_kn</th>
<th>S_kn</th>
<th>M_kn</th>
</tr>
</thead>
<tbody>
<tr>
<td>2070.0 kips</td>
<td>138.0 kips</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### LL Case B

<table>
<thead>
<tr>
<th>P =</th>
<th>R_kn</th>
<th>LL_kn</th>
<th>M =</th>
<th>USF_kn</th>
<th>S_kn</th>
<th>M_kn</th>
</tr>
</thead>
<tbody>
<tr>
<td>2070.0 kips</td>
<td>138.0 kips</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### LL Case C

<table>
<thead>
<tr>
<th>P =</th>
<th>R_kn</th>
<th>LL_kn</th>
<th>M =</th>
<th>USF_kn</th>
<th>S_kn</th>
<th>M_kn</th>
</tr>
</thead>
<tbody>
<tr>
<td>2070.0 kips</td>
<td>138.0 kips</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Overall Max Pile Reaction

<table>
<thead>
<tr>
<th>P_kn</th>
<th>213.72 kips</th>
</tr>
</thead>
<tbody>
<tr>
<td>=</td>
<td>0.65</td>
</tr>
</tbody>
</table>

### Downdrag

<table>
<thead>
<tr>
<th>UBC =</th>
<th>329 kips</th>
</tr>
</thead>
<tbody>
<tr>
<td>UBC =</td>
<td>164 Tons</td>
</tr>
</tbody>
</table>

---

**Sheet: MaxPileRon**

**File: Prelim-Piccola-AASHTO-E3-89.xls**

3/29/04 11:31 AM
APPENDIX F

PUBLIC COMMENT FORMS
PUBLIC COMMENT FORM
Picciola Bridge Improvements Project
RFP No. 02-129

Fruitland Park Casino
June 15, 2004

Thank you for attending the Public Information Meeting to review the Plans for the Picciola Bridge Improvement Project on Picciola Road between Sable Palm and Lake Unity Road. The Lake County Department of Public Works seeks your comments and concerns regarding these improvements. Please complete this form prior to leaving the workshop or send the completed form to HNTB Corporation (see contact information below). Your written comments will become part of the project record and will be given proper consideration.

Please share your ideas concerning the project plans:

Single lane with stop/go light system.

The alternate 120 adverse:

1) Increased emergency service response time extra 5.2 miles

2) Dangerous intersection extra 2.7 miles

(If additional space is needed for your comments, please use the back of this form or attach additional sheets.)

3) 5.2 x 2 = 10 extra miles-not feasible

Please provide your name and address below if you would like to receive future information about this project:

Name: Helene & John Alexander

Address: 5342 Kings Ct

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com
Thank you for attending the Public Information Meeting to review the Plans for the Picciola Bridge Improvement Project on Picciola Road between Sable Palm and Lake Unity Road. The Lake County Department of Public Works seeks your comments and concerns regarding these improvements. Please complete this form prior to leaving the work shop or send the completed form to HNTB Corporation (see contact information below). Your written comments will become part of the project record and will be given proper consideration.

Please share your ideas concerning the project plans:

[Text about need for access to bridge, at least one lane open for local traffic, efficient access for emergency services, and involvement of local residents.]

(If additional room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: [Handwritten or printed name]
Address: [Address details]

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
mleo@hntb.com
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Please share your ideas concerning the project plans:

[Handwritten text]

(If additional room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: David Bestillo

Address: 04610 Sunny Side Dr.

Fruitland Park, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8330  FAX (407) 318-9016
mleo@hntb.com
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Please share your ideas concerning the project plans:

I'm all for improving the bridge but for those of us that work in Leesburg, we live in Fruitland Park, it makes it hard for us to get there. When we work in Leesburg on 441 it makes for problems. As long as the bridge has a one lane focus to get threw it will be great also if in case of a fire we in the Park may suffer worse.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Rena Brackin
Address: 4705 Pine St Fruitland Park
           FL 34731

For more information contact:

Michael J. Lee, P.E.,
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
nleco@hntb.com
PUBLIC COMMENT FORM
Picciola Bridge Improvements Project
RFP No. 02-129

Fruitland Park Casino
June 15, 2004

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Please share your ideas concerning the project plans:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: ________________________________________________________________

Address: ______________________________________________________________

For more information contact:

Michael J. Leo, P.E.
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Please share your ideas concerning the project plans:

1. I am opposed to the building of the bridge completely because:
   - People would use Old Lake Unity Rd. as a shortcut to Lake Unity Rd.
   - Most of the homes on Old Lake Unity Rd. have families with children and it would be too dangerous for them with all the traffic.

2. Even with a traffic light on Hwy27 and Eagles Nest Rd., traffic would be dangerous especially when school is in session.

3. Drivers would be at risk when needing emergency care.
   (Police, Fire, Ambulance)

(If additional room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Jerrell Brasher
Address: 04320 Harry Drive
          Fruitland Park, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
mleo@hntb.com
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Please share your ideas concerning the project plans:

Keep traffic flowing at Picciola Bridge for emergency vehicles, etc.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Joseph E. Becker
Address: 3476 E. Picciola Dr.
Fruitland Park, FL 3473

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com
My reasons not to close the bridge.

1. Open for emergency use.
2. No traffic light at 27/eagle nest Rd.
3. Add 12 miles to every trip to Leesburg. 2 trips each day = 24 extra miles and 168 miles a week.

We have about 200 cars & trucks on Picciola Island. Just in our subdivision that would be about 17600 additional miles a week.

This does not even count the life enrichment center or King's Cove.

4. The county has known for over 10 years that something had to be done at the bridge. There could have been weight limits put on the bridge then and the bridge could still function.

As a member of PISHA I am for keeping the bridge open during construction.
Thank you for attending the Public Information Meeting to review the Plans for the Picciola Bridge Improvement Project on Picciola Road between Sable Palm and Lake Unity Road. The Lake County Department of Public works seeks your comments and concerns regarding these improvements. Please complete this form prior to leaving the work shop or send the completed form to HNTB Corporation (see contact information below). Your written comments will become part of the project record and will be given proper consideration.

Please share your ideas concerning the project plans:

- Keep one lane open for emergency vehicles
- Seems like a long time to close bridge completely

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: STEVEN L. CORNER
Address: 05-524 OAK LANE
FRUITLAND PK, FL 34731

For more information contact:
Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
mleo@hntb.com
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Please share your ideas concerning the project plans:

Thank you for your will prepared presentation.

I am wondering if there are any plans to widen Picciola Rd. Has there been any long term thought to this. There are a lot of homes out there.

Thanks

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Karen D'Annecy

Address: P.O. Box 896

Fruitland Park FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
mleo@hntb.com
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Please share your ideas concerning the project plans:

I PROPOSE PLAN D

USE A SINGLE SPAN STRUCTURE BUILT ON-SITE USING A BAILEY BRIDGE TO CARRY TRAFFIC. THE BAILEY BRIDGE MAY BE RECONDITIONED BY FLDOH IF USING A BAILEY BRIDGE ON TRAFFIC LINES. IF NEEDED TO USE A LEAF BAILEY INSTALL 3 TRAFFIC ACTUATOR TIMES TEMPORARY SCALAR TRAFFIC SIGNAL ON THE BRIDGE

ADD WEIGHT RESTRICTIONS ON THE TEMPORARY BRIDGE

(If additional room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Clifford Dyke Phone 352-376-5144
Address: 04344 Sunny Side Drive
Fruitland Park 34731-5144

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
mleo@hntb.com
Thank you for attending the Public Information Meeting to review the Plans for the Piccoli Bridge Improvement Project on Piccoli Road between Sable Palm and Lake Unity Road. The Lake County Department of Public works seeks your comments and concerns regarding these improvements. Please complete this form prior to leaving the work shop or send the completed form to HNTB Corporation (see contact information below). Your written comments will become part of the project record and will be given proper consideration.

Please share your ideas concerning the project plans:

Exisiting Bridge

[Diagram]

Proposed Bridge

Why not--- would reduce bridge & straighten out dangerous curve.

90% could be constructed without closures.

Would cost more but it is our tax dollars!

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: William G. Gadd
Address: 35533 Crescent Dr

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
mleo@hnrb.com
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Please share your ideas concerning the project plans:

[Handwritten input]

Considering the approx. 1 year lead time — Please be assured a proper Eagle's Nest / Lake Unity Rd. do accommodate increased traffic if not 6 (bridge clear down to 6 m) is selected.

(If additional room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: SANDA G. MN
Address: 5542 0AK LC
Fruitland Park, FL 32731-6021

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com
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Please share your ideas concerning the project plans:

[Handwritten remarks]

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Robert S. Mountz, Esq.
Address: 65148 Twin Palms Rd
Fruitland Park, FL 32731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
mleo@hntb.com
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Please share your ideas concerning the project plans:

[Handwritten response: Enlarge making our new other off old times.]

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Ken Graves
Address: 3424d Rose Lane
FT Park FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
mleo@hntb.com
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Please share your ideas concerning the project plans:

- If this Bridge is rebuilt
- Built Right
- High enough for boat traffic
- In State Park and the rest of Lake Chain

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Andrew Homand
Address: Fruitlund Park FL

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
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Please share your ideas concerning the project plans:

Please raise the bridge at least 2 feet higher

Thank you, Heraldine Hamman.

For boat traffic - consider traffic that crosses under the bridge

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Heraldine Hamman
Address: 73. Rose Dr.
         Fruitland Park, FL 32731 352-314-0287

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9015
mleo@hntb.com
Thank you for attending the Public Information Meeting to review the Plans for the Picciola Bridge Improvement Project on Picciola Road between Sable Palm and Lake Unity Road. The Lake County Department of Public Works seeks your comments and concerns regarding these improvements. Please complete this form prior to leaving the work shop or send the completed form to HNTB Corporation (see contact information below). Your written comments will become part of the project record and will be given proper consideration.

Please share your ideas concerning the project plans:

① If bridge is structurally sound - leave well enough alone.
② Bridge诗line during construction - detour to Eagles Nest to 27 is too long unsafe in an emergency - too much time to retrieve patient.
③ Major bottleneck at Eagles Nest to 27 - even with light.
④ Detour - cost citizen time - increase taxes - much more gas inflated prices we can't afford now.
⑤ Money efficiency - only criteria - resident access to fire, ambulance, sheriff certified.

Please provide your name and address below if you would like to receive future information about this project:

Name: Dow Sandra Neve
Address: 35234 Lucken Way, Fruitland Park, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com
PUBLIC COMMENT FORM
Picciola Bridge Improvements Project
RFP No. 02-129

Fruitland Park Casino
June 15, 2004

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Please share your ideas concerning the project plans:

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Claire Hedgecock
Address: 05445 East Harbor Drive

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com
PICCIOLA BRIDGE REPAIR

In giving careful consideration to the projected ramifications of closing the main access to the City of Leesburg for residents beyond the bridge, several concerns have risen.

Should the Bridge Be Closed Entirely one of the most serious concerns is the flow of the number of vehicles in the daily traffic that would attempt to exit Eagles Nest Road at Hwy 27/441. Each vehicle exiting would be entering the break in the median in order to join the South bound traffic. With the crest of the hill to the South on 27/441, the speed of oncoming traffic would not give an adequate break for the number of vehicles to cross to the median. Should a traffic light be anticipated at the intersection, the speed of the vehicles coming over the rise would not allow for adequate stopping distance nor warning before their contact with the North bound vehicles stopped at the light. The crest is such that you cannot see what is beyond for the through traffic lanes.

It would be prudent that One Lane of The Bridge Remain Open for South bound traffic during construction. This would allow those individuals going in to Leesburg for their medical and other services, as well as those employed individuals, to continue on Picciola Road with a sensible and much safer exit on to Hwy 27/441 at the existing traffic light. We now have more employed individuals living North of the Bridge making this drive every day. The traffic tallies should give a good indication of the times of day of the peak or heaviest travel, as well as the number of vehicles on the road at any given time.

The Return Trip from Leesburg/South, would then be directed to go North on Hwy 27/441 with a right turn on Eagles Nest Road. The length of the Decel lane on 27/441 appears to be adequate to handle the traffic turning right. This is a more sensible approach rather than closing the road at the bridge entirely.

One concern that was voiced was how the Emergency 911 calls would be handled without the quick, ready access as they come out from Leesburg. We had three Emergency Medical calls in one weekend to our neighborhood. Speed was most important. The Fire Service Station has been closed on Picciola at the Lake Unity Road intersection. All Fire service to the area beyond the bridge has been coming out from Fruitland Park. Their Fire Rescue truck accompanies the Emergency vehicles.

Thank you for giving consideration to these concerns.

Claire Hedgcock
PUBLIC COMMENT FORM
Picciola Bridge Improvements Project
RFP No. 02-129

Fruitland Park Casino /
June 15, 2004

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1) WILL A TRAFFIC LIGHT BE INSTALLED AT THE INTERSECTION OF HIGHWAY EAGLES NEST
2) IF YOU "ONE-LANED" WHILE BRIDGE IS UNDER CONSTRUCTION, WHAT WILL BE THE APPROX. WAIT TIME TO CROSS?
3) WHAT ARE THE HOURS OF CONSTRUCTION?
4) IS NIGHT TIME CONSTRUCTION AN ALTERNATIVE?

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Jordan & Debbie Hypes
Address: 5102 Albert Road
          Fruitland Park, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hnntb.com
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Please share your ideas concerning the project plans:

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: 
Address: 

For more information contact: 

Michael J. Leo, P.E. 
HNTB Corporation 
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Orlando, Florida 32804 
Phone: (407) 859-8380  FAX (407) 318-9016 
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Please share your ideas concerning the project plans:

The Picciola Bridge has thousands of vehicles traveling per day. The best alternative is to keep the bridge open at least one lane.

Some of us still work and have deadlines to meet. I would have to increase my travel time by 30 minutes to go the extra 10 miles to get back to my origination point.

Shutting the bridge down is not a viable option.

Please provide your name and address below if you would like to receive future information about this project:

Name: Deanne Jones
Address: 05443 Regal Oak Dr
          Fruitland PK FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
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Please share your ideas concerning the project plans:

The Picciola Bridge has thousands of vehicles per day and the best alternative is to keep the bridge open even if traffic is restricted.

Eagles Nest road at Hy 441 has no traffic signal and there will be terrible congestion if the bridge is closed.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: John E Jard
Address: 5663 Royal Oak Dr
Fruitland Bk FL 34731

For more information contact:
Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
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June 15, 2004

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Please share your ideas concerning the project plans:

Everytime we need to go to store well be
1/2 mile off of way & think we leave
with the wind of the Air Conditioner
And I kept calling and we need
keep doors & sort. Think our lane
as you can put things in the air. I'm
condition 4 & 5 story above the air, which
have our tape.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name:  
Address:  

For more information contact:

Michael J. Leo, P.E.
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Please share your ideas concerning the project plans:

A single span seemed to serve the present clearance needs well. About keeping the road “partially” open sounds good. Until people realize “long waits” will often happen while heavy equipment has preference. Overall, plan “B” is best if emergency vehicle is placed at the off firehouse with drivers. I believe the rest can be observed and the firehouse could also be used. Please consider.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Mr. Larry C. Lipps
Address: 35322 Lake Unity Rd
Fruitland Pk, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
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Please share your ideas concerning the project plans:

Bridge proposal for height OK. I have Dragon Whirlwind. Boat back there and Clear at high water by 1/2 mile ester, I reject so problems for Park. Leave Traffic box or you'll kill JP Store on West side.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Frank Logel
Address: 35411 Crescent Dr. FP 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
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PUBLIC COMMENT FORM
Picciola Bridge Improvements Project
RFP No. 02-129

Fruitland Park Casino
June 15, 2004

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Please share your ideas concerning the project plans:

My main concern for this proposed project was the safety of those exiting the the Picciola area. The light at Eagles Nest Road/441 is definitely a must.
Are will the light be put on Eagles Nest intersection if proposal A is used?
Also there is a concern about the awkward intersect at Lake Unity Road and Eagles Nest.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Debbie Lynch
Address: 4200 Bair Avenue
Fruitland Park, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8300  FAX (407) 318-9016
mleo@hntb.com
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Please share your ideas concerning the project plans:

What about the school bus time schedule they have to be guaranteed? Who is the school board that about the project? When do you think the project will start?

I think that the bridge should be closed to do the project.

The entire parking lot is divided into different places - so why can't they park in the old five station lot?

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: William E. MacKay Jr.
Address: 28 River Dr.

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
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Please share your ideas concerning the project plans:

________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name:  James H. Marshall

Address:  3704 S. Shadow Wood Ln.

Fruitland Park, FL 32731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
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Please share your ideas concerning the project plans:

MAKE THE BRIDGE HIGHER THAN 8' FT.
KEEP THE ROAD OPEN 1 LANE OR MORE


(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: John R. Mascher
Address: 35545 Lk Unity Rd

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
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Please share your ideas concerning the project plans:

There should be a traffic light put up at Eagles Nest Road to facilitate traffic flow and for safety. Also, Bridge should probably be done 1 lane at a time, I have seen temporary bridges put up in the past and that may also be a solution.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Steve Mercer
Address: 35350 Unity Drive
         Fruitland Park, FL 34231

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
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Please share your ideas concerning the project plans:

Closing the bridge would be bad. It would put the lot, Small home, here, because out of business, so that we dont know that they exist.

T.R. Food Store would just have met because 93% of the businesses on the other side of bridge.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Cal Meyer
Address: 33720 Picciola Dr, Fruitland Park, FL 32731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
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Orlando, Florida 32804
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Please share your ideas concerning the project plans:

There should be sidewalks included in the design of the bridge and the approaches.

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Gregory D. Mood
Address: 35115 Queen's Way
          Fruitland Park, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
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Please share your ideas concerning the project plans:

Closing the bridge totally is ridiculous. The extra 15 minutes will be more like 25 to 30 with the traffic. School Bus route, Fire, Police, Ambulance, People who work South East of Fruitland Park. Leaving a lane open is the only reasonable traffic.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Scott & Julie Moss
Address: 25321 Regal Oak Drive
Fruitland Park, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
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Please share your ideas concerning the project plans:

- Close it down.
- Traffic light at exit (near I-4).
- Get it done quickly.
- Save Tax payer's money.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Tom Newman
Address: 4132 Bair Ave
Fruitland Park FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
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Please share your ideas concerning the project plans:

Bridge clearance needs to be at least 9' at

High water level. Keep in mind

the Lake County Water Authority has controlled

Lake fluctuations of 1' Also,

(If additional space is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: DON NICHOLSON
Address: 35703 LAKE UNITY ROAD
Fruitland Park FL 32731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
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PUBLIC COMMENT FORM
Picciola Bridge Improvements Project
RFP No. 02-129
Fruitland Park Casino
June 15, 2004

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Please share your ideas concerning the project plans:

☐ Please view Plans to be or not to be included in the final design.
☐ Additional for items to be included or deleted from the Project.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: [Name]
Address: [Address]

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
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Please share your ideas concerning the project plans:

It will be a great hardship for me to drive the long way to get to 27 South. The extra time and cost of gas will be too great for my budget. I drive my husband to Stokes 3 times a week and come back for the 4 hours he's there and then drive back for him. The extra gas and mileage will be too great. Also having to go way out of my way to shop will be a definite.

(If additional space is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: JOYCE M. ONEIL
Address: 644 ROSE DRIVE
FRUITLAND PARK, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 839-8380 FAX (407) 318-9016
mleo@hntb.com
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Please share your ideas concerning the project plans:

I will have a great hardship if you decide to close the Picciola Bridge completely. I am a diabetic on a limited budget and go to Dialysis 3 times a week. The extra time traveling and cost of gas will harm my budget. Also the increased traffic past our Retirement Park will be so great we will have a hard time getting over to the home to feed the other 5yrs. 

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: THOMAS J. O'NEIL JR
Address: 14 Rose Dr., FRUITLAND PARK, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
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Please share your ideas concerning the project plans:

1. **Keep the original bridge as is.**
2. **Straighten the road; add a new bridge to the south of present bridge. Use present bridge till new one is completed.**
3. **Do not close completely while old bridge is under construction.**
4. **Do it your way. Use the detour.**

P.S. We live in Kings Cove

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: 
Address: MIL/EMILY PALMATEER
05360 TWIN PALMS RD.
FRUITLAND, FL 34781

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
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Please share your ideas concerning the project plans:

- Please construct to meet important guidelines of bridge design, height, or span.
- Cross lighting is generally would be helpful.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: William A. Pope
Address: 35542 Dogwood Drive
Fruitland Park FL 34731-5903

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com
June 17, 2004

Mr. Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, FL 32804

Dear Sir,

I attended the Picciola Bridge information meeting last Tuesday evening. After a couple of days of thoughts, I decided to share them with you.
First, as you probably sensed at the meeting, most everyone there was not at all concerned with the engineering technicalities of the project. Whether a single span, or three spans, was irrelevant. So were your concerns about width of project, wetlands encroachment, retaining wall design, and the like. For the resident and driver, the road surface of the bridge is the primary concern. Below and from the side are not in the mix.

Yet, for the boater, the clearance is of great concern. I am not a boater, but the question remains, "Why have a bridge at all?" Because boat traffic is a consideration, and must be accommodated. Fifty years ago, when the bridge was built, boats were generally smaller than those of today. And today's boats are probably smaller than those of the next seventy-five years. So, size does matter. And boat traffic does matter. Otherwise, you could just fill in the site, makes a causeway, and have done with it. That would be really nice. But you don't have that as an option, so you must accommodate the concerns of the boaters. Apparently eight feet is not enough. Something for you to work on.

The primary concern of everyone at the meeting was the accessibility of bridge use during construction. It was quite evident that the residents of the area want very much to be able to cross the bridge during the construction project. So, your option A (phased construction) is the apparent desire of the bridge users. Cost is a factor, but the whole project is to provide easier, safer usage for the present and the future. Since property taxes are not used to fund highway construction, the cost is not an immediate concern of the users. Extra distance, and therefore, extra time is a concern. Police, Ambulance, Fire services prompt access are a great concern. School bus access is of great concern, and the resulting change in route scheduling will throw a lot of families off, in addition to parent's drive to work schedules. Children waiting for the bus in the dark
should be seriously considered, as well. The detour route on Lake Unity Road and Eagle's Nest Road is not really satisfactory, but there really is no other choice. Adding all the Picciola traffic to the detour roads would surely cause problems to them.

To sum up, the engineering and technical concerns are of little importance to the residents. The social and daily living concerns greatly outweigh the technical. So, one must conclude that bridge usage is more important than bridge appearance. Access during phased construction is much more important than the time required to do the job.

I hope these thoughts are helpful to you, and that you will carefully consider the social desires of the users of the bridge. After all, they are the ones for whom the work is being undertaken.

Very truly yours,

William A. Pope
35542 Dogwood Drive
Fruitland Park, FL 34731-5903
Thank you for attending the Public Information Meeting to review the Plans for the Picciola Bridge Improvement Project on Picciola Road between Sable Palm and Lake Unity Road. The Lake County Department of Public works seeks your comments and concerns regarding these improvements. Please complete this form prior to leaving the work shop or send the completed form to HNTB Corporation (see contact information below). Your written comments will become part of the project record and will be given proper consideration.

Please share your ideas concerning the project plans:

[Handwritten text]

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Beverly Mathes
Address: 7707 Pine St

Fruitland Park

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
mleo@hntb.com
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I prefer the "single span" plan as I am a boater and it makes for safer navigation at night and during rain storms.

Please share your ideas concerning the project plans:

Currently, fishermen illegally park (and launch small boats) on the right of way approaches to the existing bridge. This needs to be eliminated or fully developed as a parking area (for pedestrian and vehicular safety).

It is assumed that the proposed plan does not provide for fishing "from" or "under" the bridge. This also is currently a safety issue. Let the pedestrian and vehicular access.

(If additional room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: BOB RATLIFF
Address: 05302 MAGNOLIA TERRACE
FRUITLAND PARK, FL 34731
(352)787-0552

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com
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Please share your ideas concerning the project plans:

COMPLETE CLOSURE OF BRIDGE IS A BAD IDEA.

COST TO RESIDENTS IN THE DECISION GROWS.

TRAFFIC IS ALSO A CONCERN.

SAFETY ISSUES WITH SCHOOL BUSSES ARE AN ISSUE.

LIMITS FIRE & POLICE SHOULD MAKE THIS A NO BRAINER ISSUE AGAINST CLOSURE.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: James Riedelich

Address: 33614 Picciola Dr.

Fruitland Park, FL 34731

For more information contact:

Michael J. LeC, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mlec@hntb.com
Thank you for attending the Public Information Meeting to review the Plans for the Picciola Bridge Improvement Project on Picciola Road between Sable Palm and Lake Unity Road. The Lake County Department of Public Works seeks your comments and concerns regarding these improvements. Please complete this form prior to leaving the work shop or send the completed form to HNTB Corporation (see contact information below). Your written comments will become part of the project record and will be given proper consideration.

Please share your ideas concerning the project plans:

Please keep a through traffic lane open.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Windle R. Robbins
Address: 5250 Frederick St.
         Fruitland Park, FL 32731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mlleo@hntb.com
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Please share your ideas concerning the project plans:

__________________________________________________________________________________________

__________________________________________________________________________________________

__________________________________________________________________________________________

__________________________________________________________________________________________

(If additional room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: ____________________________________________

Address: __________________________________________

__________________________________________________________________________________________

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com
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Please share your ideas concerning the project plans:

Keep one lane of the bridge open.
Set up a temporary stop light to control traffic.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Larry Valenzuela
Address: 51 Rose Drive
Fruitland Park, FL 32731-6711

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-1380 FAX (407) 318-9016
mleo@hntb.com
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Please share your ideas concerning the project plans:

Closing off both lanes would be dangerous for emergencies in case of fire or an ambulance.
Using the Seagull's nest road would be dangerous to get out and cut plus cost of gas going out of my way.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Fred Sopotnick
Address: 5424 E Harbor Dr
Fruitland Park

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com
PUBLIC COMMENT FORM

Picciola Bridge Improvements Project
RFP No. 02-129

Fruitland Park Casino
June 15, 2004

Thank you for attending the Public Information Meeting to review the Plans for the Picciola Bridge Improvement Project on Picciola Road between Sable Palm and Lake Unity Road. The Lake County Department of Public Works seeks your comments and concerns regarding these improvements. Please complete this form prior to leaving the workshop or send the completed form to HNTB Corporation (see contact information below). Your written comments will become part of the project record and will be given proper consideration.

Please share your ideas concerning the project plans:


Please provide your name and address below if you would like to receive future information about this project:

Name: Bob J. Moore, P.E.
Address: 95235 Inspiration, FL

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
mleo@hntb.com
Thank you for attending the Public Information Meeting to review the Plans for the Picciola Bridge Improvement Project on Picciola Road between Sable Palm and Lake Unity Road. The Lake County Department of Public works seeks your comments and concerns regarding these improvements. Please complete this form prior to leaving the work shop or send the completed form to HNTB Corporation (see contact information below). Your written comments will become part of the project record and will be given proper consideration.

Please share your ideas concerning the project plans:

1. Pedestrian/bike path should be considered on new bridge.
2. New culvert pipe is needed on Stellings Blvd. approach to bridge.
3. Eagles nest on 41/21 intersection must have a right and left turn lane.
4. Lighting on bridge would make the bridge safer for pedestrians.

(If additional room is needed for your comments, please use the back of this form or attach additional sheets.)

5. I favor keeping one lane open for emergency vehicles.

Please provide your name and address below if you would like to receive future information about this project:

Name: Robert E. Taylor
Address: 4126 Picciola Rd (Stellings Blvd)
Fruitland Park, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
mleo@hntb.com
Thank you for attending the Public Information Meeting to review the Plans for the Piccoli Bridge Improvement Project on Piccoli Road between Sable Palm and Lake Unity Road. The Lake County Department of Public Works seeks your comments and concerns regarding these improvements. Please complete this form prior to leaving the work shop or send the completed form to HNTB Corporation (see contact information below). Your written comments will become part of the project record and will be given proper consideration.

Please share your ideas concerning the project plans:

Provide walkway on bridge

Mature area around bridge for people to fish and park near bridge.

Leave one lane open if possible during construction.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: George Utz
Address: 36049 Lake Unity Nunny Rd

Fruitland Park, Fl 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
mleo@hntb.com
Thank you for attending the Public Information Meeting to review the Plans for the Picciola Bridge Improvement Project on Picciola Road between Sable Palm and Lake Unity Road. The Lake County Department of Public works seeks your comments and concerns regarding these improvements. Please complete this form prior to leaving the work shop or send the completed form to HNTB Corporation (see contact information below). Your written comments will become part of the project record and will be given proper consideration.

Please share your ideas concerning the project plans:

- Provide one lane of traffic during construction.
- For continuous service on Picciola Road at the bridge.

Why was the time station added?

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Virginia L. Harg
Address: 860 W. Lake Unity Dr., Ed.
        34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
mleo@hntb.com
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Please share your ideas concerning the project plans:


(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: ____________________________
Address: ____________________________

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
mleo@hntb.com
July 21, 2004

HNTB Architects Engineers Planners
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804

RE: Piccola Bridge Improvements

Dear Mr. Micheal J. Leo, Jr.

Thank Your for your letter in reply to our concerns regarding the improvements of the Piccola Bridge.

It was only after we had written our concerns regarding the bridge, that we realized that, if the choice was to keep the bridge open during construction, you intended to maintain 2-way traffic during construction. Therefore, that concern becomes a non-issue.

However, we do strongly urge you to consider maintaining traffic while constructing the bridge.

Let me give you a true example as why we think it is necessary to keep the bridge open during construction:

On Saturday, July 10th about 4:00 PM it was necessary for my wife to take me to LRMC emergency with classic Heart Attack Symptoms. If the bridge were closed, the time to get there would have been at least 8 more minutes, probably 10 minutes longer if we had had to wait for the proposed stop light at Eagles Nest road to change. If it in fact had been a heart attack, the difference in time could have been serious.

It is for this reason that we think the bridge should remain open during construction.

I am sure you will give consideration to our suggestion.

Sincerely yours;

Robert and Martha Glass
05148 Twin Palms Road
Fruitland Park, FL 34731

CC: Mr. Juan Chan (Lake County Department of Public Works)
July 14, 2004

Milo/Emily Palmateer
03350 Twin Palms Rd.
Fruitland, FL 34731

HNTB
Architect's Engineers Planners

Dear Michael:

I have another question. If the bridge is closed — you estimate a year — and some catastrophic event causes the closure of the detour, what if any exit are we to use? I live in Kings Cove Addition on Picacho Rd. My only way out would be by boat — which I do not have.

Sincerely

Milo Palmateer
Thank you for attending the Public Information Meeting to review the Plans for the Picciola Bridge Improvement Project on Picciola Road between Sable Palm and Lake Unity Road. The Lake County Department of Public works seeks your comments and concerns regarding these improvements. Please complete this form prior to leaving the meeting or send the completed form to HNTB Corporation (see contact information below). Your written comments will become part of the project record and will be given proper consideration.

Please share your ideas concerning the project plans:

My husband's parents lived off Unity Rd. at Lake Arrowhead since 1947. This bridge was then 57 years ago. A new bridge would straighten out a dangerous road and an old bridge. We need a new bridge to keep the old one open to traffic. Thank you.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: MRS. RICHARD E. BAIR
Address: 0416 BAIR AVE, FRUITLAND PARK, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
mleo@hntb.com
Thank you for attending the Public Information Meeting to review the Plans for the Picciola Bridge Improvement Project on Picciola Road between Sable Palm and Lake Unity Road. The Lake County Department of Public works seeks your comments and concerns regarding these improvements. Please complete this form prior to leaving the meeting or send the completed form to HNTB Corporation (see contact information below). Your written comments will become part of the project record and will be given proper consideration.

Please share your ideas concerning the project plans:

Thank the Co. should leave our home open during Bridge construction. Going all the way to Army Air Port Rd. would mean 2 disagree for my wife - Driven to and from the store since we are over 70 yrs old. Thank you.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Brown, Cowles
Address: 8521 Jefferson Ridge Rd.
        Four Thousand Pines, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9916
mleo@hntb.com
PUBLIC COMMENT FORM
Picciola Bridge Improvements Project
RFP No. 02-129

Leesburg Community
November 4, 2004

Thank you for attending the Public Information Meeting to review the Plans for the Picciola Bridge Improvement Project on Picciola Road between Sable Palm and Lake Unity Road. The Lake County Department of Public works seeks your comments and concerns regarding these improvements. Please complete this form prior to leaving the meeting or send the completed form to HNTB Corporation (see contact information below). Your written comments will become part of the project record and will be given proper consideration.

Please share your ideas concerning the project plans:

See Attached


(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: James P. Duncan
Address: 4304 Emmens Rd
Fruitland Park, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
mleo@hntb.com
Based upon the map on the Lake County web site, I believe your District includes the Piccola Road area and the location of a proposed bridge replacement.

Last night, there was a public meeting in Leesburg to again discuss options on how to handle the replacement—close the bridge or replace it while maintaining traffic flow. The disappointment reflected in my subject line is the fact that none of the County Commissioners bothered to attend and hear the input generated by this public meeting. We understand that this issue will be heard by the Commission on December 7 while most of us are at work. I will be in Washington, DC on company business or I would be there. How can I get my comments included in that hearing?

Based totally on flawed analysis, the engineering firm is recommending the option of closing the bridge for six to eight months and to hell with the 8,000 cars a day that will have to drive an additional six miles each way. Apparently, based upon the comments from the first meeting, the County has agreed to pave Eagles Nest Road, the detour route, and to place a full traffic signal at it’s intersection with Hwy 27/441. This is like putting lipstick on a pig. It’s still a pig! The light and the paving are needed anyway and don’t change the rest of the concerns.

I say the analysis is flawed because it looks only at the cost of the bridge and gives no financial weighting to the additional financial costs, lost time, and health and safety risks posed by the detour. I stated this last night and am quoted on page one of today’s Daily Commercial. The additional drive time also significantly delays needed emergency services, etc. Also, our only convenience store will be devastated by the bridge closing and likely will be unable to survive. Someone needs to do the math on the costs of 8,000 cars a day having to drive an extra 12 to 14 miles and the value of the lost time relative to an extra 30 to 40 minutes of commuting.

Last night’s meeting was the second and the public response has been overwhelmingly against the bridge closing. Will these opinions be given appropriate consideration or are these meetings just a "PR thing" that have no real impact? I have never been a "political activist," but the absurdity of the bridge closing option is too much to ignore.

I said last night and I repeat..."It is incomprehensible to me that closing the bridge is even an option!"

I will very much appreciate hearing your position on this issue. You can call me at SECO, (352) 793-3801 extension 1000, or email me at jim.duncan@secoenergy.com or jpdunc@aol.com. I respectfully solicit your support on this issue. The affected citizens are at least 95% in favor of keeping the bridge open during construction and, frankly, those who aren’t can still take the proposed detour route.

Thank you in advance for your response,

Jim Duncan
4304 Emmaus Road
Fruitland Park, FL 34731
Thank you for attending the Public Information Meeting to review the Plans for the Picciola Bridge Improvement Project on Picciola Road between Sable Palm and Lake Unity Road. The Lake County Department of Public works seeks your comments and concerns regarding these improvements. Please complete this form prior to leaving the meeting or send the completed form to HNTB Corporation (see contact information below). Your written comments will become part of the project record and will be given proper consideration.

Please share your ideas concerning the project plans:

My comments are on the attached sheet

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Mr. Clifford & Jane Dyke
Address: 4344 Sunnyside Dr.
          Fruitland Park, Fl. 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
mleo@hntb.com
PUBLIC COMMENT FORM  
Piccola Bridge Improvement Project  
RFP No. 002-129  
Leesburg Community  
November 22, 2004

November 4, 2004 after making my comments at the meeting, I thought I should clarify some points I may not have addressed properly.

I liked your slide show presentation, however due to the speed of the slide show, I did not have enough time to completely read the data presented, or understand it.

I support the build in place with the detour plan, providing the proposed three color traffic signal and turning lanes, located at the junction of Eagles Nest road and State road 441/27 would be permanent. This proposal appears to one half million dollars cheaper, with less construction time.

The proposal said Eagles nest road would be paved, Lake Unity road should be paved also, the pavement is at the point it must be paved to provide a smooth riding surface and above all stop further deterioration of the existing pavement, which has out lived its useful life. The pavement has wheel ruts, apparently about 1/2 inch deep, which during a rain would hold water and could cause hydroplaning. This condition would also provide water that would enter in the many centerline longitudinal and mid lane cracks. There is an old saying in road building, if it don't drain it won't remain. This pavement does not provide a smooth riding surface, and has some potholes. Dodging these potholes has helped me to remember to write this letter.

The vertical under clearance of the bridge, is of concern, how much space is required by a pontoon boat, remember the required white light (usually located above the roof) on the rear of the water craft, when doing the vertical clearance study.

Thank You,

Clifford A. Dyke
04344 Sunnyside Drive
Fruitland Park FL 34731-5689
Phone 352-326-5744
Mike Leo

From: Jim Duncan [jim.duncan@secoenergy.com]
Sent: Tuesday, November 09, 2004 10:21 AM
To: jhill@co.lake.fl.us
Cc: Mike Leo
Subject: Piccola Bridge

I appreciate your efforts to call me yesterday. Unfortunately, later in the evening we discovered that one of our phones was off the hook. I look forward to discussing this issue with you. Feel free to call me at the work number listed below.

In my first email, I complained that the public’s costs of the detour were not considered and compared to the “savings” of closing the bridge. I suggested that “someone should do the math.” Well, I now have and the numbers are astounding!

First, my assumptions:

- 8,000 cars per day --provided by the engineers at the meeting
- 4,000 round trips per day--my assumption
- 6 round trips per week--my guess—could be higher or lower
- 5 miles extra each way--in dispute at the meeting, but this is QUITE conservative.
- 15 extra minutes each way--my guess, but conservative
- 10 miles extra per round trip--per above
- $2.00 per gallon--very conservative
- $10.00 per hour--very subjective but, probably, conservative
- 26 weeks--MINIMUM duration of closing, probably more like 36 or more

Using the above assumptions, let’s look at the numbers:

- Additional fuel costs: 4,000 round trips per day X 10 miles = 40,000 extra miles per day X 6 days per week = 240,000 extra miles per week X 26 weeks= 6,240,000 extra miles divided by 20 MPG = 312,000 gallons of fuel X $2.00 per gallon = $624,000 in additional fuel costs.

- Value of Lost Time: 8,000 people per day (minimum) X .5 hours per day= 4,000 hours per day X 6 days per week =
  
  24,000 hours per week X 26 weeks= 624,000 hours X $10.00 per hour = $6,240,000 in lost time.

These are the two quantifiable components. Many of the potentially affected citizens are also legitimately concerned about the additional time to get emergency services and with the
impact on our only convenience store.

So, to plagiarize the MasterCard commercials:
- Additional fuel cost, $624,000
- Value of lost time, $6,240,000
- Value of one lost life due to delayed emergency services—PRICELESS!

Commissioner Hill, I have provided this email in advance of our conversation to give us some specifics to discuss.

Jim Duncan  
CEO & General Manager  
Sumter Electric Cooperative, Inc.  
Jim.duncan@secoenergy.com  
(352) 793-3801 Extension 1000
Thank you for attending the Public Information Meeting to review the Plans for the Picciola Bridge Improvement Project on Picciola Road between Sable Palm and Lake Unity Road. The Lake County Department of Public works seeks your comments and concerns regarding these improvements. Please complete this form prior to leaving the meeting or send the completed form to HNTB Corporation (see contact information below). Your written comments will become part of the project record and will be given proper consideration.

Please share your ideas concerning the project plans:

I would appreciate the work being done in the shortest time possible even though I feel slow in the review.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Beverly FETZER
Address: 35135 STALWINGS BLVD
          F. O. 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
mleo@hntb.com
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Please share your ideas concerning the project plans:

Re: Emergency EMT Service:
Bridge closed = EMTs need to work around
Problem - long trip to local hospital
in event of public, jetztation, bleed accident-
* added delay could mean increased heart attacks,
damage, increased brain damage.

This is unacceptable!

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name:  JOYCE FULLINGTON - DAVID FULLINGTON

Address:  33607 PICCOIA DRIVE
FRUITLAND PARK, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380    FAX (407) 318-9016
mleo@hnbt.com
Thank you for attending the Public Information Meeting to review the Plans for the Picciola Bridge Improvement Project on Picciola Road between Sable Palm and Lake Unity Road. The Lake County Department of Public Works seeks your comments and concerns regarding these improvements. Please complete this form prior to leaving the meeting or send the completed form to HNTB Corporation (see contact information below). Your written comments will become part of the project record and will be given proper consideration.

Please share your ideas concerning the project plans:

[Handwritten text]

I am in favor of Alternative A (Phased Construction) for the Picciola Bridge Improvement Project.

I am greatly against Alternative B (Build in Place).

I live on Picciola Island and use the bridge everyday. The detour would be too much of a hardship for both myself and my son, Dan Leoni, both of whom use the bridge often.

My son often works night shifts and it would be especially hard for him. We also greatly depend on the convenience store.

(If additional space is needed for your comments, please use the back of this form or attach additional sheets.)

Continued on back (Please see back)

Please provide your name and address below if you would like to receive future information about this project:

Name: Ann Wettstein Griffin

Address: 33428 Picciola Dr.

Fruitland Park, Fl. 3473

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
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Orlando, Florida 32804
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Please share your ideas concerning the project plans:

Right now, I do not like any option that is currently on the table. I understand that the bridge is "functionally obsolete" which I understand to believe that the bridge does not currently present a safety hazard but it is outdated by today's standards. If the bridge is so slowly rotted away can't we replace the pilings, leave the bridge intact? My family and I are average users that bridge 4-5 times per day. Shutting the bridge down →

(If additional room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Kevin Crowe
Address: 5241 Magnolia Terrace
         Fruitland Park, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
mleo@hntb.com
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Please share your ideas concerning the project plans:

Post Meeting Concerns

1) Are you listening
   a) 2 other options given
2) No Community Reps (?) Why
3) Perhaps you folks need to Re-evaluate

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Terry Grondahl
Address: 5241 Magnolia Terrace
         Fruitland Park

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com
Thank you for attending the Public Information Meeting to review the Plans for the Picciola Bridge Improvement Project on Picciola Road between Sable Palm and Lake Unity Road. The Lake County Department of Public works seeks your comments and concerns regarding these improvements. Please complete this form prior to leaving the meeting or send the completed form to HNTB Corporation (see contact information below). Your written comments will become part of the project record and will be given proper consideration.

Please share your ideas concerning the project plans:

**Closing the bridge completely is a bad alternative.**

**For the following reasons:**

1. *Emergency respond times may not be sufficient even with the manned fire station.*
2. *Additional cost in fuel consumption for residents.*
3. *Additional travel time for residents.*

A more reasonable alternative is to keep bridge open to one-way traffic, controlled by traffic light.

*(If additional room is needed for your comments, please use the back of this form or attach additional sheets.)*

Please provide your name and address below if you would like to receive future information about this project:

**Name:** MR. & MRS. GERRY F. HAERMUS

**Address:** 5246 MAGNOLIA TERR (KING'S COVE) FRUITLAND PARK, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com
Thank you for attending the Public Information Meeting to review the Plans for the Picciola Bridge Improvement Project on Picciola Road between Sable Palm and Lake Unity Road. The Lake County Department of Public works seeks your comments and concerns regarding these improvements. Please complete this form prior to leaving the meeting or send the completed form to HNTB Corporation (see contact information below). Your written comments will become part of the project record and will be given proper consideration.

Please share your ideas concerning the project plans:

As a business owner in Leesboro, it is very important for me to be able to get to my business as soon as possible in case of emergency.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: GREGORY MONEY
Address: 45742 TWIN PALMS ROAD (KING'S COVE)

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
mlco@hntb.com
Mike Leo

From: Wapfia@aol.com
Sent: Monday, November 08, 2004 6:13 PM
To: Mike Leo
Subject: Picciolan bridge improvement

I was not able to get to the second community meeting about this project. However, press coverage indicated that there wasn't much new from the first meeting at the Fruitland Park Casino building. But what was eminently clear was that the residents wished for the bridge to stay open during the project. This was made clear at the first meeting. So, it doesn't seem as if the residents' wishes have changed. But you knew that after the first meeting.

Yes, you have made some efforts at ambulance response, and intersection work at 441/27 and Eagles nest road. But they aren't needed if you keep the bridge open during construction.

What are the improvements for, and whom do they serve? The are to make the road safer for the residents who live on the East side of the bridge. And not the people on the West side of the bridge. It is not for the Lake County Commissioners, or your engineering firm. It is for the residents on the East side of the bridge. So, it would seem that they are the ones you ought to listen to, and to accommodate in preparing your project.

From an engineering standpoint, the construction in place is desirable. But from the point of view of those who actually use the bridge, the residents, the phased construction is far preferable.

I don't see why you have a problem with that. Why do you keep proposing the "in place" work when the "phased" work is what the users want? Whom are you serving? I know you are paid by Lake County Commissioners, but whom are they serving? The residents on the East side of the bridge. Very simple.

William A. Pope, jr.
35542 Dogwood Drive
Fruitland Park, FL 34731-5903
Thank you for attending the Public Information Meeting to review the Plans for the Picciola Bridge Improvement Project on Picciola Road between Sable Palm and Lake Unity Road. The Lake County Department of Public works seeks your comments and concerns regarding these improvements. Please complete this form prior to leaving the meeting or send the completed form to HNTB Corporation (see contact information below). Your written comments will become part of the project record and will be given proper consideration.

Please share your ideas concerning the project plans:

On our way home Thursday night, we were talking about the project. We asked that no one suggested a third alternative. How about a temporary bridge to parallel the one one. How about a floating pedestrian bridge, such as the Military has used many times. This alternative could be obtained through the Army Corps of Engineers, and returned when the project is done. This should be minimum.

Additional cost in the county, not discount from the funds. This is additional expense to the citizen of the area, not a discount on business income.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Ralph and Cheryl Quincy
Address: 472 Sunset Drive
FRUITLAND PARK, FL 32731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
mleo@hntb.com
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Please share your ideas concerning the project plans:

- We live immediately to the right abutting the bridge (inside the chain link fence). Request following points for your consideration:
  - approach lights or some warning indicator prior to bridge. Though much needed immediately for the old bridge.
  - Recommend a blind sign for hidden driveway etc. because our access road (Stallings Blvd.) is very dangerous even now. Expect more hazardous conditions as increased traffic and growth increases residents.
  - We endorse absolutely no accommodations for fishermen for reasons too numerous to mention here.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Mr. & Mrs. Robert Taylor (352) 787-7108
Address: 4126 Picciola Rd.

Fruitland Park, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8330 FAX (407) 318-9016
mleo@hntb.com

Suggestions: How about a tall on bridge to help collect more $ $ $ by closing the bridge...
Thank you for attending the Public Information Meeting to review the Plans for the Picciola Bridge Improvement Project on Picciola Road between Sable Palm and Lake Unity Road. The Lake County Department of Public works seeks your comments and concerns regarding these improvements. Please complete this form prior to leaving the meeting or send the completed form to HNTB Corporation (see contact information below). Your written comments will become part of the project record and will be given proper consideration.

Please share your ideas concerning the project plans:

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PUBLIC COMMENT FORM
Picciola Bridge Improvements Project
RFP No. 02-129
Leesburg Community
November 4, 2004

Thank you for attending the Public Information Meeting to review the Plans for the Picciola Bridge Improvement Project on Picciola Road between Sable Palm and Lake Unity Road. The Lake County Department of Public works seeks your comments and concerns regarding these improvements. Please complete this form prior to leaving the meeting or send the completed form to HNTB Corporation (see contact information below). Your written comments will become part of the project record and will be given proper consideration.

Please share your ideas concerning the project plans:

[Handwritten: Keep the Bridge Open!]

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Doc. Webster
Address: 25339 Kings Ct.
Fruitland Park, FL 34731

For more information contact:
Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com
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Please share your ideas concerning the project plans:

We live on the West side of the Bridge and
Store our work trailer at Lake Griffin 181E across
the Bridge our customers are on both ends of
Picciola Rd and By 27

We lived in Ohio on an Island our Bridge was removed,
But 2 Coverts 6' tall were built side by sideFill sit was
Poured down as a base and above them a Pontchie Bridge
was set above next to the old Bridge once fixed the temp bridge
came out No Inconvenience.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name:  
Dorothy Wuebker

Address:  
35216 Watersedge Dr
Fruitland Park 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380  FAX (407) 318-9016
mleo@hntb.com
STATEMENT REGISTRATION CARD FOR:
Picciola Bridge Improvements Project- RFP No. 02-129

(PLEASE PRINT)
Name: J. R. Amm
Address: 4725 Picciola Rd
Telephone Number: (312) 26-3872
Representing: Self Firm:

Government Agency: ___________________________
Civic Organization: ___________________________
Homeowner's Assoc: ___________________________
Other: _______________________________________

Signature: ___________________________________

Alignment Preference:
☑ Support Phased Construction (Alt. A)
☐ Support Build-in-Place Construction (Alt. B)

Justification for Preference:
☐ Delay in Emergency Response Time
☐ Safety/Delay at US 27/441 Eagles Nest Intersection
☐ Driving Extra Miles
☐ Shopping Inconvenience
☐ Impact to Local Business
☐ Increased Travel Time to Work/School

Other:
☐ Request Additional Vertical Clearance under Bridge
Alignment Preference:
☒ Support Phased Construction (Alt. A)
☒ Support Build-in-Place Construction (Alt. B)

Justification for Preference:
☒ Delay in Emergency Response Time
☒ Safety/Delay at US 27/441 Eagles Nest Intersection
☒ Driving Extra Miles
☒ Shopping Inconvenience
☒ Impact to Local Business
☒ Increased Travel Time to Work/School

Other:
☒ Request Additional Vertical Clearance under Bridge

Wants new bridge - straight one? Does not want to repair old bridge.
Alignment Preference:
☑ Support Phased Construction (Alt. A)
☐ Support Build-in-Place Construction (Alt. B)

Justification for Preference:
☑ Delay in Emergency Response Time
☐ Safety/Delay at US 27/441 Eagles Nest Intersection
☐ Driving Extra Miles
☐ Shopping Inconvenience
☐ Impact to Local Business
☐ Increased Travel Time to Work/School

Other:
☐ Request Additional Vertical Clearance under Bridge

Lives in Kings Cove. Lake Unity wants it raised also.

Worried about Ems.
STATEMENT REGISTRATION CARD FOR:

Piccoli Bridge Improvements Project - RFP No. 02-129

(Please Print)

Name: PAT BOSS
Address: 0542 L TWIN PRAIRIE ROAD

Telephone Number: (545) 728-1388
Representing: Self Firm:

Government Agency:
Civic Organization:
Homeowner’s Assoc:
Other:

Signature: ____________________________

Alignment Preference:
☑ Support Phased Construction (Alt. A)
☐ Support Build-in-Place Construction (Alt. B)

Justification for Preference:
☐ Delay in Emergency Response Time
☐ Safety/Delay at US 27/441 Eagles Nest Intersection
☐ Driving Extra Miles
☐ Shopping Inconvenience
☐ Impact to Local Business
☐ Increased Travel Time to Work/School

Other:
☐ Request Additional Vertical Clearance under Bridge

Lake Unity - Dangerous - No place to go.

Need to do something about lake unity road.

Cost of Fire station a concern.
To be completed prior to making a Statement
Date: November 4, 2004

STATEMENT REGISTRATION CARD FOR:
Picciola Bridge Improvements Project - RFP No. 02-129

(PLEASE PRINT)
Name: Jim Conway
Address: 3520 Twin Palms Rd, Fruitland Park
Telephone Number: (352) 728-0544
Representing: Self Firm:
Government Agency:
Civic Organization:
Homeowner's Assoc:
Other:
Signature: Jim Conway

Alignment Preference:
☒ Support Phased Construction (Alt. A)
☐ Support Build-in-Place Construction (Alt. B)

Justification for Preference:
☐ Delay in Emergency Response Time
☐ Safety/Delay at US 27/441 Eagles Nest Intersection
☐ Driving Extra Miles
☐ Shopping Inconvenience
☐ Impact to Local Business
☐ Increased Travel Time to Work/School

Other:
☐ Request Additional Vertical Clearance under Bridge

Reimburse residents for lost time - claims
This will cost residents millions for
the 6 months
Alignment Preference:
☑ Support Phased Construction (Alt. A)
☐ Support Build-in-Place Construction (Alt. B)

Justification for Preference:
☐ Delay in Emergency Response Time
☐ Safety/Delay at US 27/441 Eagles Nest Intersection
☐ Driving Extra Miles
☐ Shopping Inconvenience
☐ Impact to Local Business
☐ Increased Travel Time to Work/School

Other:
☐ Request Additional Vertical Clearance under Bridge
   Does not feel cost is correct.
STATEMENT REGISTRATION CARD FOR:

Picciola Bridge Improvements Project - RFP No. 02-129

(PLEASE PRINT)

Name: CLIFFORD A DYKE
Address: 4344 SUNNYSIDE DR
            FRUITLAND PK FL 34731-5689

Telephone Number: (352) 326-5744
Representing: Self  X  Firm:  

Government Agency: 
Civic Organization: 
Homeowner's Assoc: 
Other: 

Signature: __________________________

Alignment Preference:
☐ Support Phased Construction (Alt. A)
☒ Support Build-in-Place Construction (Alt. B)

Justification for Preference:
☐ Delay in Emergency Response Time
☐ Safety/Delay at US 27/441 Eagles Nest Intersection
☐ Driving Extra Miles
☐ Shopping Inconvenience
☐ Impact to Local Business
☐ Increased Travel Time to Work/School

Other:
☐ Request Additional Vertical Clearance under Bridge

Worried about flooding. We use it a lot.
To be completed prior to making a Statement
Date: November 4, 2004

STATEMENT REGISTRATION CARD FOR:
Piccoliola Bridge Improvements Project- RFP No. 02-129

{PLEASE PRINT} Name: 
Address: 35385 LAKES WUTTY RD, FRANKLAW PARK, MI 48131
Telephone Number: (313) 729-5723

Representing: Self [ ] Firm: [ ]

Government Agency: 
Civic Organization: 
Homeowner’s Assoc: 

Other: [ ]

Signature: [Signature]

Alignment Preference:
☐ Support Phased Construction (Alt. A)
☒ Support Build-in-Place Construction (Alt. B)

Justification for Preference:
☐ Delay in Emergency Response Time
☐ Safety/Delay at US 27/441 Eagles Nest Intersection
☐ Driving Extra Miles
☐ Shopping Inconvenience
☐ Impact to Local Business
☒ Increased Travel Time to Work/School

Other:
☒ Request Additional Vertical Clearance under Bridge

Also agrees bridge should be raised to standards.

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
Alignment Preference:
☒ Support Phased Construction (Alt. A)
☐ Support Build-in-Place Construction (Alt. B)

Justification for Preference:
☒ Delay in Emergency Response Time
☐ Safety/Delay at US 27/441 Eagles Nest Intersection
☐ Driving Extra Miles
☐ Shopping Inconvenience
☐ Impact to Local Business
☐ Increased Travel Time to Work/School

Other:
☐ Request Additional Vertical Clearance under Bridge
STATEMENT REGISTRATION CARD FOR:

Piccoli Bridge Improvements Project- RFP No. 02-129

(PLEASE PRINT)

Name: JEAN GRAVES

Address: 34-840 ROSA LANE

FRUITLAND PARK, FL 34731

Telephone Number: (352) 789-9538

Representing: Self ☑ Firm: 

Government Agency: 

Civic Organization: 

Homeowner's Assoc: 

Other: 

Signature: Jean G. Graves

Alignment Preference:

☐ Support Phased Construction (Alt. A)
☐ Support Build-in-Place Construction (Alt. B)

Justification for Preference:

☐ Delay in Emergency Response Time
☐ Safety/Delay at US 27/441 Eagles Nest Intersection
☐ Driving Extra Miles
☐ Shopping Inconvenience
☐ Impact to Local Business
☐ Increased Travel Time to Work/School

Other:

☐ Request Additional Vertical Clearance under Bridge

Did not speak
To be completed prior to making a Statement
Date: November 4, 2004

STATEMENT REGISTRATION CARD FOR:
Picciola Bridge Improvements Project: RFP No. 02-129

(PLEASE PRINT)
Name: KEVIN ORNDAHL
Address: 5241 MAGNOLIA TERR
         FRUITLAND PARK, FL 32731
Telephone Number: (352) 360-2886
Representing: Self X Firm: 
Government Agency: 
Civic Organization:
Homeowner's Assoc: 
Other:
Signature: 

Alignment Preference:
☑ Support Phased Construction (Alt. A)
☐ Support Build-in-Place Construction (Alt. B)

Justification for Preference:
☐ Delay in Emergency Response Time
☐ Safety/Delay at US 27/441 Eagles Nest Intersection
☐ Driving Extra Miles
☐ Shopping Inconvenience
☐ Impact to Local Business
☐ Increased Travel Time to Work/School

Other:
☐ Request Additional Vertical Clearance under Bridge
☐ [Handwritten text: Wants a trail along Picciola Way]
☐ [Handwritten text: Shore up rotted pyles and staple gutter to edge of failing concrete]
Alignment Preference:
☒ Support Phased Construction (Alt. A)
☐ Support Build-in-Place Construction (Alt. B)

Justification for Preference:
☒ Delay in Emergency Response Time
☒ Safety/Delay at US 27/441 Eagles Nest Intersection
☐ Driving Extra Miles
☐ Shopping Inconvenience
☐ Impact to Local Business
☐ Increased Travel Time to Work/School

Other:
☐ Request Additional Vertical Clearance under Bridge

Worried about amount of gas and traffic.

Safety

Bad business all around
Alignment Preference:
☑ Support Phased Construction (Alt. A)
☐ Support Build-in-Place Construction (Alt. B)

Justification for Preference:
☐ Delay in Emergency Response Time
☐ Safety/Delay at US 27/441 Eagles Nest Intersection
☐ Driving Extra Miles
☑ Shopping Inconvenience
☐ Impact to Local Business
☐ Increased Travel Time to Work/School

Other:
☐ Request Additional Vertical Clearance under Bridge

Worried about convenience store
 alignment Preference:
☐ Support Phased Construction (Alt. A)
☒ Support Build-in-Place Construction (Alt. B)

Justification for Preference:
☐ Delay in Emergency Response Time
☐ Safety/Delay at US 27/441 Eagles Nest Intersection
☐ Driving Extra Miles
☐ Shopping Inconvenience
☐ Impact to Local Business
☐ Increased Travel Time to Work/School

Other:
☒ Request Additional Vertical Clearance under Bridge
Build bridge to Federal Standards for under clearance.

Global warming is attributing to high
lake level.

Federal height standard?
Alignment Preference:
☑ Support Phased Construction (Alt. A)
☑ Support Build-in-Place Construction (Alt. B)
   Supports new bridge in old location

Justification for Preference:
☑ Delay in Emergency Response Time
☑ Safety/Delay at US 27/441 Eagles Nest Intersection
☑ Driving Extra Miles
☑ Shopping Inconvenience
☑ Impact to Local Business
☑ Increased Travel Time to Work/School

Other:
☑ Request Additional Vertical Clearance under Bridge

  Environmental impacts - wants to put new
  bridge where it was 50 years ago.
To be completed prior to making a Statement
Date: November 4, 2004

STATEMENT REGISTRATION CARD FOR:
Picciola Bridge Improvements Project- RFP No. 02-129
(PLEASE PRINT)
Name: Dudley Jones
Address: 35241 Maple Leaf Dr

Telephone Number: (352) 787-7751
Representing: Self

Government Agency:
Civic Organization:
Homeowner's Assoc:

Signature: 

Alignment Preference:
☐ Support Phased Construction (Alt. A)
☐ Support Build-in-Place Construction (Alt. B)

Justification for Preference:
☐ Delay in Emergency Response Time
☐ Safety/Delay at US 27/441 Eagles Nest Intersection
☐ Driving Extra Miles
☐ Shopping Inconvenience
☐ Impact to Local Business
☐ Increased Travel Time to Work/School

Other:
☐ Request Additional Vertical Clearance under Bridge

Sidewalks and bicycles and pedestrian traffic:

NB 6th unit should be addressed
Alignment Preference:
☑ Support Phased Construction (Alt. A)
☐ Support Build-in-Place Construction (Alt. B)

Justification for Preference:
☐ Delay in Emergency Response Time
☒ Safety/Delay at US 27/441 Eagles Nest Intersection
☐ Driving Extra Miles
☐ Shopping Inconvenience
☐ Impact to Local Business
☐ Increased Travel Time to Work/School

Other:
☐ Request Additional Vertical Clearance under Bridge

Safety on Eagles Nest Road
Alignment Preference:
☒ Support Phased Construction (Alt. A)
☐ Support Build-in-Place Construction (Alt. B)

Justification for Preference:
☐ Delay in Emergency Response Time
☐ Safety/Delay at US 27/441 Eagles Nest Intersection
☐ Driving Extra Miles
☐ Shopping Inconvenience
☐ Impact to Local Business
☐ Increased Travel Time to Work/School

Other:
☐ Request Additional Vertical Clearance under Bridge

Very, very very f---.  Did math for each item!!!!
Alignment Preference:
☑ Support Phased Construction (Alt. A)
☐ Support Build-in-Place Construction (Alt. B)

Justification for Preference:
☐ Delay in Emergency Response Time
☑ Safety/Delay at US 27/441 Eagles Nest Intersection
☐ Driving Extra Miles
☐ Shopping Inconvenience
☐ Impact to Local Business
☐ Increased Travel Time to Work/School

Other:
☐ Request Additional Vertical Clearance under Bridge

Cost to rehab fire house - her concern
Has this been added to 6 month cost?
To be completed prior to making a Statement

Date: November 4, 2004

STATEMENT REGISTRATION CARD FOR:
Picciola Bridge Improvements Project- RFP No. 02-129

(Please Print) Name: ANN Springer
Address: 4327 Serene Circle
FP FL 34731
Telephone Number: (352) 323-5956
Representing: Self Firm:

Government Agency:
Civic Organization:
Homeowner's Assoc:
Other:

Signature: 

Alignment Preference:
☑ Support Phased Construction (Alt. A)
☐ Support Build-in-Place Construction (Alt. B)

Justification for Preference:
☐ Delay in Emergency Response Time
☐ Safety/Delay at US 27/441 Eagles Nest Intersection
☐ Driving Extra Miles
☐ Shopping Inconvenience
☐ Impact to Local Business
☐ Increased Travel Time to Work/School

Other:
☐ Request Additional Vertical Clearance under Bridge

Wants to know where the commissioners are.

Worried about the cost
To be completed prior to making a Statement
Date: November 4, 2004

STATEMENT REGISTRATION CARD FOR:
Picciola Bridge Improvements Project- REP No. 02-129
(PLEASE PRINT)
Name: George Iliz
Address: 2649 York, Crittenden Rd.

Telephone Number: (352) 782-1415
Representing: Self  Firm:

Government Agency:                  Civic Organization:
Homeowner's Assoc:                  Other:

Signature: [Signature]

Alignment Preference:
☑ Support Phased Construction (Alt. A)
☐ Support Build-in-Place Construction (Alt. B)

Justification for Preference:
☐ Delay in Emergency Response Time
☑ Safety/Delay at US 27/441 Eagles Nest Intersection
☐ Driving Extra Miles
☐ Shopping Inconvenience
☐ Impact to Local Business
☐ Increased Travel Time to Work/School

Other:
☐ Request Additional Vertical Clearance under Bridge

Signature: [Signature]

Wants access to bridge for fishing
Worried about fuel cost to drive around
Worried about local business
Alignment Preference:

☑ Support Phased Construction (Alt. A)
☐ Support Build-in-Place Construction (Alt. B)

Justification for Preference:

☐ Delay in Emergency Response Time
☐ Safety/Delay at US 27/441 Eagles Nest Intersection
☐ Driving Extra Miles
☐ Shopping Inconvenience
☐ Impact to Local Business
☐ Increased Travel Time to Work/School

Other:
☐ Request Additional Vertical Clearance under Bridge
   Worried about the convenience stores