

# CENTRAL FLORIDA EXPRESSWAY AUTHORITY

**AGENDA**  
**SPECIAL BOARD MEETING**  
**July 20, 2021**  
**8:30 a.m.**

**Meeting location: Central Florida Expressway Authority**  
**4974 ORL Tower Road**  
**Orlando, FL 32807**  
**Boardroom**

**A. CALL TO ORDER / PLEDGE OF ALLEGIANCE**

**B. PUBLIC COMMENT**

Pursuant to Section 286.0114, Florida Statutes and CFX Rule 1-1.011, the governing Board for CFX provides for an opportunity for public comment at the beginning of each regular meeting. The Public may address the Board on any matter of public interest under the Board's authority and jurisdiction, regardless of whether the matter is on the Board's agenda but excluding pending procurement issues. Each speaker shall be limited to 3 minutes. The Public may also submit written comments in advance of the meeting to be read into the record except that if the comments exceed 3 minutes in length, when read, they will only be attached as part of the minutes.

**C. REGULAR AGENDA ITEMS**

- 1. THIRD PARTY EVALUATION OF PASSENGER RAIL PROJECT COST ESTIMATES - Kevin Knudsen, Vice President and Kelly Pollard, Senior Project Manager, Dewberry Engineers Inc.** (info item)
- 2. BRIGHTLINE RESOLUTION – Laura Kelley, Executive Director** (action item)

**D. BOARD MEMBER COMMENT**

**E. ADJOURNMENT**

This meeting is open to the public.

*Section 286.0105, Florida Statutes states that if a person decides to appeal any decision made by a board, agency, or commission with respect to any matter considered at a meeting or hearing, they will need a record of the proceedings, and that, for such purpose, they may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based.*

*Persons who require translation services, which are provided at no cost, should contact CFX at (407) 690-5000 x5316 or by email at [Iranetta.Dennis@CFXway.com](mailto:Iranetta.Dennis@CFXway.com) at least three (3) business days prior to the event.*

*In accordance with the Americans with Disabilities Act (ADA), if any person with a disability as defined by the ADA needs special accommodations to participate in this proceeding, then they should contact the Central Florida Expressway Authority at (407) 690-5000 no later than two (2) business days prior to the proceeding.*

*Please note that participants attending meetings held at the CFX Headquarters Building are subject to certain limitations and restrictions in order to adhere to the CDC guidelines and to ensure the safety and welfare of the public.*

4974 ORL TOWER RD. ORLANDO, FL 32807 | PHONE: (407) 690-5000 | FAX: (407) 690-5011

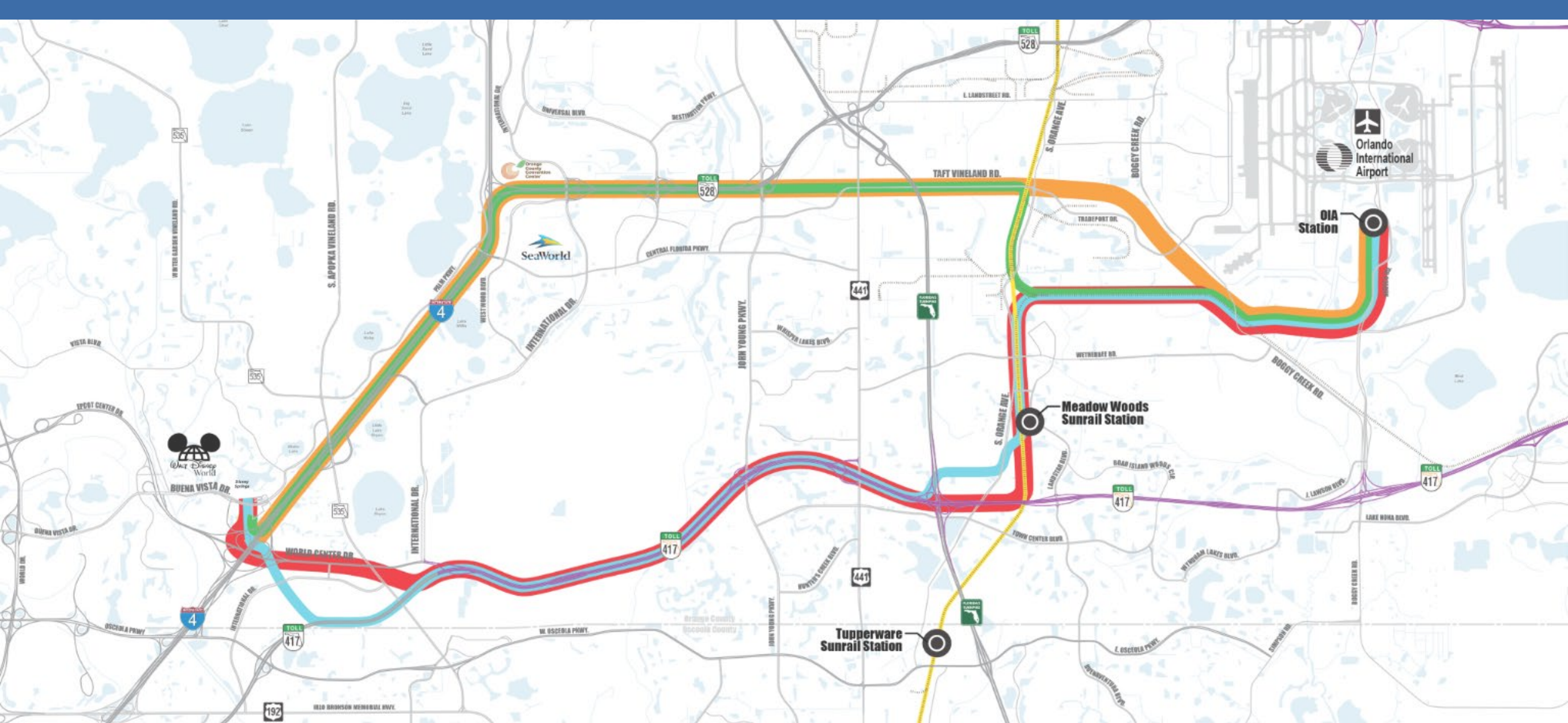
# Regular Agenda Item

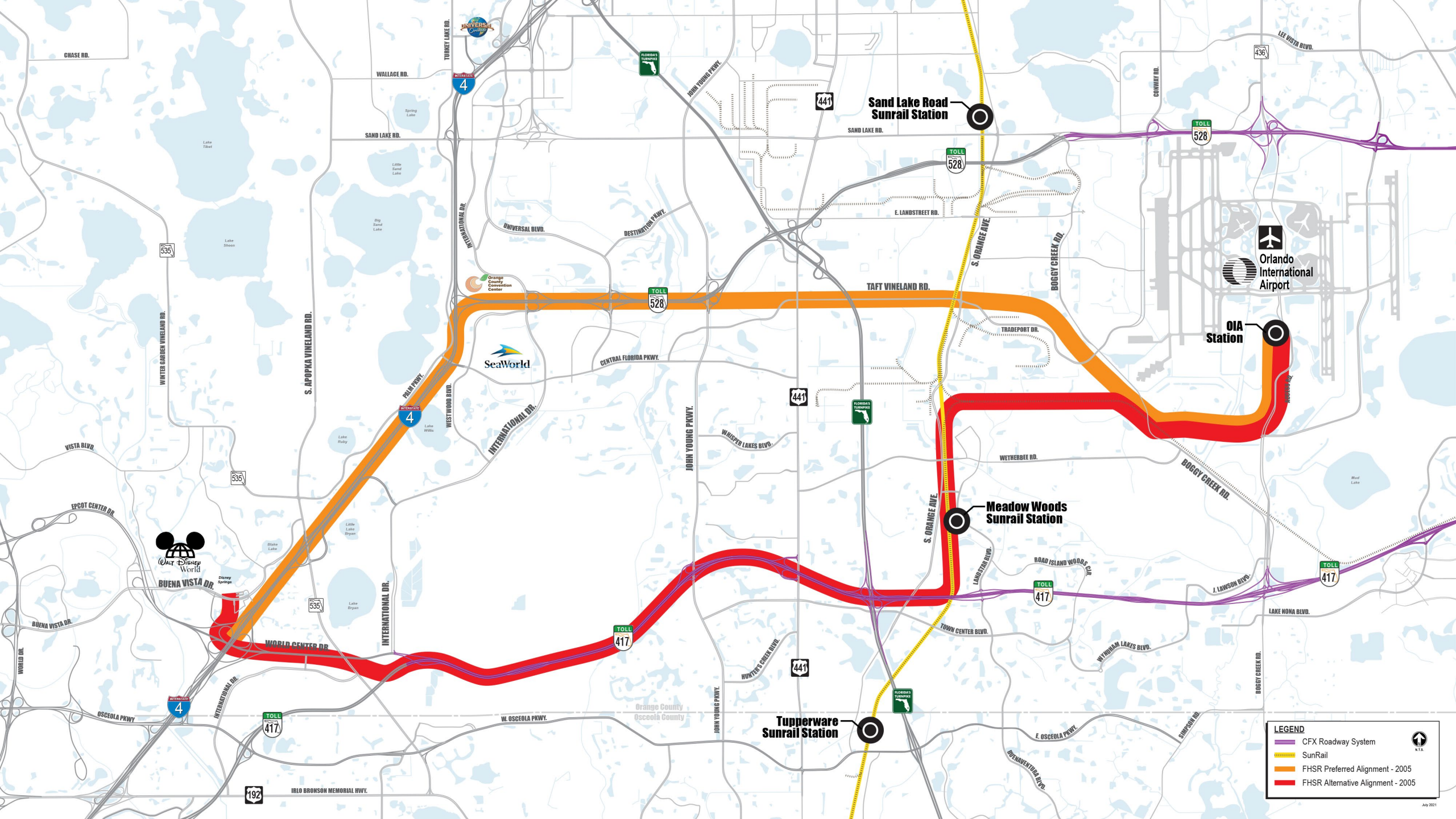
C.1.

# SR 417 and SR 528 Intercity Rail Alignments





Orlando International Airport to Walt Disney World


Evaluation of Project Cost Estimates

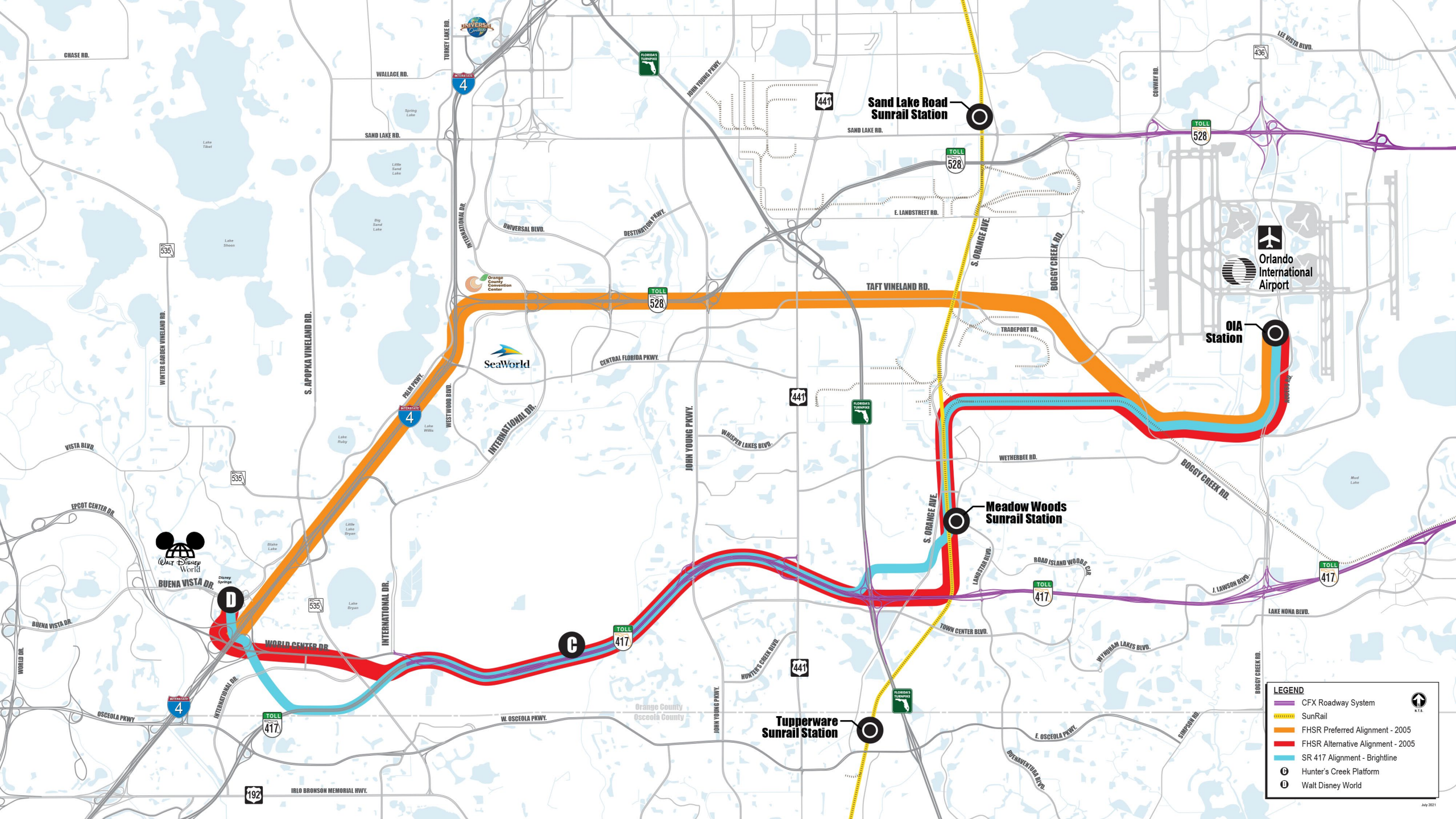




**LEGEND**

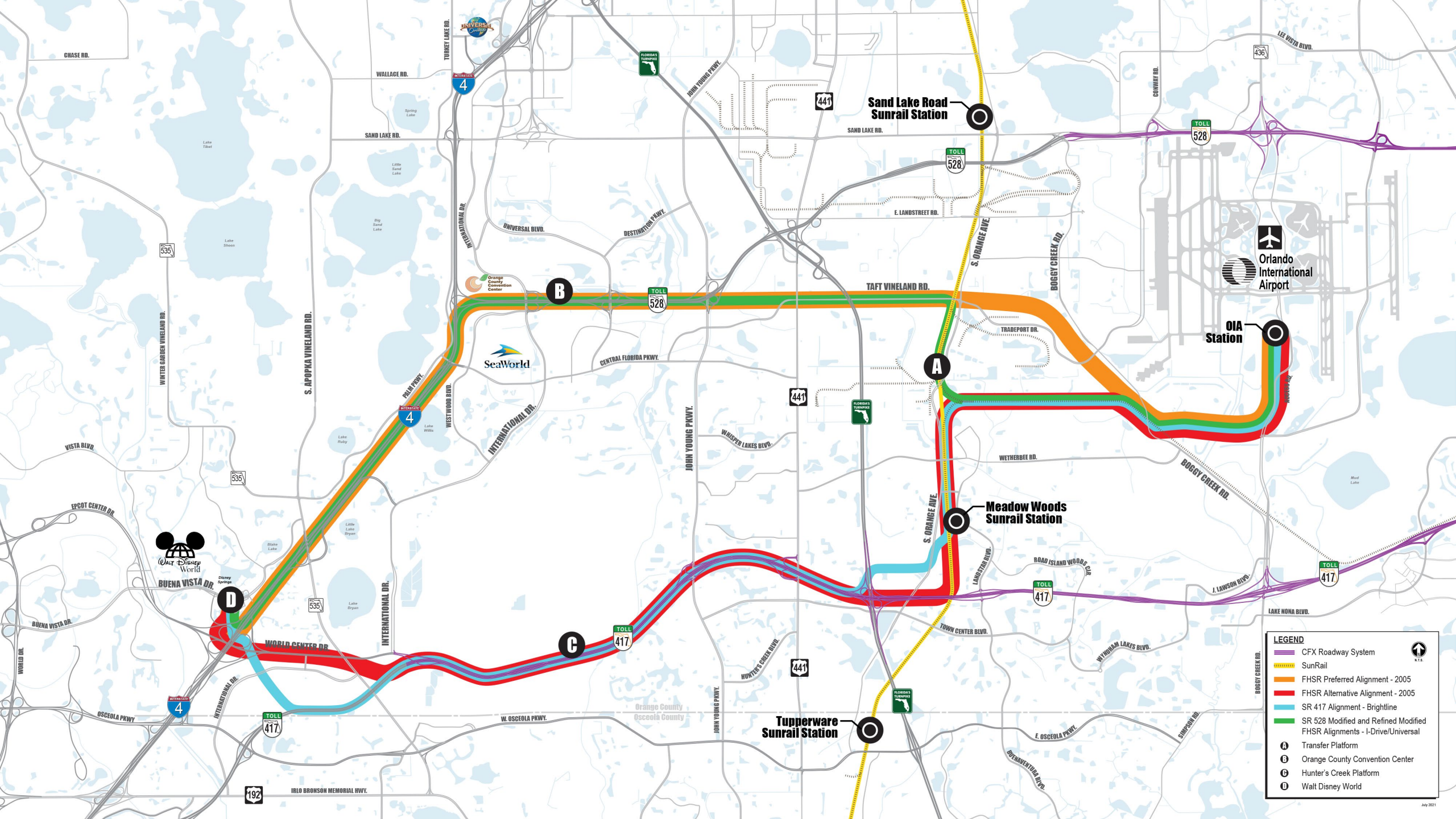
-  CFX Roadway System
-  SunRail
-  FHSR Preferred Alignment - 2005
-  FHSR Alternative Alignment - 2005

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**LEGEND**

- CFX Roadway System
- SunRail
- FHSR Preferred Alignment - 2005
- FHSR Alternative Alignment - 2005
- SR 417 Alignment - Brightline
- Hunter's Creek Platform
- Walt Disney World



**LEGEND**

- CFX Roadway System
- SunRail
- FHSR Preferred Alignment - 2005
- FHSR Alternative Alignment - 2005
- SR 417 Alignment - Brightline
- SR 528 Modified and Refined Modified FHSR Alignments - I-Drive/Universal
- Transfer Platform
- Orange County Convention Center
- Hunter's Creek Platform
- Walt Disney World

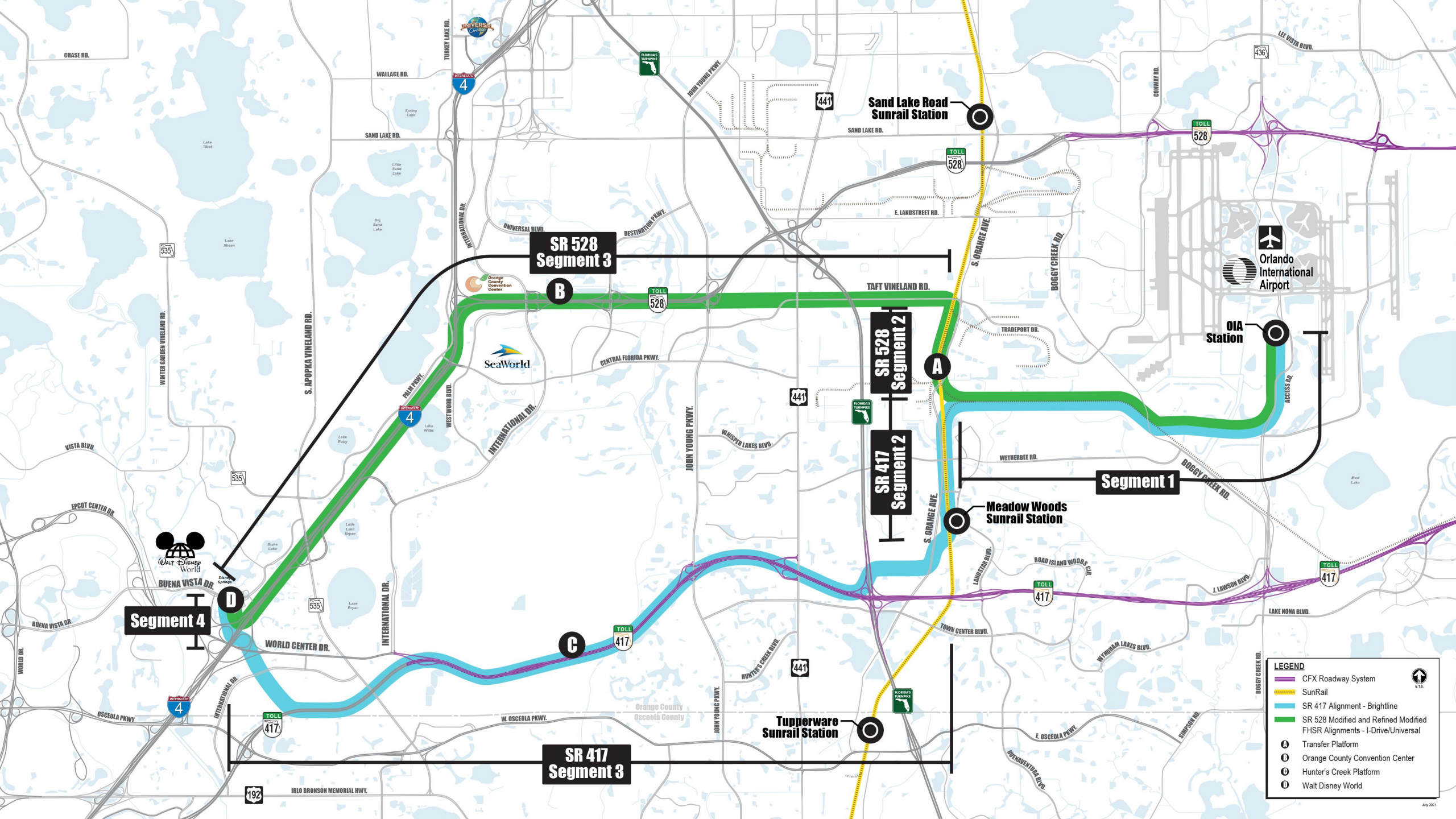
# Coordination Meetings

- Representatives

- Brightline
- I-Drive/Universal
- Dewberry
- Central Florida Expressway Authority

- Dates

- June 16, 2021
- June 23, 2021
- June 28, 2021
- July 6, 2021



**LEGEND**

- CFX Roadway System
- SunRail
- SR 417 Alignment - Brightline
- SR 528 Modified and Refined Modified FHSR Alignments - I-Drive/Universal
- Transfer Platform
- Orange County Convention Center
- Hunter's Creek Platform
- Walt Disney World

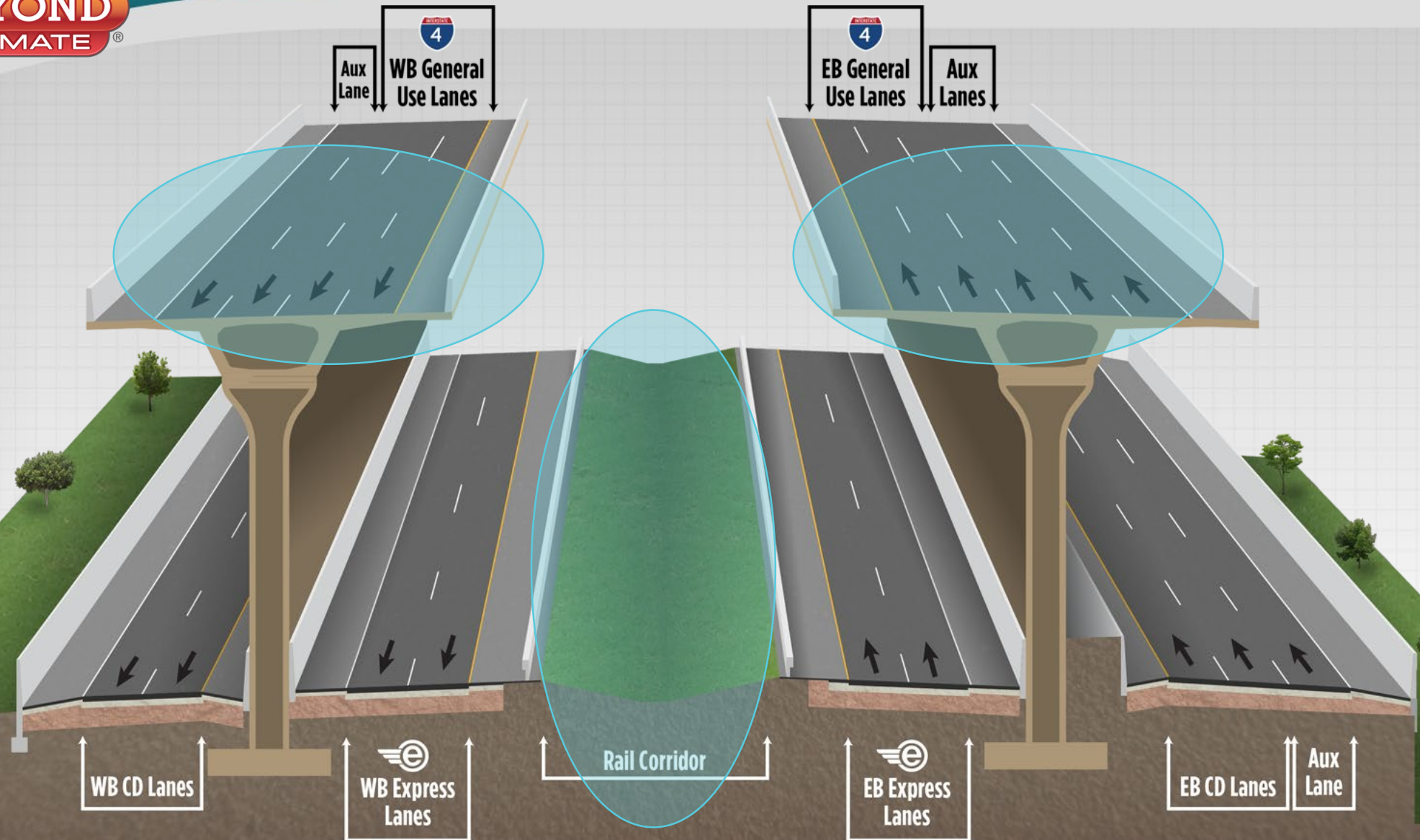


# I-4 Beyond the Ultimate

- Concept currently preserves a 44-foot rail corridor in median
- MetroPlan Orlando Presentations
- FDOT Value Engineering study evaluating possible elimination of rail corridor
- Requires relocation of rail to right-of-way line
- Requires elevated tracks on bridge structures instead of at-grade
- Potential \$554,000,000 increase in costs to SR 528 Alignments

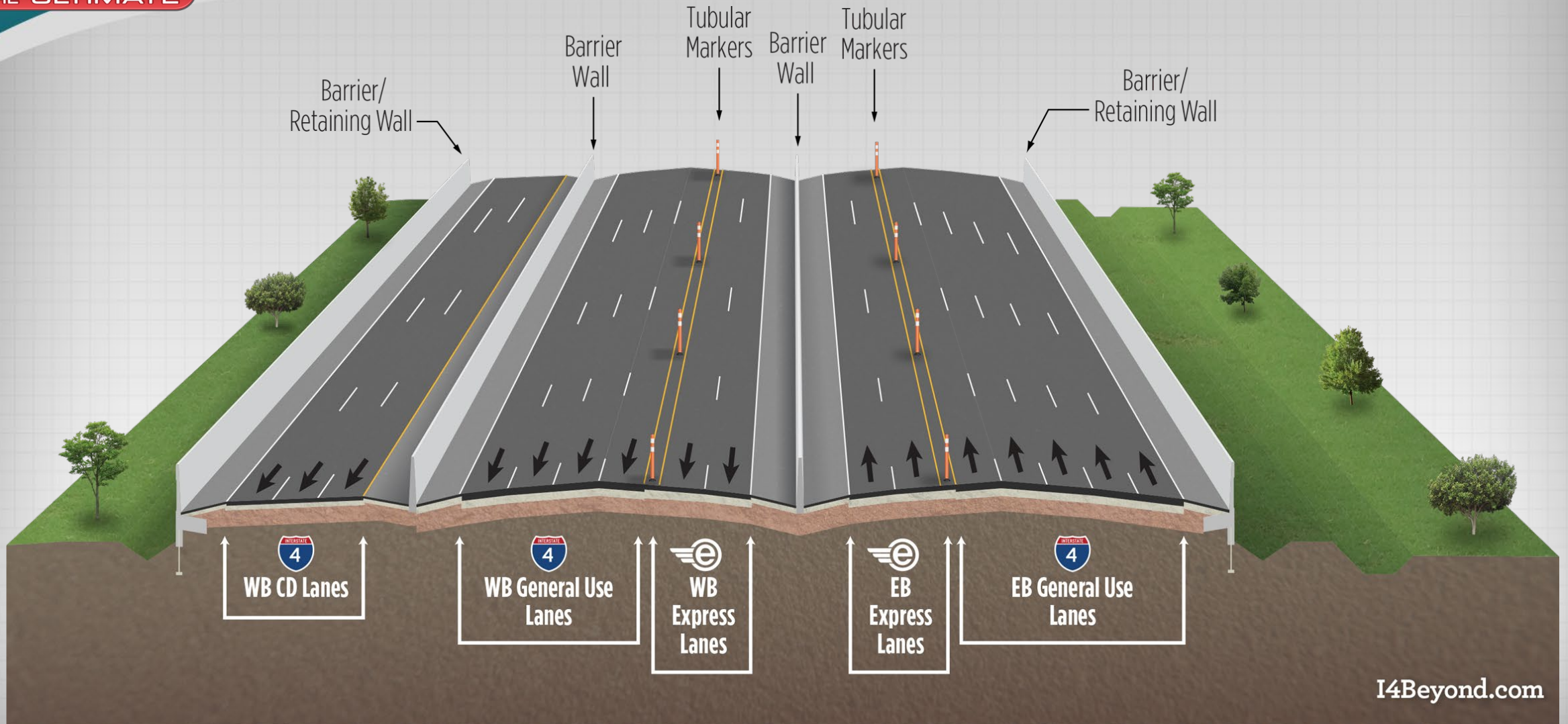


# I-4 Beyond the Ultimate Segment 1B Typical Section





# I-4 Beyond the Ultimate South Potential Typical Section



# Methodology

- Feasibility/Fatal Flaws
- Conceptual Level Design
- Brightline Unit Costs
- Brightline Percentages
- Wetlands
- Land Costs

# SR 417 Alignment (Brightline)

*Quantity takeoffs based on 15% Brightline design plans*

- **Included:**

- SunRail Platform at OIA Intermodal Facility
- Hunter's Creek Platform
- Disney Station

- **Not Included:**

- Toll diversion costs for CFX and FDOT
- Lease agreement costs for CFX and FDOT
- Additional 3<sup>rd</sup> party lease agreements
- Hunter's Creek Impacts

# SR 417 Alignment (Brightline)

## Dewberry

Segment #	1	2	3	4	Total
Limits	OIA to SunRail	SunRail to North of SR 417	North of SR 417 to I-4	I-4 to Disney	OIA to Disney
Length (Miles)	4.6	1.6	10.7	0.4	17.3
# of Tracks	1 to 3	1 to 2	2	2 to 4	NA
# of Bridges	2	0	19	2	23
Length on Bridge (LF)	508	0	6,929	1,490	8,927 (1.7 Mi.)
MSE Wall Area (SF)	45,837	0	1,737,297	113,301	1,896,435
Length on Wall (LF)	1.202	0	40,863	685	42,750
# of Parcels	2	0	19	5	26
# of Stations <sup>1</sup>	1	1	1	1	4

1. SR 417 Alignment Stations include the OIA Intermodal Center (existing), SunRail Meadow Woods (existing), and Disney Springs and a platform (no station) at Hunter's Creek.

# SR 417 Alignment (Brightline)

## Dewberry

				Segment 1		Segment 2		Segment 3		Segment 4	
				417 Route Total		OIA Intermodal Facility to SunRail		SunRail		I-4 / SR 536 Interchange to Disney	
Element	Unit	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost
Rail Infrastructure			\$ 745,018,760		\$ 87,014,788		\$ 22,296,736		\$ 563,218,608		\$ 72,488,629
Track & Ballast	TF	169,594	\$ 91,906,558	48,576	\$ 27,932,393	3,326	\$ 7,187,220	112,992	\$ 50,242,434	4,700	\$ 6,544,511
MSE Walls	SF	1,896,435	\$ 96,341,924	45,837	\$ 2,328,593	0	\$ -	1,737,297	\$ 88,257,460	113,301	\$ 5,755,872
Bridges	SF	367,127	\$ 170,756,280	17,685	\$ 8,202,088	0	\$ -	241,337	\$ 126,241,685	108,105	\$ 36,312,508
Civil/Site	RM	17.3	\$ 173,888,706	4.6	\$ 11,345,727	1.6	\$ 3,545,551	10.7	\$ 149,576,810	0.4	\$ 9,420,618
Train Control & Signals	RM	17.3	\$ 83,371,420	4.6	\$ 22,168,123	1.6	\$ 7,710,652	10.7	\$ 51,564,982	0.4	\$ 1,927,663
Contractor Indirect & General Costs	%	21%	\$ 128,753,873	21%	\$ 15,037,864	21%	\$ 3,853,314	21%	\$ 97,335,236	21%	\$ 12,527,459
<b>Building/Other</b>			<b>\$ 66,000,000</b>		<b>\$ 3,000,000</b>		<b>\$ -</b>		<b>\$ 6,000,000</b>		<b>\$ 57,000,000</b>
Station Building	EA	1	\$ 57,000,000	0	\$ -	0	\$ -	0	\$ -	1	\$ 57,000,000
Passenger Platform At-Grade	EA	3	\$ 9,000,000	1	\$ 3,000,000	0	\$ -	2	\$ 6,000,000	0	\$ -
<b>SUBTOTAL CONSTRUCTION</b>			<b>\$ 811,018,760</b>		<b>\$ 90,014,788</b>		<b>\$ 22,296,736</b>		<b>\$ 569,218,608</b>		<b>\$ 129,488,629</b>
Professional Fees (Design /Permitting)	%	7.7%	\$ 62,448,445	7.7%	\$ 6,931,139	7.7%	\$ 1,716,849	7.7%	\$ 43,829,833	7.7%	\$ 9,970,624
Project Management	%	3.3%	\$ 26,763,619	3.3%	\$ 2,970,488	3.3%	\$ 735,792	3.3%	\$ 18,784,214	3.3%	\$ 4,273,125
Construction Allowance/Contingency	%	12.4%	\$ 100,566,326	12.4%	\$ 11,161,834	12.4%	\$ 2,764,795	12.4%	\$ 70,583,107	12.4%	\$ 16,056,590
<b>GRAND TOTAL</b>			<b>\$ 1,000,797,150</b>		<b>\$ 111,078,248</b>		<b>\$ 27,514,172</b>		<b>\$ 702,415,762</b>		<b>\$ 159,788,969</b>
Land	LS	1	\$ 56,179,536	1	\$ 4,674,604	1	\$ -	1	\$ 51,504,932	1	\$ -
Land Acquisition Support (Legal/Appraisers/Surveyors)	EA	26	\$ 1,300,000								
<b>GRAND TOTAL + LAND ITEMS</b>			<b>\$ 1,058,000,000</b>		<b>\$ 116,000,000</b>		<b>\$ 28,000,000</b>		<b>\$ 754,000,000</b>		<b>\$ 160,000,000</b>

# SR 528 Modified FHSR Alignment (I-Drive/Universal)

*Quality takeoffs based on 30% FHSR design plans with SunRail route modification*

- Included:

- SunRail Platform at OIA Intermodal Facility
- Transfer Platform for SunRail
- Orange County Convention Center Station
- Disney Station
- Replacement of Orange Avenue bridges
- Elevated Bridge Section per FHSR Plans
- Utilizes I-4 Rail Corridor in median

- Not Included:

- Toll diversion costs for FDOT
- Lease agreement cost for FDOT
- Additional 3<sup>rd</sup> party agreements for land
- Taft Vineland Road widening impacts



# SR 528 Modified FHSR Alignment (I-Drive/Universal)

## Dewberry

Segment #	1	2	3	4	Total
Limits	OIA to SunRail	SunRail to Taft Vineland Rd.	Taft Vineland Rd. to I-4 <sup>1</sup>	I-4 to Disney	OIA to Disney
Length (Miles)	4.6	1.5	10.9	0.4	17.4
# of Tracks	1 to 3	1 to 2	2	2 to 4	NA
# of Bridges	2	2 <sup>2</sup>	3	2	9
Length on Bridge (LF)	508	220	39,266	1,490	41,484 (7.9 mi.)
MSE Wall Area (SF)	45,837	72,200	407,201	113,301	638,539
Length on Wall (LF)	1,202	1,900	12,230	685	16,017
# of Parcels	2	0	44	5	51
# of Stations <sup>3</sup>	1	1	1	1	4

1. Assumes an elevated section as shown in the FHSR 30% Plans.

2. Quantity includes replacement of the two Orange Avenue bridges over the existing and proposed rail.

3. SR 528 Modified FHSR Alignment Stations include the OIA Intermodal Center (existing), SunRail Phase 3 Transfer Station (w/o loop road), Orange County Convention Center, and Disney Springs.

# SR 528 Modified FHSR Alignment (I-Drive/Universal)

## Dewberry

		528 Route Total		Segment 1 OIA Intermodal Facility to SunRail		Segment 2 SunRail		Segment 3 SunRail to I-4 / SR 536 Interchange			Segment 4 I-4 / SR 536 Interchange to Disney	
Element	Unit	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Convention Center	Quantity	Cost
Rail Infrastructure			<b>\$ 1,457,452,140</b>		<b>\$ 87,014,788</b>		<b>\$ 30,935,290</b>		<b>\$ 1,199,457,396</b>			<b>\$ 72,488,629</b>
Track & Ballast	TF	180,260	\$ 96,389,449	48,576	\$ 27,932,393	11,880	\$ 6,831,000	115,104	\$ 51,181,545		4,700	\$ 6,544,511
MSE Walls	SF	638,539	\$ 32,438,800	45,837	\$ 2,328,593	72,200	\$ 3,667,875	407,201	\$ 20,686,461		113,301	\$ 5,755,872
Bridges	SF	1,520,921	\$ 803,561,224	17,685	\$ 8,202,088	27,500	\$ 4,125,000	1,367,631	\$ 715,398,145		108,105	\$ 36,312,508
Civil/Site	RM	17.4	\$ 188,415,694	4.6	\$ 11,345,727	1.5	\$ 3,736,454	10.9	\$ 152,372,639		0.4	\$ 9,420,618
Train Control & Signals	RM	17.4	\$ 84,770,620	4.6	\$ 22,168,123	1.5	\$ 7,228,736	10.9	\$ 52,528,814		0.4	\$ 1,927,663
Contractor Indirect & General Costs	%	21%	\$ 251,876,352	21%	\$ 15,037,864	21%	\$ 5,346,226	21%	\$ 207,289,794		21%	\$ 12,527,459
<b>Building/Other</b>			<b>\$ 126,000,000</b>		<b>\$ 3,000,000</b>		<b>\$ 3,000,000</b>		<b>\$ -</b>			<b>\$ 57,000,000</b>
Station Building	EA	2	\$ 114,000,000	0	\$ -	0	\$ -	1	\$ 57,000,000	\$ 57,000,000	1	\$ 57,000,000
Passenger Platform At-Grade	EA	4	\$ 12,000,000	1	\$ 3,000,000	1	\$ 3,000,000	2	\$ 6,000,000	\$ 6,000,000	0	\$ -
<b>SUBTOTAL CONSTRUCTION</b>			<b>\$ 1,583,452,140</b>		<b>\$ 90,014,788</b>		<b>\$ 33,935,290</b>		<b>\$ 1,199,457,396</b>	<b>\$ 130,556,036</b>		<b>\$ 129,488,629</b>
Professional Fees (Design /Permitting)	%	7.7%	\$ 121,925,815	7.7%	\$ 6,931,139	7.7%	\$ 2,613,017	7.7%	\$ 92,358,220	\$ 9,590,815	7.7%	\$ 9,970,624
Project Management	%	3.3%	\$ 52,253,921	3.3%	\$ 2,970,488	3.3%	\$ 1,119,865	3.3%	\$ 39,582,094	\$ 4,110,349	3.3%	\$ 4,273,125
Construction Allowance/Contingency	%	12.4%	\$ 196,348,065	12.4%	\$ 11,161,834	12.4%	\$ 4,207,976	12.4%	\$ 148,732,717	\$ 15,444,948	12.4%	\$ 16,056,590
<b>GRAND TOTAL</b>			<b>\$ 1,000,797,150</b>		<b>\$ 111,078,248</b>		<b>\$ 27,514,172</b>		<b>\$ 702,415,762</b>			<b>\$ 159,788,969</b>
Land	LS	1	\$ 78,674,604	1	\$ 4,674,604	0	\$ -	1	\$ 74,000,000		0	\$ -
Land Acquisition Support (Legal/Appraisers/Surveyors)	EA	51	\$ 2,550,000									
<b>GRAND TOTAL + LAND ITEMS</b>			<b>\$ 2,035,000,000</b>		<b>\$ 116,000,000</b>		<b>\$ 42,000,000</b>		<b>\$ 1,714,000,000</b>			<b>\$ 160,000,000</b>

# SR 528 Refined Modified FHSR Alignment (I-Drive/Universal)

*Quantity takeoffs based on refinements to the SR 528 Modified Alignment*

- **Included:**

- SunRail Platform at OIA Intermodal Facility
- Transfer Platform for SunRail
- Orange County Convention Center Station
- Disney Station
- Replacement of Orange Avenue bridges
- Utilizes I-4 Rail Corridor in median

- **Not Included:**

- Toll diversion costs for FDOT
- Lease agreement cost for FDOT
- Additional 3<sup>rd</sup> party agreements for land
- Taft Vineland Road widening impacts

# SR 528 Refined Modified FHSR Alignment (I-Drive/Universal)

*(Tracks within I-4 Median) Dewberry*

Segment #	1	2	3	4	Total
Limits	OIA to SunRail	SunRail to Taft Vineland Rd.	Taft Vineland Rd. to I-4 <sup>1</sup>	I-4 to Disney	OIA to Disney
Length (Miles)	4.6	1.5	10.9	0.4	17.4
# of Tracks	1 to 3	1 to 2	2	2 to 4	NA
# of Bridges	2	2 <sup>2</sup>	13	2	19
Length on Bridge (LF)	508	220	27,752	1,490	28,970 (5.5 mi.)
MSE Wall Area (SF)	45,837	15,580	743,520	113,301	902,658
Length on Wall (LF)	1,202	410	16,201	685	18,498
# of Parcels	2	1	43	5	51
# of Stations <sup>3</sup>	1	1	1	1	4

1. Assumes a refined combination of bridge and wall section as identified by I-Drive/Universal.
2. Quantity includes replacement of the two Orange Avenue bridges over the existing and proposed rail.
3. SR 528 Modified FHSR Alignment Stations include the OIA Intermodal Center (existing), SunRail Phase 3 Transfer Station (w/o loop road), Orange County Convention Center, and Disney Springs.

# SR 528 Refined Modified FHSR Alignment (I-Drive/Universal) (Tracks within I-4 Median) Dewberry

				Segment 1		Segment 2		Segment 3			Segment 4		
				528 Route Total		OIA Intermodal Facility to SunRail		SunRail		SunRail to I-4 / SR 536 Interchange		I-4 / SR 536 Interchange to Disney	
Element	Unit	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Convention Center	Quantity	Cost	
Rail Infrastructure			\$ 1,156,353,676		\$ 87,014,788		\$ 19,619,288		\$ 909,674,936	\$ 67,556,036		\$ 72,488,629	
Track & Ballast	TF	170,360	\$ 90,696,949	48,576	\$ 27,932,393	1,980	\$ 1,138,500	115,104	\$ 51,181,545	\$ 3,900,000	4,700	\$ 6,544,511	
MSE Walls	SF	902,658	\$ 45,856,467	45,837	\$ 2,328,593	0	\$ -	743,520	\$ 37,772,002	\$ -	113,301	\$ 5,755,872	
Bridges	SF	1,030,018	\$ 546,773,322	17,685	\$ 8,202,088	27,500	\$ 4,125,000	876,728	\$ 458,610,243	\$ 39,523,484	108,105	\$ 36,312,508	
Civil/Site	RM	17.4	\$ 188,415,694	4.6	\$ 11,345,727	1.5	\$ 3,736,454	10.9	\$ 152,372,639	\$ 11,540,257	0.4	\$ 9,420,618	
Train Control & Signals	RM	17.4	\$ 84,770,620	4.6	\$ 22,168,123	1.5	\$ 7,228,736	10.9	\$ 52,528,814	\$ 917,285	0.4	\$ 1,927,663	
Contractor Indirect & General Costs	%	21%	\$ 199,840,625	21%	\$ 15,037,864	21%	\$ 3,390,598	21%	\$ 157,209,694	\$ 11,675,010	21%	\$ 12,527,459	
<b>Building/Other</b>			\$ 126,000,000		\$ 3,000,000		\$ 3,000,000		\$ -	\$ 63,000,000		\$ 57,000,000	
Station Building	EA	1	\$ 114,000,000	0	\$ -	0	\$ -			\$ 57,000,000	1	\$ 57,000,000	
Passenger Platform At-Grade	EA	4	\$ 12,000,000	1	\$ 3,000,000	1	\$ 3,000,000	2		\$ 6,000,000	0	\$ -	
<b>SUBTOTAL CONSTRUCTION</b>			\$ 1,282,353,676		\$ 90,014,788		\$ 22,619,288		\$ 909,674,936	\$ 130,556,036		\$ 129,488,629	
Professional Fees (Design /Permitting)	%	7.7%	\$ 98,741,233	7.7%	\$ 6,931,139	7.7%	\$ 1,741,685	7.7%	\$ 70,044,970	\$ 9,590,815	7.7%	\$ 9,970,624	
Project Management	%	3.3%	\$ 42,317,671	3.3%	\$ 2,970,488	3.3%	\$ 746,436	3.3%	\$ 30,019,273	\$ 4,110,349	3.3%	\$ 4,273,125	
Construction Allowance/Contingency	%	12.4%	\$ 159,011,856	12.4%	\$ 11,161,834	12.4%	\$ 2,804,792	12.4%	\$ 112,799,692	\$ 15,444,948	12.4%	\$ 16,056,590	
<b>GRAND TOTAL</b>			\$ 1,582,424,437		\$ 111,078,248		\$ 27,912,201		\$ 1,122,538,871	\$ 159,702,148		\$ 159,788,969	
Land	LS	1	\$ 78,674,604	1	\$ 4,674,604	0	\$ -	1	\$ 74,000,000		0	\$ -	
Land Acquisition Support (Legal/Appraisers/Surveyors)	EA	51	\$ 2,550,000										
<b>GRAND TOTAL + LAND ITEMS</b>			\$ 1,664,000,000		\$ 116,000,000		\$ 28,000,000		\$ 1,356,000,000			\$ 160,000,000	

# Alignment Comparisons

## Dewberry

### SR 417 Alignment (Brightline)

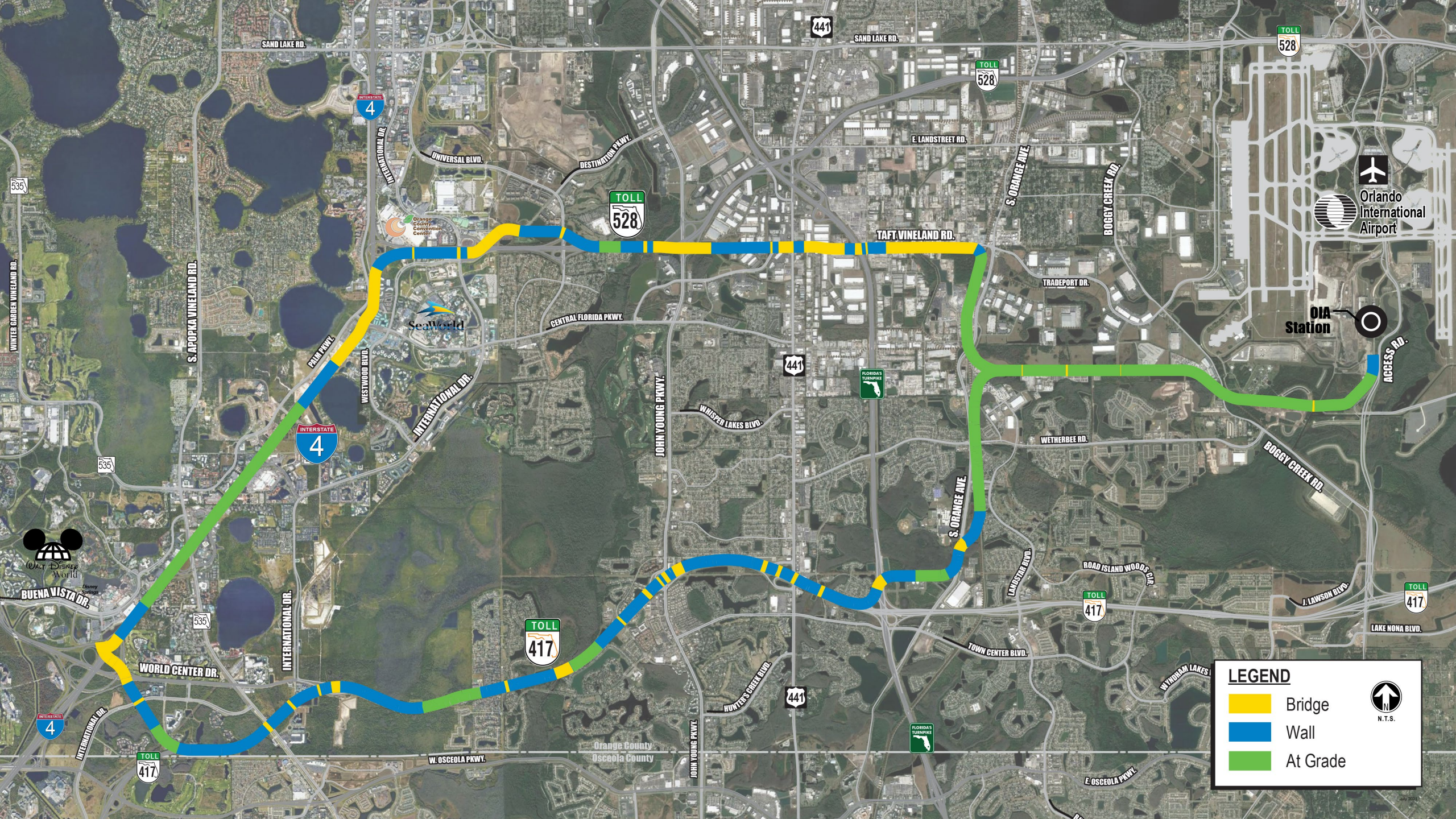
Segment #	Total
Limits	OIA to Disney
Length (Miles)	17.3
# of Tracks	NA
# of Bridges	23
Length of Bridge (LF)	8,927 (1.7 Mi.)
MSE Wall Area (SF)	1,896,435
Length on Wall (LF)	42,750
# of Parcels	26
# of Stations	4

### SR 528 Modified FHSR Alignment (I-Drive Universal)

Segment #	Total
Limits	OIA to Disney
Length (Miles)	17.4
# of Tracks	NA
# of Bridges	9
Length of Bridge (LF)	41,484 (7.9 mi.)
MSE Wall Area (SF)	638,539
Length on Wall (LF)	16,017
# of Parcels	51
# of Stations	4


### SR 528 Refined Modified FHSR Alignment (I-Drive/Universal)

Segment #	Total
Limits	OIA to Disney
Length (Miles)	17.4
# of Tracks	NA
# of Bridges	19
Length of Bridge (LF)	28,970 (5.5 mi.)
MSE Wall Area (SF)	902,658
Length on Wall (LF)	18,498
# of Parcels	51
# of Stations	4



**LEGEND**

- Bridge
- Wall
- At Grade



N  
N.T.S.



# Summary of Cost Estimates

*Dewberry*

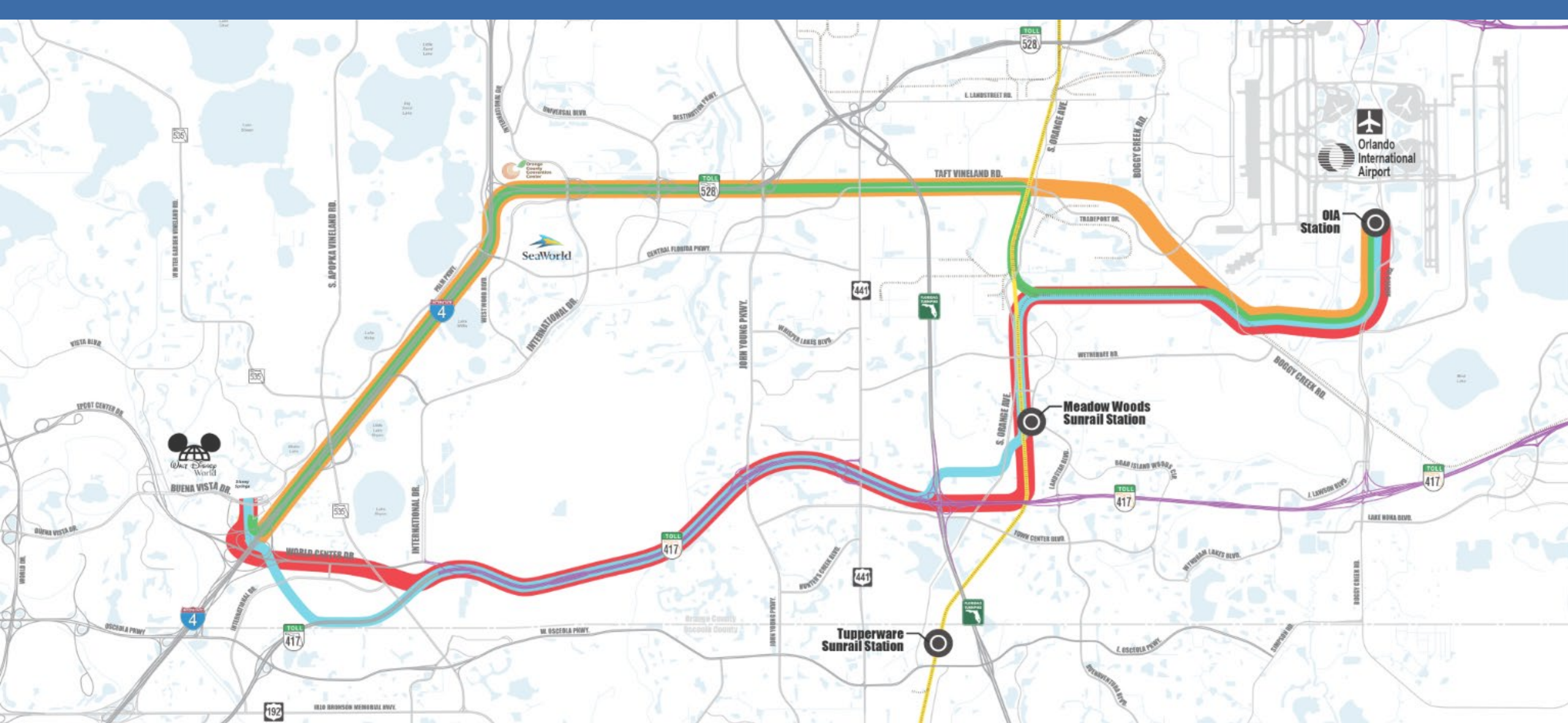
Rail Alignment	Estimated Cost (2021\$)
SR 417 Alignment (Brightline)	\$1,058,000,000
SR 528 Modified FHSR Alignment (I-Drive/Universal)	\$2,035,000,000
SR 528 Refined Modified FHSR Alignment (I-Drive/Universal) (tracks within I-4 median)	\$1,664,000,000
SR 528 Refined Modified FHSR Alignment (I-Drive/Universal) (tracks along I-4 right-of-way line)	\$2,218,000,000



# SR 417 and SR 528 Intercity Rail Alignments

Orlando International Airport to Walt Disney World

Evaluation of Project Cost Estimates





# MEMORANDUM

DATE: July 14, 2021

TO: Glenn Pressimone, P.E.

FROM: Kevin Knudsen, P.E. 

SUBJECT: Evaluation of SR 417 & SR 528 Rail Project Cost Estimates

## Message

As requested by the Central Florida Expressway Authority (CFX), Dewberry has prepared an evaluation of project cost estimates for four (4) high speed rail alignments which include the SR 417 Alignment, the SR 528 Modified FHSR Alignment, the SR 528 Refined Modified FHSR Alignment (tracks within I-4 median) and the SR 528 Refined Modified FHSR Alignment (tracks along I-4 right-of-way line). Attached you will find the evaluation report and supporting documentation.

## Attachments

1. **Evaluation of Project Cost Estimates for SR 417, SR 528 Modified Florida High Speed Rail (FHSR) and SR 528 Refined Modified FHSR Alignments of Proposed Intercity Rail from Orlando International Airport to Walt Disney World**

## CC:

NAME	✓	ORGANIZATION	PHONE	EMAIL
Keith Jackson, P.E.	✓	Dewberry	321.354.9687	kjackson@dewberry.com
Kelly Pollard, P.E.	✓	Dewberry	973.223.4802	kpollard@dewberry.com
David Falk, P.E.	✓	Dewberry	321.354.9621	dfalk@dewberry.com

**Evaluation of Project Cost Estimates for  
 SR 417, SR 528 Modified Florida High Speed Rail (FHSR) and SR 528 Refined Modified FHSR Alignments  
 of Proposed InterCity Rail from Orlando International Airport to Walt Disney World**

**EXECUTIVE SUMMARY**

Dewberry was tasked by Central Florida Expressway Authority (CFX) to prepare an independent evaluation of project cost estimates for the portion of the Orlando to Tampa intercity rail between the Orlando International Airport (OIA) in Orange County, Florida and Walt Disney World (Disney) Osceola County, Florida. As part of this evaluation, we reviewed various documents including the 2005 Florida High Speed Rail (FHSR) Project Development and Environment (PD&E) Study, the U.S. Department of Transportation Federal Railroad Administration Record of Decision/Section 4(f) Determination for Florida High Speed Rail Tampa to Orlando and the 2010 Florida Environmental Impact Statement (FEIS) Reevaluation. It should be noted that the 2005 FHSR PD&E Study's initial preferred alternative utilized the SR 417 corridor, but, due to agreements not being able to be executed, was revised to the SR 528 corridor.

The four (4) alignments evaluated include the SR 417 Alignment, the SR 528 Modified FHSR Alignment, the SR 528 Refined Modified FHSR Alignment (tracks within I-4 median) and the SR 528 Refined Modified FHSR Alignment (tracks along I-4 right-of-way line). Our evaluation was prepared based on planning level information and does not take into consideration more detailed data considered in a PD&E study for a major project like this. A cost estimate was prepared for each of the above reference alignments based on our quantity take-offs and included items for rail infrastructure (track and ballast, mechanically stabilized earth (MSE) walls, bridges, train controls and signals, etc.), station buildings, passenger platforms, professional fees, project management costs and project allowances / contingencies. For comparative purposes, we are using the Brightline unit prices for track and ballast, walls, bridges, etc. based on verification the unit prices are reasonable. Costs for land were also included in Brightline's estimates and were used for comparative purposes. Land acquisition support costs were included based on a cost per parcel. Our estimated costs for these routes were:

Table 1: Summary of Project Cost Estimates (Dewberry Estimates)

Rail Alignment	Estimated Project Cost (2021\$)
SR 417 Alignment	\$1,058,000,000
SR 528 Modified FHSR Alignment	\$2,035,000,000
SR 528 Refined Modified FHSR Alignment (tracks within I-4 median)	\$1,664,000,000
SR 528 Refined Modified FHSR Alignment (tracks along I-4 right-of-way line)	\$2,218,000,000

One of the main factors driving the costs of these various alignments is the quantity of bridges. SR 417 Alignment has the shortest length of track on bridge at approximately 1.7 miles. It also has the fewest impacted parcels at 26. Based on our cost analysis, the most economical route is the SR 417 Alignment. Depending on the track location within the I-4 limits - at grade tracks within the I-4 median or elevated tracks along the I-4 right-of-way line, the SR 528 Refined Modified FHSR Alignment requires additional project costs ranging from \$606 million to \$1.16 billion, as compared to the SR 417 Alignment.

## PURPOSE

The purpose of this report is to provide an independent evaluation of the project cost estimates excluding land, permitting and wetland mitigation for the portion of the Orlando to Tampa intercity rail project between the Orlando International Airport (OIA) and Walt Disney World (Disney). The costs for land prepared and utilized by Brightline and VHB have been accepted by Dewberry and included in the respective estimates.

The 2005 Florida High Speed Rail (FHSR) PD&E study had two preferred alignments leaving OIA – the SR 417 corridor and the SR 528 corridor. The SR 417 corridor was initially identified as the preferred alignment given that two Memorandum's of Agreement (MOAs) be executed, one with Walt Disney Company and the other with Orlando Orange County Expressway Authority (OOCEA). Failure to execute these MOA's resulted in a revised preferred alignment, the SR 528 alignment. [Note, the legislation that created CFX removed the restriction OOCEA was operating under which prevented the approval of the MOA in 2004]. Below are excerpts from the 2005 FHSR PD&E documents:

*“On October 27, 2003, the FHSRA originally identified the Central Florida Greenway (S.R. 417) alignment as the preferred alignment in Orange County. The vote was subject to the following two conditions:*

- *Subject to an acceptable agreement between the FHSRA and Walt Disney Company related to donation of ROW and commitments to support ridership for the project.*
- *Subject to an acceptable agreement between the FHSRA and OOCEA related to use of the Central Florida Greenway (S.R. 417) ROW.”*

*“On November 10, 2004, the FHSRA revised the recommendation of the Preferred Alternative because the two MOAs described previously, had not been executed. With this action, the FHSRA recommended Alternative 1 (gas turbine technology) as the Preferred Alternative, which is the combination of the I-4 alignment in Hillsborough County and the Bee Line Expressway (S.R. 528) alignment in Orange County.”*

At the completion of the 2005 FHSR PD&E Study, the SR 528 corridor was selected as the preferred alternative. This project was suspended and the Federal Rail Administration (FRA) Record of Decision (ROD) never issued. In 2008 and 2009 the Passenger Rail Investment and Improvement Act of 2008 (PRIIA) and America Recovery & Reinvestment Act of 2009 (ARRA) made available federal funds for high speed rail, including the 2005 FHSR corridor. This potential funding led the Florida Department of Transportation (FDOT) to perform a Final Environmental Impact Statement (FEIS) Reevaluation (dated May 2010) of the 2005 FHSR FEIS. It was concluded that there were *“no additional significant impacts that have been identified during the reevaluation that would require the preparation of a Supplemental EIS”*. The SR 528 FHSR corridor design then progressed to a 30% level.

On November 7, 2018, Brightline submitted a Proposal for the Lease of Rights-of-Way Owned by the FDOT and Central Florida Expressway Authority (CFX) for an intercity passenger rail system between Orlando and Tampa in response to the FDOT's June 22, 2018 Request for Proposals. The alignment submitted with Brightline's proposal generally followed the FHSR SR 417 corridor between OIA and

Disney. Design of this alignment is currently underway by Brightline with 30% design plans scheduled to be complete by the end of July 2021.

At the June 10, 2021 CFX Board Meeting, VHB (representing the International Drive Resort Area Chamber of Commerce) presented, during public comment, on an alternative alignment between OIA and Disney, which generally followed the FHSR PD&E study's recommended alignment along SR 528. Following this Board Meeting, CFX initiated weekly meetings with VHB and Brightline representatives in an attempt to reach a consensus on the estimated project costs for the modified SR 528 FHSR alignment (SR 528 Modified). On July 6, 2021, VHB provided their Brightline Route Cost Comparison Memorandum (Attachment 4) which proposed additional revisions to the 30% design plans for the SR 528 Modified Alignment. Subsequently, VHB provided an addendum on July 13, 2021 (Attachment 5) to their Brightline Cost Comparison Memorandum. This addendum provided additional information and summarized responses to questions received since the distribution of their initial memorandum.

## **ALIGNMENTS DESCRIPTIONS**

For estimating purposes, we have divided the four alignments (SR 417 Alignment, SR 528 Modified FHSR Alignment, SR 528 Refined Modified FHSR Alignment (tracks within I-4 median) and SR 528 Refined Modified FHSR Alignment (tracks along I-4 right-of-way line) into four segments. See Attachment 1 for the Alignments Exhibit. The proposed Brightline bridge typical sections show the deck widths of 34'-10" for double tracks and 20'-10" for single track (Attachment 2). The walled typical sections widths are also 34'-10" for double track and 20'-10" for single track.

### SR 417 Alignment

The SR 417 alignment proposed by Brightline is approximately 17.3 miles in length, extending from the OIA Intermodal Center to a proposed Disney Station, and includes two (2) tracks for Brightline and SunRail. This is based on Brightline's 15% design plans. This alignment consists of four (4) segments. Segment 1 extends approximately 4.6 miles from the OIA Intermodal Center to the Central Florida Rail Corridor (CFRC) tracks, follows the existing Orlando Utilities Commission (OUC) track. Segment 2 runs along the CFRC from the OUC track south for about 1.6 miles. Segment 3, approximately 10.9 miles, begins at the CFRC and travels southwest crossing over Orange Avenue, then heads south to the Orange County Utilities Southern Regional Water Supply Facility. Segment 3 continues west along the Plant's north property line then crosses over the Florida's Turnpike north of the SR 417 / Turnpike interchange. Next Segment 3 follows the interchange westerly right-of-way line and then heads west and south along the SR 417 north right-of-way line to south of the International Drive interchange where it exits the SR 417 right-of-way and heads west to the I-4/SR 536 interchange. Segment 3 includes the addition of a station platform near the SR 417 Hunter's Vista Blvd. overpass just west of Shingle Creek and a potential platform west of World Center Drive (SR 536). Segment 4, about 0.4 miles, is the section between I-4 and the proposed Disney Station.

Land acquisition for 26 parcels will be needed for all 4 segments. Segment 1 is within the OUC property. Segment 2 will need land between the CFRC and Orange Avenue and between Orange Avenue and Florida's Turnpike. Segment 3 will require land at multiple parcels along the SR 417 corridor for access

purposes and between SR 417 and International Drive and between International Drive and I-4/536 interchange. Segment 4 is located on Disney property.

Brightline has estimated the project cost including design, land, construction, project management, permitting and wetland mitigation for this alignment to be \$1,028,116,936 in 2021\$ (Attachment 3).

The following table is a summary of the major construction related cost items associated with the SR 417 Alignment:

Table 2: SR 417 Alignment (Dewberry Estimate)

Segment #	1	2	3	4	Total
Segment Limits	OIA to CFRC	CFRC to North of SR 417	North of SR 417 to I-4	I-4 to Disney	OIA to Disney
Length (Miles)	4.6	1.6	10.7	0.4	17.3
# of Tracks	1 to 3	1 to 2	2	2 to 4	NA
# of Bridges	2	0	19	2	23
Length on Bridge (LF)	508	0	6,929	1,490	8,927 (1.7 mi.)
MSE Wall Area (SF)	45,837	0	1,737,297	113,301	1,896,435
Length on Wall (LF)	1,202	0	40,863	685	42,750
# of Parcels	2	0	19	5	26
# of Stations <sup>1</sup>	1	1	1	1	4

1. SR 417 Alignment Stations include the OIA Intermodal Center (existing), SunRail Meadow Woods (existing), and Disney Springs and a platform (no station) at Hunter's Creek and west of World Center Drive.

#### SR 528 Modified FHSR Alignment

The SR 528 Modified FHSR alignment, approximately 17.4 miles, was discussed at the June Board meeting and consists of 4 segments. Segment 1, approximately 4.6 miles, from OIA Station to CFRC is the same as segment 1 of the SR 417 Alignment. Segment 2 was modified from the FHSR PD&E study alignment to be at grade and follows the CFRC tracks north from the OUC track to Taft Vineland Rd., about 1.5 mile. Segment 2 requires the replacement of the Orange Avenue bridges to accommodate an additional track and includes the SunRail Phase 3 (CFRC to OIA) transfer station. Segment 3, approximately 10.9 miles, begins at the CFRC tracks and follows the FHSR PD&E study alignment along north right-of-way of Taft Vineland Rd. (TVR), crosses over SR 528 near the SR 528 / John Young Parkway interchange entering the SR 528 right-of-way, and continues along the north SR 528 right-of-way line to the proposed Orange County Convention Center (Convention Center) station located east of International Drive and north of SR 528. Segment 3 then continues west from the proposed Convention Center station and turns southwest into the I-4 median (assumes the FDOT I-4 Beyond the Ultimate (BTU) maintains the median corridor for rail) until reaching the I-4 / SR 536 interchange, approximately 6

miles. Segment 4, about 0.4 miles, is essentially the same segment between I-4 and the proposed Disney Station as the SR 417 alignment.

Land acquisition for 51 parcels will be needed for all 4 segments. Segment 1 is within the OUC property. The land for the loop road at the SunRail transfer station located in Segment 2 is not included in the project. Segment 3 will require land between the CFRC and SR 528/John Young Parkway as the alignment parallels TVR and between SR 528 Orangewood Boulevard and International Drive interchanges plus land for the Convention Center station. Segment 4 is located on Disney property.

Brightline has estimated the project cost including design, land, construction, project management, permitting and wetland mitigation for this alignment to be \$1,808,354,843 in 2021\$ assuming an at grade profile in the median of I-4 (Attachment 3).

The following table is a summary of the major construction cost items associated with the SR 528 Modified FHSR Alignment:

Table 3: SR 528 Modified FHSR Alignment (Dewberry Estimate)

Segment #	1	2	3	4	Total
Segment Limits	OIA to CFRC	CFRC to Taft Vineland Rd.	Taft Vineland Rd. to I-4 <sup>1</sup>	I-4 to Disney	OIA to Disney
Length (Miles)	4.6	1.5	10.9	0.4	17.4
# of Tracks	1 to 3	1 to 2	2	2 to 4	NA
# of Bridges	2	2 <sup>2</sup>	3	2	9
Length on Bridge (LF)	508	220	39,266	1,490	41,484 (7.9 mi.)
MSE Wall Area (SF)	45,837	72,200	407,201	113,301	638,539
Length on Wall (LF)	1,202	1,900	12,230	685	16,822
# of Parcels	2	0	44	5	51
# of Stations <sup>3</sup>	1	1	1	1	4

1. Assumes an elevated section as shown in the FHSR 30% Plans.
2. Quantity includes replacement of the two Orange Avenue bridges over the existing and proposed rail.
3. SR 528 Modified FHSR Alignment Stations include the OIA Intermodal Center (existing), SunRail Phase 3 Transfer Station (w/o loop road), Orange County Convention Center, and Disney Springs.

SR 528 Refined Modified FHSR Alignment (tracks within I-4 median)

VHB, per their Brightline Route Cost Comparison Memorandum dated July 6, 2021, presented refinements to the centerline and limits of bridges for the SR 528 Modified FHSR Alignment, as such the SR 528 Refined Modified FHSR Alignment was created. VHB concluded the cost estimates provided by Brightline for the SR 528 Modified FHSR Alignments (tracks within I-4 median and tracks along I-4 right-

of-way line) can be reduced by \$296m by reducing the lengths of bridges and placing the rail on walls or at grade. VHB identified changes in Segment 3, did not identify any changes to Segments 1, 2 and 4 and utilized Brightline's cost estimates for Segments 1, 2 and 4.

In Segment 3, VHB has proposed the following changes to the 30% design plans:

- Move the centerline south of the TVR right-of-way from the CFRC corridor west to just west of Florida's Turnpike. The FHSR centerline was on the north side of TVR.
- Shift the centerline to the north along the SR 528 right-of-way line from east of the Orangewood Boulevard exit ramp to the proposed Convention Center station. The FHSR centerline was adjacent to the SR 528 r/w line.
- Shift the centerline to the south side of SR 528 prior to the approach to I-4, thus keeping the centerline outside of the I-4/SR 528 interchange instead of going thru the middle per the FHSR design plans. (This alignment is not compatible with the I-4 BTU design.)

Land acquisition for 51 parcels will be needed for all 4 segments based on the VHB proposed revisions to the 30% design plans. Although this alignment impacts the same number of parcels as the SR 528 Modified FHSR Alignment, additional acreage of land is needed for the centerline shifts between Orangewood Boulevard and I-4 which is primarily located outside of the SR 528 right-of-way. In addition, the centerline alignment south of TVR south right-of-way line will need to be offset to accommodate the Orange County Taft Vineland Road Widening Project. Timing of the land acquisition with Orange County's project could influence the land costs.

The locations of walls proposed by VHB instead of bridges are as follows:

- Along TVR between General Drive and Bachman Road
- Along TVR between Bachman Road and Florida's Turnpike
- Along TVR between Florida's Turnpike and the first driveway west of Florida's Turnpike
- Along TVR east of South Orange Blossom Trail along existing and proposed pond sites
- West of TVR curve between the western Sam's Club driveway and American Eagle Way
- Between American Eagle Way and a private drainage canal east of the SR 528/John Young Parkway (JYP) interchange
- Between southbound JYP to westbound SR 528 ramp and the SR 528 Shingle Creek bridge
- Along SR 528 between the Shingle Creek bridge and an existing overhead truss sign structure
- Along SR 528 westbound exit ramp to Orangewood Boulevard from SR 528 to Orangewood Boulevard
- Between Orangewood Boulevard and Destination Parkway
- Along SR 528 between the eastbound exit ramp to International Drive from SR 528 and International Drive
- Along SR 528 between International Drive and West Entrance Drive
- Along I-4 eastbound entrance ramp to eastbound SR 528 between West Entrance Drive to just north of the I-4 exit ramp gore for the I-4 east to east SR 528 movement



The change from elevated to at-grade tracks proposed by VHB is located along SR 528 between existing overhead sign and east of westbound exit ramp to Orangewood Blvd.

The change from tracks on wall/fill to at-grade tracks proposed by VHB is as follows:

- North of Kissimmee Vineland Road to Kissimmee Vineland Road overpass
- South of Kissimmee Vineland Road overpass to south of Kissimmee Vineland Road

The following table is a summary of the major cost items associated with the proposed refinements to the 30% design plans for the SR 528 Modified FHSR Alignment:

Table 4: SR 528 Refined Modified Alignment (tracks within I-4 median) (Dewberry Estimate)

Segment #	1	2	3	4	Total
Segment Limits	OIA to CFRC	CFRC to Taft Vineland Rd.	Taft Vineland Rd. to I-4 <sup>1</sup>	I-4 to Disney	OIA to Disney
Length (Miles)	4.6	1.5	10.9	0.4	17.4
# of Tracks	1 to 3	1 to 2	2	2 to 4	NA
# of Bridges	2	2 <sup>2</sup>	13	2	19
Length on Bridge (LF)	508	220	26,752	1,490	28,970 (5.5 mi.)
MSE Wall Area (SF)	45,837	15,580	743,520	113,301	902,658
Length on Wall (LF)	1,202	410	16,201	685	19,303
# of Parcels	2	1	43	5	51
# of Stations <sup>3</sup>	1	1	1	1	4

1. Based on revised centerline and revisions to rail on bridge, wall and at grade per the VHB 7/6/21 Memorandum and KMZ file provided.
2. Quantity includes replacement of the two Orange Avenue bridges over the existing and proposed rail.
3. Same stations as SR 528 Modified FHSR Alignment Stations - the OIA Intermodal Center (existing), SunRail Phase 3 Transfer Station, Orange County Convention Center, and Disney Springs.

SR 528 Refined Modified Alignment (tracks along I-4 right-of-way line)

The FDOT District 5 BTU project is currently considering a value engineering cost savings to redesign the project to eliminate the 44' rail corridor in the median. Brightline has estimated an alternate project cost of \$2,362,874,902 in 2021\$, an additional \$554,520,059 assuming that the I-4 BTU corridor's median width is reduced and the rail alignment is moved from the median to the I-4 right-of-way line, necessitating the tracks to be elevated and additional land to be acquired. We have reviewed this estimated additional cost prepared by Brightline and confirmed it is reasonable. It has been reported that FDOT could save up to \$1B in construction costs with this change.

Given this information, the SR 528 Refined Modified Alignment (tracks along I-4 right-of-way line) was created. With the exception of the approximately 5-mile portion of Segment 3 between that lies within the I-4 corridor (between Central Florida Parkway and SR 536), this alignment matches the SR 528 Refined Modified Alignment (tracks within I-4 median).

## **EVALUATION OF THE COST ESTIMATES**

Understanding the need to be able to compare apples to apples estimates for the different alignments and acknowledging that none of the proposed alignments currently have a PD&E level evaluations, we are utilizing the unit prices provided by Brightline for the construction cost items and professional fees, project management and construction allowance/contingency percentages. The total wetland impacts, existing infrastructure improvements reconstruction needed to accommodate rail, and the land requirements and costs for both the rail and associated stormwater management are not fully quantified for any of the alignments. Our review of the alignments and quantity take-offs focused on the major rail construction cost items such as stations, platforms, track, ballast, walls, and bridges.

We have prepared three cost estimates for the following OIA to Disney routes: SR 417 Alignment, SR 528 Modified FHSR Alignment and SR 528 Refined Modified FHSR Alignment (See Attachment 6). Land costs were not independently derived by our team for our cost estimates. We accepted and utilized the land costs presented in the Brightline cost estimates.

We have revised the Brightline methodology by not adding the professional fees, project management and construction allowance/contingency percentages to the land cost. These additives were increasing the land costs by 23.4%. Our estimate has assumed \$50,000 per parcel for land acquisition support (attorney's fees, appraisal fees, surveying fees, legal and descriptions preparation, etc.).

The estimate for the SR 417 Alignment is \$1,058,000,000 (2021\$) about 2.9% more than the Brightline estimate of \$1,028,116,936 (2021\$). The difference is attributed to the addition of bridges and MSE walls within Segment 1 (per the 15% SR 417 Rail Plans). These bridges and walls were not included in any of the Brightline or VHB estimates, but have been included in the SR 417, SR 528 Modified FHSR, and SR 528 Refined Modified FHSR alignments.

The estimate for the SR 528 Modified FHSR Alignment based on the FHSR design plans is \$2,035,000,000 (2021\$) about 13% greater than the Brightline estimate of \$1,808,354,843 (2021\$). This difference is mainly attributed to changes in Segments 2 and 3. Segment 2 includes the addition of walls and bridge needed to transition up from at grade along CFRC to span over TVR to reach the alignment on the north side of TVR. Segment 3 includes the quantities of walls in this segment based on the 30% FHSR Plans and additional walls in the I-4 median north of the I-4/SR 536 Interchange to accommodate the bridge needed to crossover I-4 westbound lanes and the I-4 WB SR 536 exit ramp. The SR 528 Modified FHSR Alignment appeared to be missing quantities for walls for tracks located within the I-4 median.

The estimate for the SR 528 Refined Modified FHSR Alignment, is \$1,664,000,000 (2021\$) about 10% greater than the VHB estimate of \$1,511,923,805 (including the Convention Center Station). This difference is mainly attributed to the addition of a flyover bridge at the SR 528 / I-4 Interchange to

accommodate the I-4 Beyond the Ultimate (BTU) plans. The VHB estimate does not appear to account for this planned I-4 BTU work, which would require an elevated bridge section thru the interchange. The VHB estimate did not match the FHSR plans for the I-4 median alignment at SR 536. Additional walls in the I-4 median north of the I-4/SR 536 Interchange to accommodate the bridge needed to crossover I-4 westbound lanes and the I-4 WB SR 536 exit ramp were not included in the VHB estimate.

Table 5: SR 417 vs. SR 528 FHSR Alignments (Dewberry Estimates)

SR 528 FHSR Alignment Alternatives	SR 528 Costs	SR 417 Cost	Difference	Cost Differential Factors
Modified	\$2.035 Bil.	\$1.058 Bil.	\$977 Mil.	SR 417 has Less Bridges SR 417 ≈ 1.7 mi. SR 528 ≈ 7.9 mi.
Refined Modified (tracks within I-4 median)	\$1.664 Bil.	\$1.058 Bil.	\$606 Mil.	SR 417 has Less Bridges SR 417 ≈ 1.7 mi. SR 528 ≈ 5.5 mi. SR 417 has More Walls SR 417 ≈ 1.9 mil. SF SR 528 ≈ 0.6 mil. SF
Refined Modified (tracks along I-4 right-of-way line)	\$2.218 Bil. <sup>1</sup>	\$1.058 Bil.	\$1,106 Mil.	SR 417 has Less Bridges Adds 5 miles of bridge along I-4 r/w line between Central Parkway and SR 536

1. Brightline estimated a cost of \$554,520,059 assuming that the I-4 BTU corridor's median width is reduced, the rail alignment moved from the median to the I-4 right-of-way line and the rail elevated. We have reviewed and accepted this estimated cost, which has been utilized in the cost above.

## CONCLUSION

Dewberry was tasked by CFX to prepare an independent evaluation of project cost estimates for the portion of the Orlando to Tampa intercity rail between OIA and Disney. As part of this task, we reviewed various documents regarding the proposed FHSR and did quantity take-offs for each. It should be noted that the 2005 FHSR PD&E Study's initial preferred alternative utilized the SR 417 corridor, but due to agreements not being able to be executed, was revised to the SR 528 corridor. We prepared cost estimates for the following four (4) alignments: the SR 417 Alignment, the SR 528 Modified FHSR Alignment, the SR 528 Refined Modified FHSR Alignment (tracks within I-4 median) and the SR 528 Refined Modified FHSR Alignment (tracks along I-4 right-of-way line). Our evaluation was prepared based on planning level information and does not take into consideration all criteria considered in a PD&E study. Below is a summary of our estimated project costs for each of the alignments.

Table 6: Summary of Project Cost Estimates (Dewberry Estimates)

Rail Alignment	Estimated Project Cost (2021\$)
SR 417 Alignment	\$1,058,000,000
SR 528 Modified FHSR Alignment	\$2,035,000,000
SR 528 Refined Modified FHSR Alignment (tracks within I-4 median)	\$1,664,000,000
SR 528 Refined Modified FHSR Alignment (tracks along I-4 right-of-way line)	\$2,218,000,000

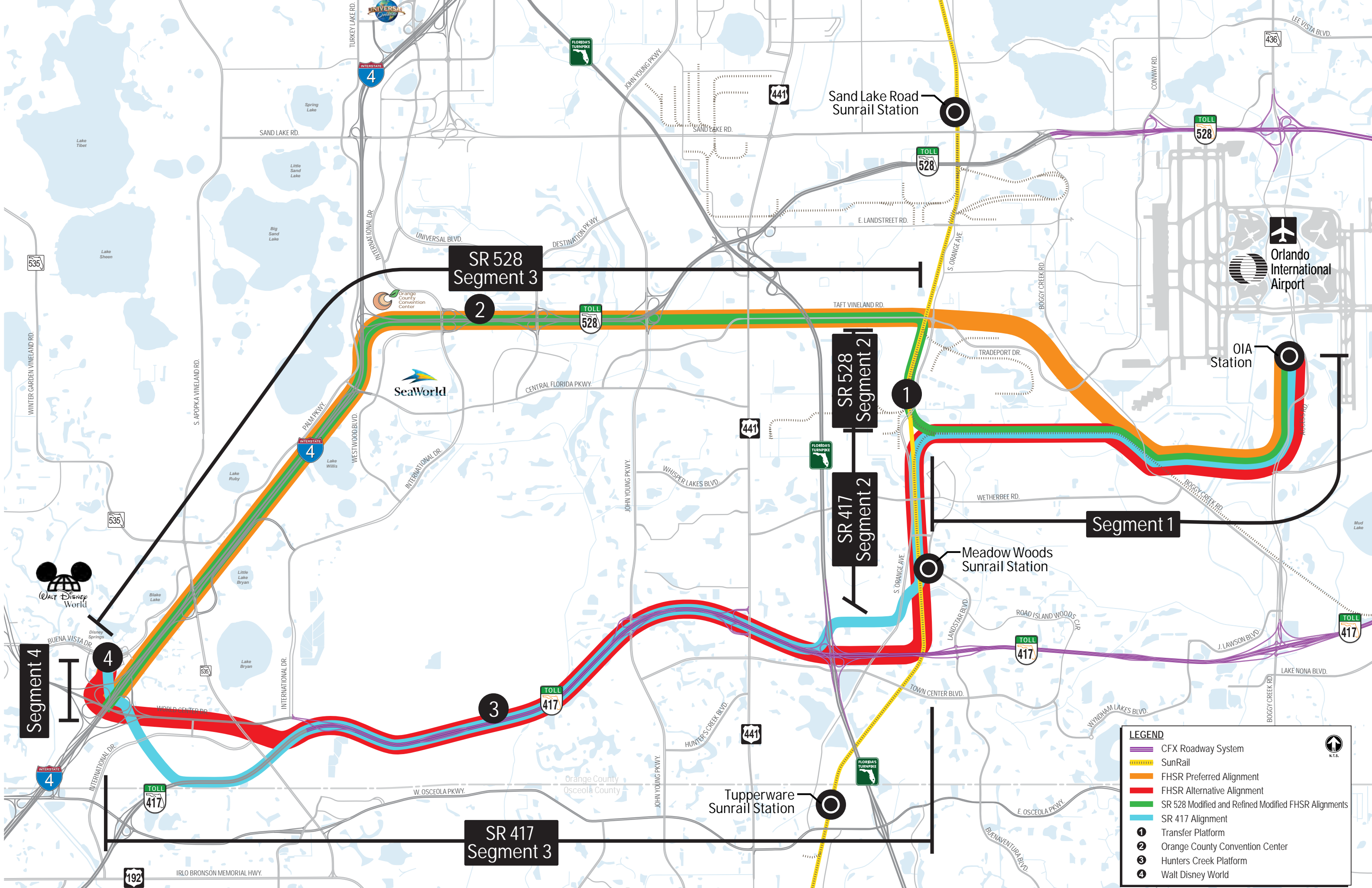
One of the main factors driving the costs of these various alignments is the quantity of bridges. SR 417 Alignment has the shortest length of track on bridge at approximately 1.7 miles. It also has the fewest impacted parcels at 26. Based on our cost analysis, the most economical route is the SR 417 Alignment. Depending on the track location within the I-4 limits - at grade tracks within the I-4 median or elevated tracks along the I-4 right-of-way line, the SR 528 Refined Modified FHSR Alignment requires additional project costs ranging from \$606 million to \$1.16 billion, as compared to the SR 417 Alignment.

## ATTACHMENTS

1. Alignments Exhibit
2. Brightline Typical Sections
3. Brightline Memorandum and Estimates
4. VHB Memorandum: Brightline Route Cost Comparison dated 7/6/21
5. VHB Addendum: Brightline Route Cost Comparison Addendum dated 7/12/21
6. Dewberry Project Cost Estimates

# ATTACHMENT 1

## Alignments Exhibit

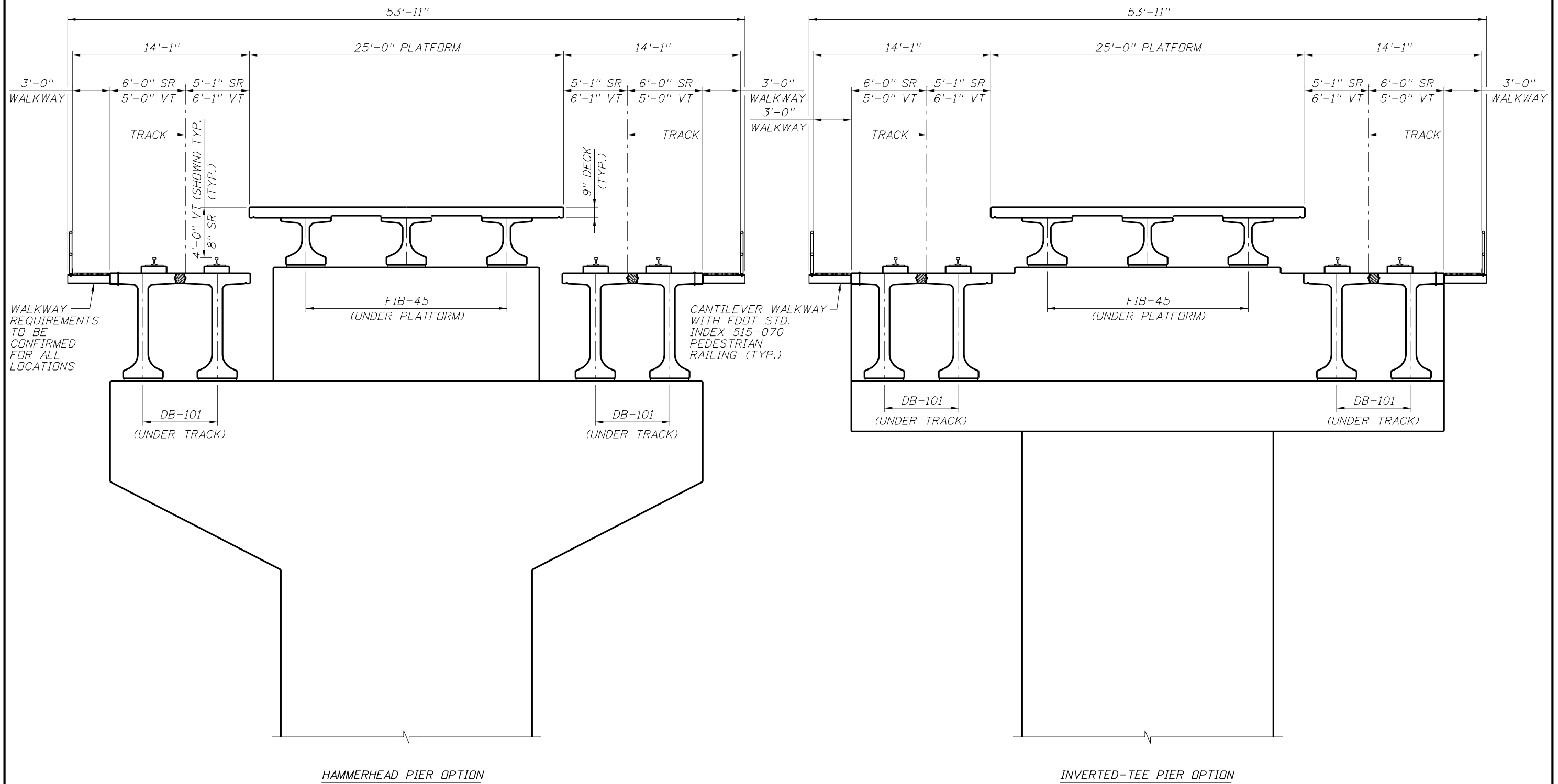


**LEGEND**

- CFX Roadway System
- SunRail
- FHSR Preferred Alignment
- FHSR Alternative Alignment
- SR 528 Modified and Refined Modified FHSR Alignments
- SR 417 Alignment
- 1 Transfer Platform
- 2 Orange County Convention Center
- 3 Hunters Creek Platform
- 4 Walt Disney World

# ATTACHMENT 2

Brightline Typical Sections



**STATION PLATFORM TYPICAL SECTIONS**

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION
	<b>15% SUBMITTAL NOT FOR CONSTRUCTION</b>		

**HNTB**  
HNTB CORPORATION  
 610 CRESCENT EXECUTIVE COURT  
 SUITE 400, LAKE MARY, FL 32746  
 (407) 805-0355  
 CERT. OF AUTH. NO. 6500

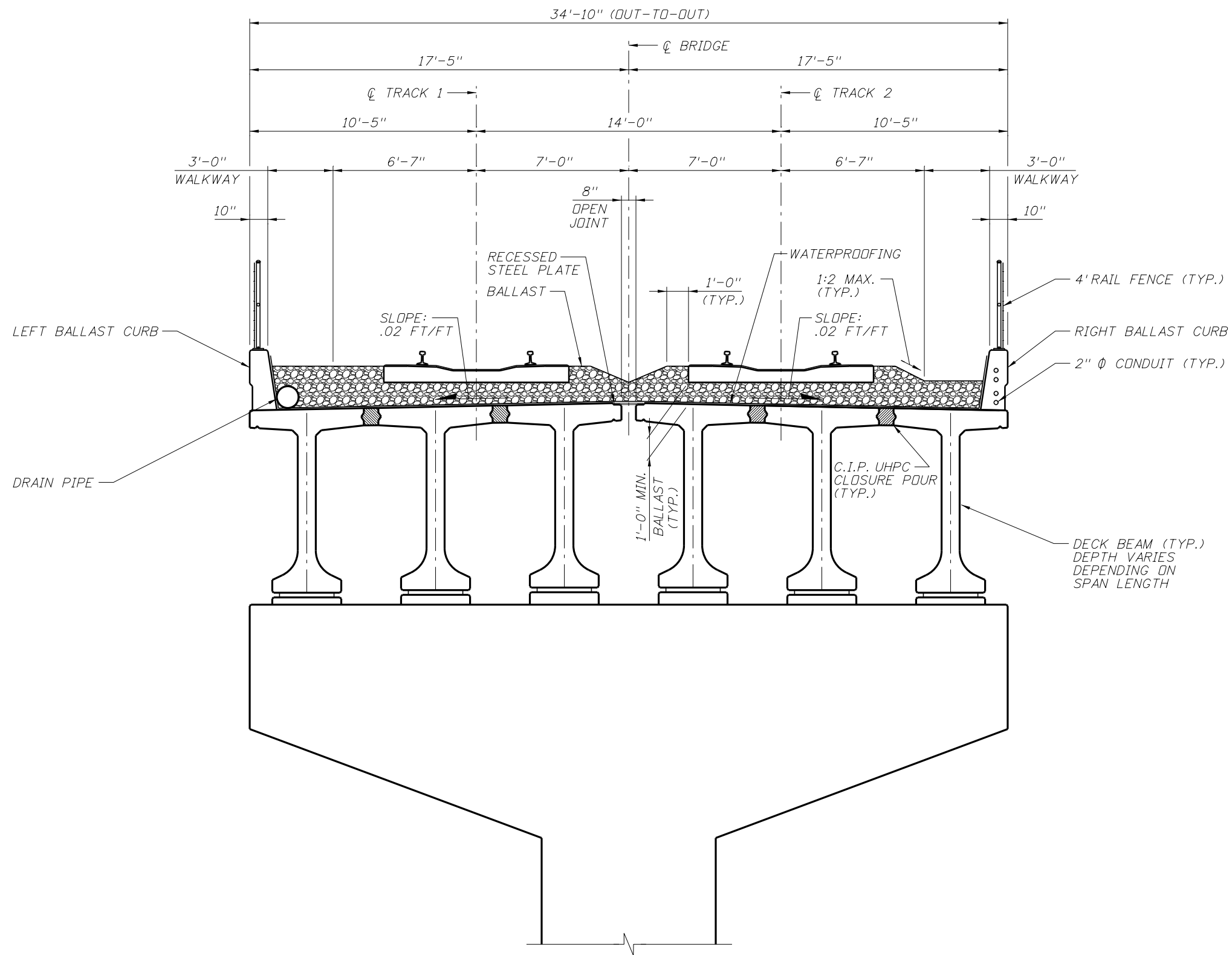
COUNTY	PROJECT
ORANGE	OIA TO DISNEY SPRINGS



**STATION PLATFORM  
TYPICAL SECTIONS**

SHEET NO.
TS-01





**CONCRETE DECK BEAM (DB) BRIDGE TYPICAL SECTION**  
(LOOKING AHEAD STATION)

REVISIONS	
DATE	DESCRIPTION
	<b>15% SUBMITTAL NOT FOR CONSTRUCTION</b>

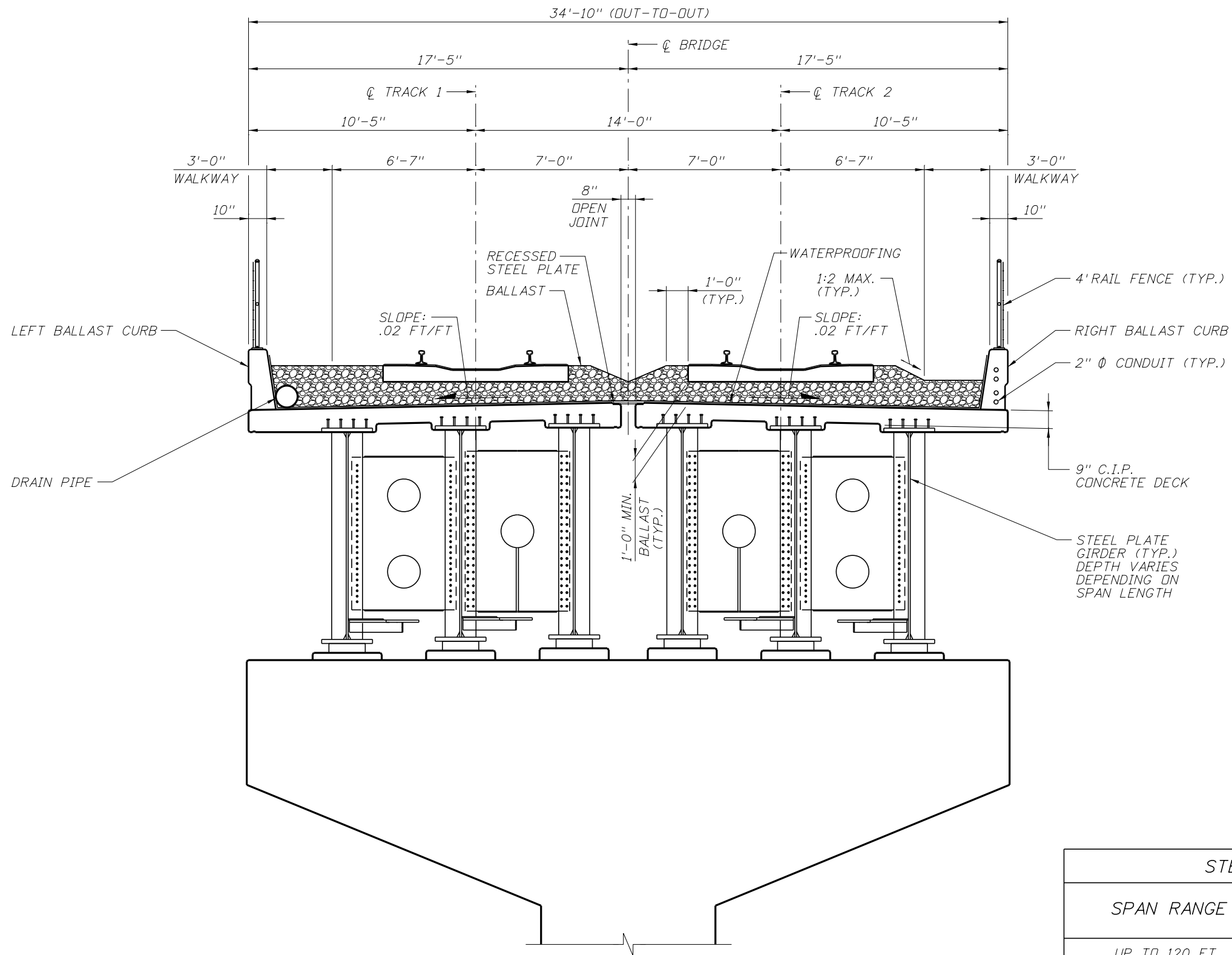
**HNTB**  
HNTB CORPORATION  
 610 CRESCENT EXECUTIVE COURT  
 SUITE 400, LAKE MARY, FL 32746  
 (407) 805-0355  
 CERT. OF AUTH. NO. 6500

COUNTY	PROJECT
ORANGE	OIA TO DISNEY SPRINGS



**CONCRETE DECK BEAM (DB) BRIDGE  
TYPICAL SECTION**

SHEET NO.
TS-02



**STEEL PLATE GIRDER (SPG) BRIDGE TYPICAL SECTION**  
(LOOKING AHEAD STATION)

STEEL PLATE GIRDER	
SPAN RANGE	LB OF STRUCTURAL STEEL PER SF OF BRIDGE
UP TO 120 FT.	110.00
BTWN. 120 FT. AND 140 FT.	140.00
BTWN. 140 FT. AND 160 FT.	180.00
BTWN. 160 FT. AND 180 FT.	230.00

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION
	<b>15% SUBMITTAL NOT FOR CONSTRUCTION</b>		

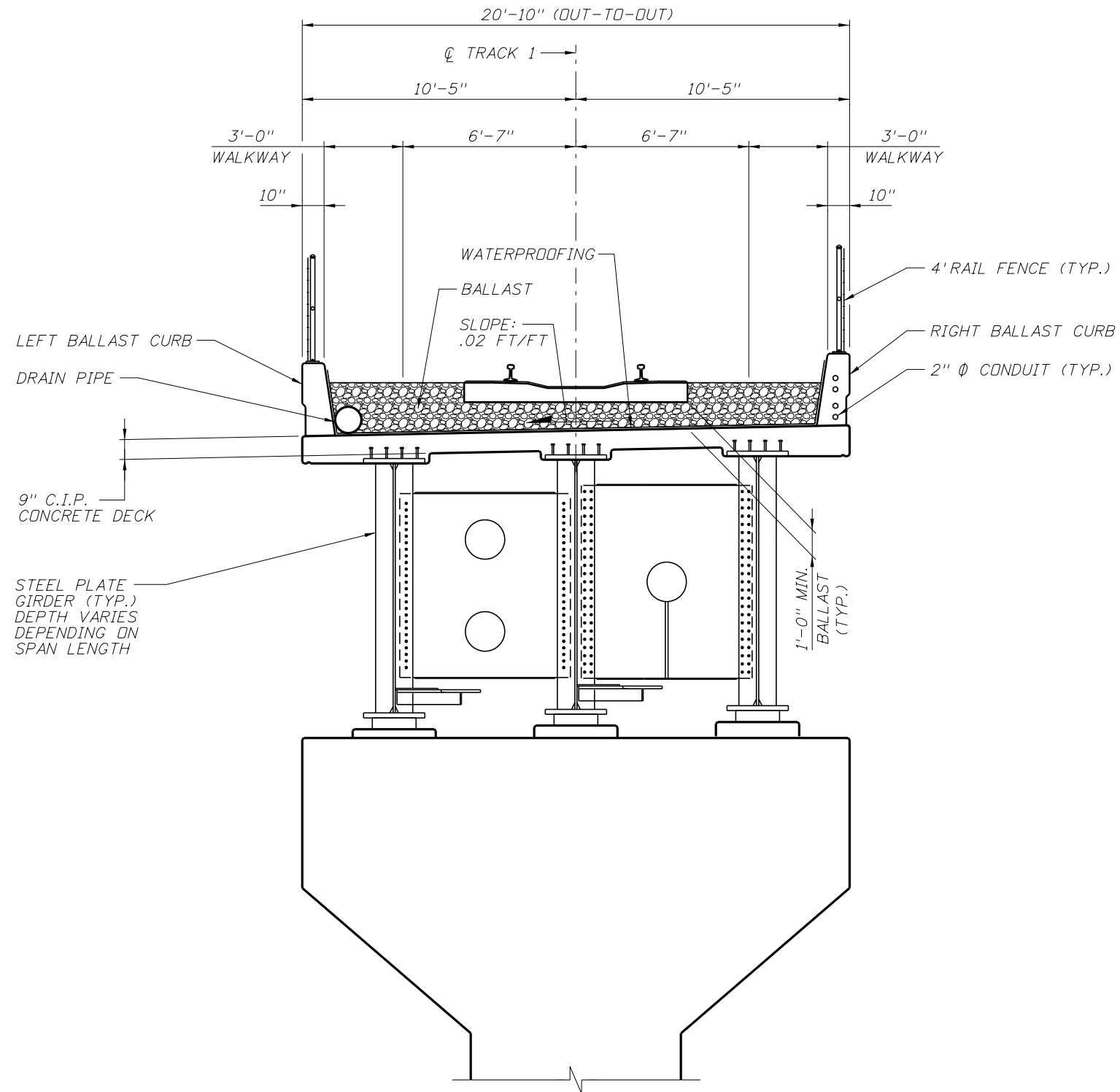
**HNTB**  
HNTB CORPORATION  
 610 CRESCENT EXECUTIVE COURT  
 SUITE 400, LAKE MARY, FL 32746  
 (407) 805-0355  
 CERT. OF AUTH. NO. 6500

COUNTY: ORANGE  
 PROJECT: OIA TO DISNEY SPRINGS



**STEEL PLATE GIRDER (SPG) BRIDGE TYPICAL SECTION**

SHEET NO.  
TS-03



**STEEL PLATE GIRDER (SPG) BRIDGE TYPICAL SECTION (SINGLE TRACK)**  
(LOOKING AHEAD STATION)

STEEL PLATE GIRDER	
SPAN RANGE	LB OF STRUCTURAL STEEL PER SF OF BRIDGE
UP TO 120 FT.	110.00
BTWN. 120 FT. AND 140 FT.	140.00
BTWN. 140 FT. AND 160 FT.	180.00
BTWN. 160 FT. AND 180 FT.	230.00

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION
	<b>15% SUBMITTAL NOT FOR CONSTRUCTION</b>		

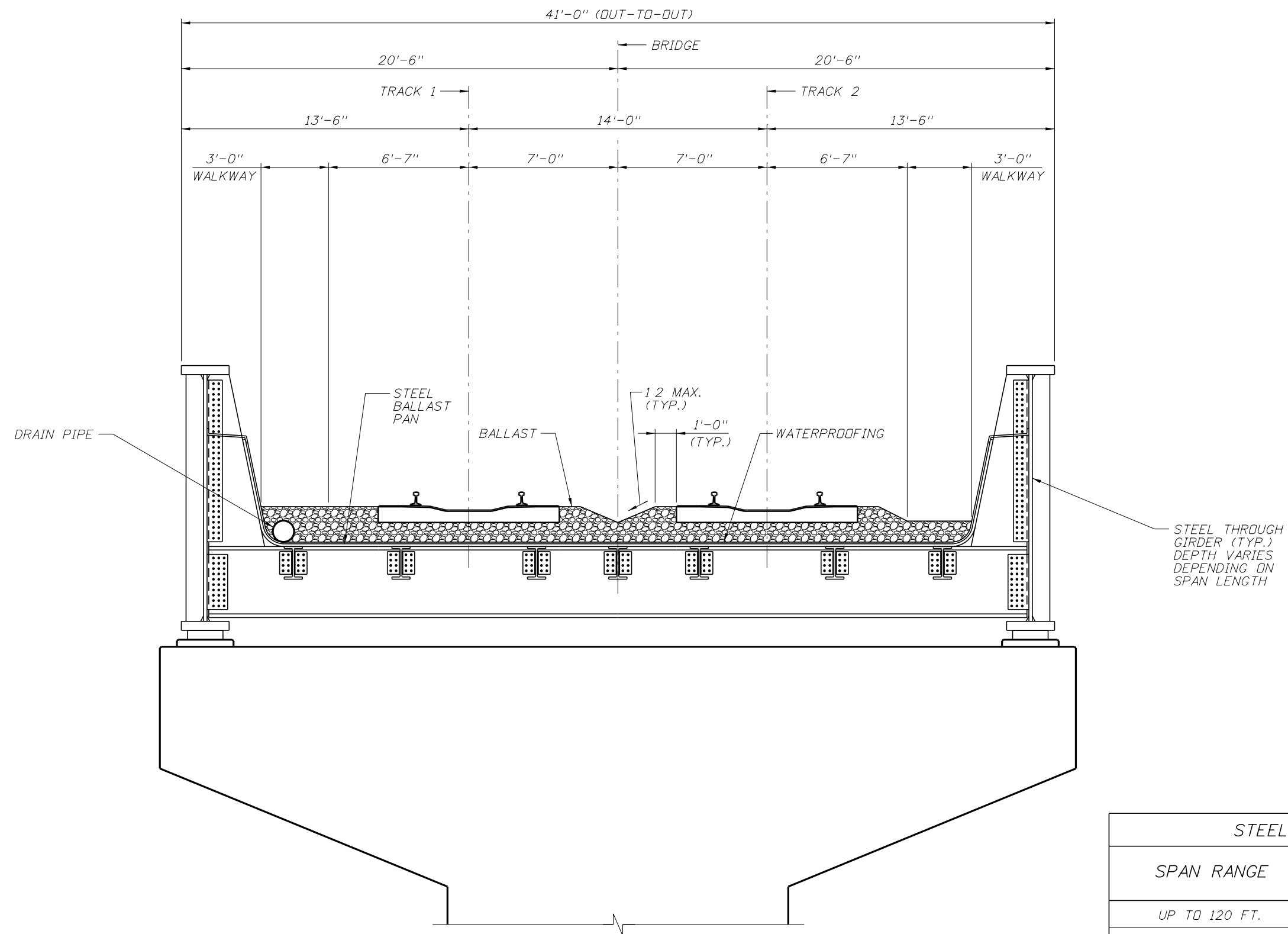
**HNTB**  
HNTB CORPORATION  
 610 CRESCENT EXECUTIVE COURT  
 SUITE 400, LAKE MARY, FL 32746  
 (407) 805-0355  
 CERT. OF AUTH. NO. 6500

COUNTY: ORANGE PROJECT: OIA TO DISNEY SPRINGS



**STEEL PLATE GIRDER (SPG) BRIDGE  
TYPICAL SECTION (SINGLE TRACK)**

SHEET NO.  
TS-05



**STEEL THROUGH GIRDER (STG) BRIDGE TYPICAL SECTION**  
(LOOKING AHEAD STATION)

STEEL THROUGH GIRDER	
SPAN RANGE	LB OF STRUCTURAL STEEL PER SF OF BRIDGE
UP TO 120 FT.	210.00
BTWN. 120 FT. AND 140 FT.	230.00

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION
	<b>15% SUBMITTAL NOT FOR CONSTRUCTION</b>		

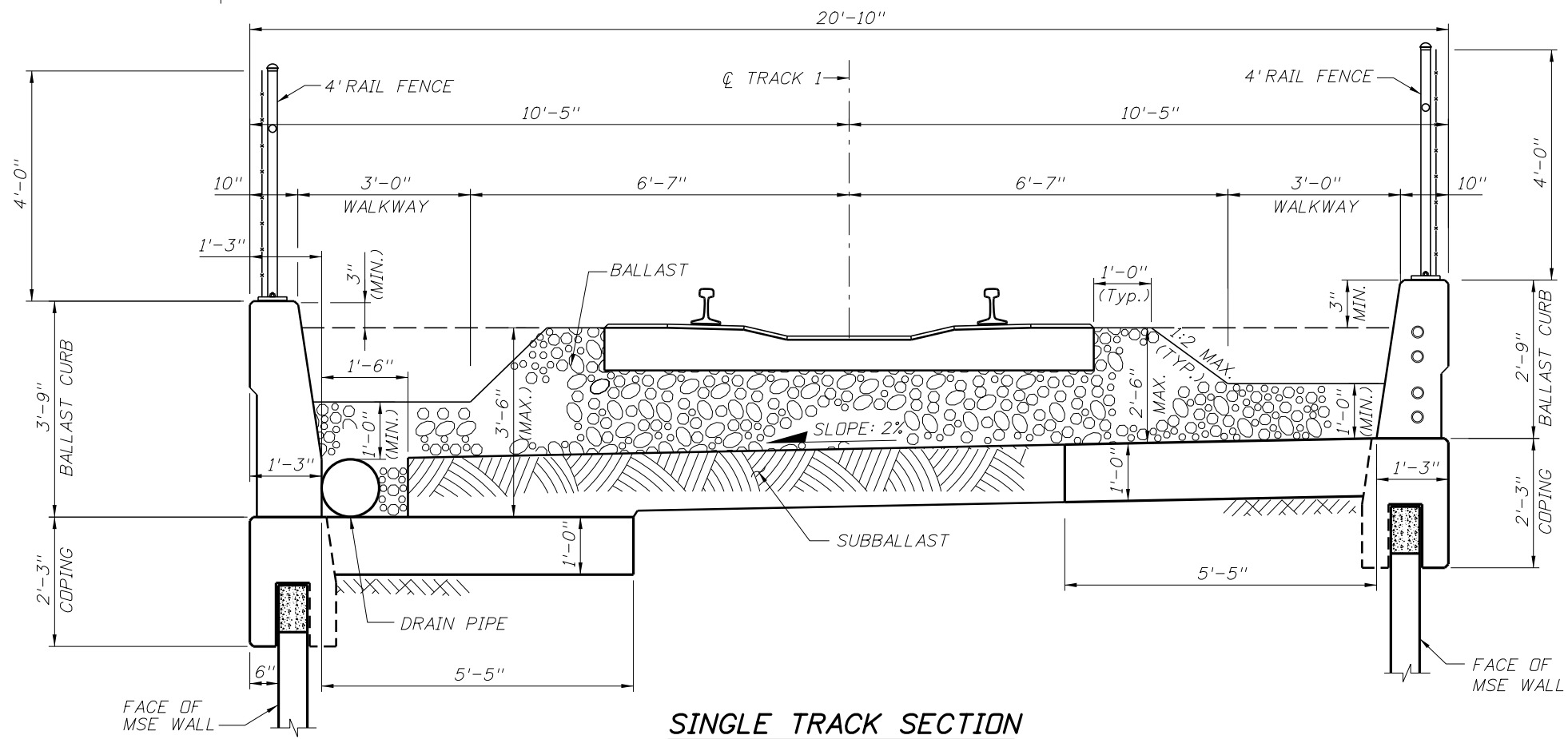
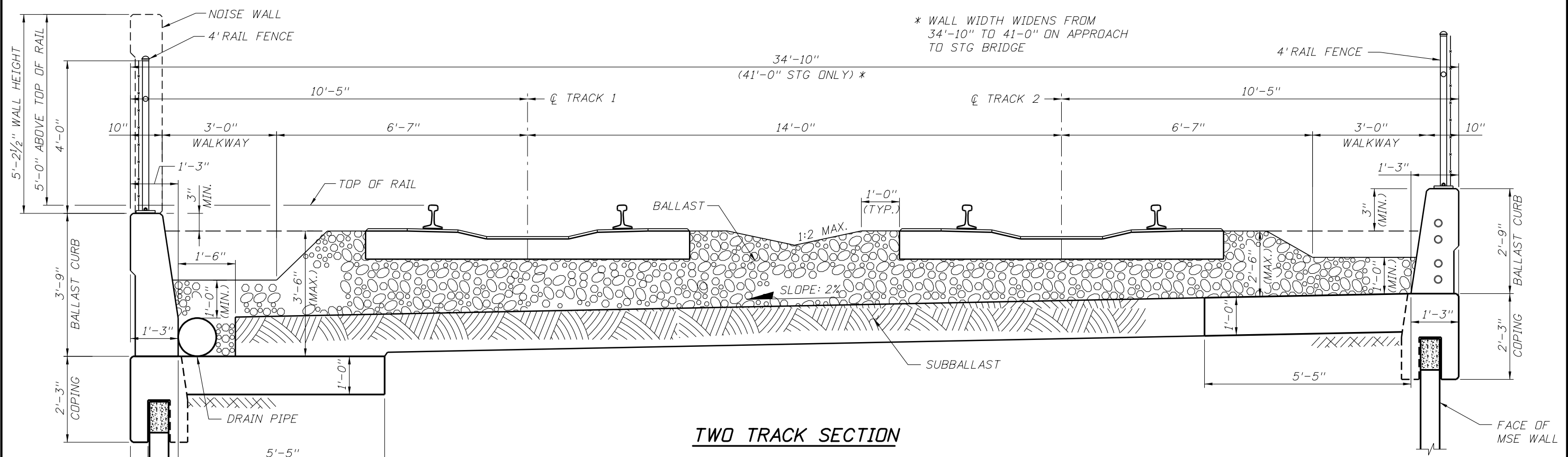
**HNTB**  
HNTB CORPORATION  
 610 CRESCENT EXECUTIVE COURT  
 SUITE 400, LAKE MARY, FL 32746  
 (407) 805-0355  
 CERT. OF AUTH. NO. 6500

COUNTY: ORANGE PROJECT: OIA TO DISNEY SPRINGS



**STEEL THROUGH GIRDER (STG) BRIDGE  
TYPICAL SECTION**

SHEET NO.  
TS-06



\* WALL WIDTH WIDENS FROM 34'-10" TO 41'-0" ON APPROACH TO STG BRIDGE

REVISIONS	
DATE	DESCRIPTION
	<b>15% SUBMITTAL NOT FOR CONSTRUCTION</b>

<b>HNTB</b> <small>HNTB CORPORATION          610 CRESCENT EXECUTIVE COURT          SUITE 400, LAKE MARY, FL 32746          (407) 805-0355          CERT. OF AUTH. NO. 6500</small>	<small>ORANGE</small>
	<small>OIA TO          DISNEY SPRINGS</small>



TYPICAL WALL SECTIONS  
(1 OF 2)

SHEET NO.	TS-07
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# ATTACHMENT 3

Brightline  
Memorandum  
and Estimates

**Date:** July 9, 2021

**To:** Mr. Glenn Pressimone, P.E.  
Chief of Infrastructure  
Central Florida Expressway Authority

**From:** Scott Gammon, P.E.  
Senior Vice President-Engineering and Construction  
Brightline Trains Florida LLC

**Re:** Brightline Phase III Route Comparison

### **Introduction**

Brightline Trains Florida LLC (“Brightline”) is making a significant investment in the State of Florida through development of a high-speed intercity passenger service linking the State’s major population centers. Phase I of the program, a 67-mile corridor connecting Miami and West Palm Beach commenced revenue service in March of 2018. Phase II, a 168-mile route extending service from West Palm Beach to the Orlando International Airport (“OIA”) is scheduled to achieve substantial completion in late 2022. Brightline is currently working to develop Phase III with the goal of extending service from OIA to Tampa.

On November 6, 2018 the Florida Department of Transportation (“FDOT”) and the Central Florida Expressway Authority (“CFX”) jointly issued a Request for Proposals (“RFP”) to competitively procure rights for negotiation of a lease covering certain public rights-of-way. Brightline was the sole respondent to the RFP and was deemed to have submitted a responsive proposal. Brightline’s responsive proposal was based on an alignment generally using right-of-way within the existing SR 417 limited access facility followed by occupation of the I-4 median to Tampa (the “2021 Brightline 417 Route”). This alignment is deemed to best fit Brightline’s purpose and need for intercity rail service; leverages existing public rights-of-way, thereby minimizing impacts to private property owners; and was determined to be the least-cost and only financially viable alternative.

In evaluation of alignment alternatives, Brightline performed a Rough Order of Magnitude (“ROM”) cost estimate to differentiate between the 2021 Brightline SR 417 Route and the alignment studied by FDOT in 2010 for their proposed Florida High Speed Rail (the “2010 FLHSR Alignment”). Brightline concluded that the difference between the two alignments exceeds \$1 billion dollars.

### **CFX Collaboration**

During the public comment period at the June 8, 2021 CFX Board Meeting, representatives from VHB presented the results of an independent study of alignment alternatives suggesting that the cost differential between the north and south alignments is between \$28.5M and \$250.1M, asserting on this basis that an alignment serving the Orange County Convention Center should be reconsidered.

At the direction of the CFX Board, Brightline and VHB agreed to engage with CFX staff and their General Engineering Consultant to further explore the cost comparisons for the purpose of providing the Board with better perspective on the disparity in conclusions. This engagement occurred in a series of meetings held between all three parties on June 16, June 23, June 28, and July 6, 2021.

This memorandum summarizes Brightline’s cost estimating methodologies and presents conclusions of the various analyses performed. **Attachment 1** summarizes the approximate routes and provides visual reference to the differences between the alignments.

### **2021 Brightline SR 417 Route**

Subsequent to the RFP and proposal process, Brightline performed both conceptual and 15% design efforts to advance the study of the 2021 Brightline SR 417 Route. At the conclusion of the 15% design effort, a detailed cost estimate was developed for the project. This process made a comprehensive evaluation of each source of project capital costs, including but not limited to design, permitting, land acquisition, wetland mitigation, utility adjustments, program management, and both direct and indirect construction costs.

Methodologies employed for the 15% design cost estimate included a combination of techniques including component-level (estimating using actual productivity, labor, equipment, materials, etc.), parametric-based (using unit costs based on cost data), and anecdotal (using percentages based on previous cost experience) methods. Under Brightline’s management, this estimate was performed by an independent third-party consultant specializing in cost estimating for heavy civil engineering projects. Land costs were estimated by identifying each impacted parcel and determining the extent of impact. Parcels needed for alignment from private sources were identified, negotiations were undertaken, and asking prices were sought and utilized in the overall cost development. Parcels needed for stormwater conveyance and treatment or for flood plain compensation, which are more fungible, were identified and quantified and valuations were established through consultation with real estate professionals.

In this analysis, Brightline relied heavily on contemporaneous cost experience in our 235-mile Florida construction program, thereby forming a real-world, real-time, and reliable basis of estimate.

Brightline’s opinion of probable cost for the 2021 Brightline SR 417 Route is **\$1.028 billion**. Further detail of this amount is provided in **Attachment 2**.

Brightline’s comprehensive cost estimating effort deployed for the 15% design was leveraged to develop a representative set of parametric costs for application in evaluation of alternative alignments, as described below.

### **2010 FLHSR Route**

Over 10 years ago, a high-speed rail system connecting Orlando and Tampa (“the 2010 FLHSR”) was proposed by the Florida High Speed Rail Authority (“FHSRA”). This effort ultimately resulted in advancement of a design to approximately 30% plans and a Record of Decision (“ROD”) in 2010. The final alignment for the 2010 version of the FLHSR design followed a northerly route past the Orange County Convention Center to I-4 (the “2010 FLHSR Route”).

It is worth noting, the original FHSRA recommendation was a preferred alternative using an SR 417 alignment similar to Brightline’s proposal, subject to successful execution of two Memorandums of Agreement (“MOA”), one with the Orlando-Orange County Expressway Authority (“OOCEA”), predecessor agency to CFX. This MOA was never executed, consequently the northern SR 528 alignment advanced.



The 30% FLHSR design provides a comprehensive case study of such a northerly alignment and a sound engineering basis for comparison. Brightline performed quantity takeoff (ie computed quantities of work in units of measure comporting with the parametric cost models) of the 2010 FLHSR plans. Using these quantity takeoffs the parametric unit cost models described above were applied to estimate direct and indirect costs of the work. Land acquisition costs used the actual FDOT valuation for the alignment with no provision for escalation. Using this approach, a ROM cost of **\$2.115 billion** was established, for a cost delta of nearly \$1.1 billion dollars. This estimate assumed FDOT's preservation of the 44-foot rail corridor in the median of I-4 between SR 528 and SR 536.

The single largest source of cost differentiation between the 2010 FLHSR Route and the 2021 Brightline SR 417 route is in the length of alignment that must be elevated on open-span bridge, the 2010 FLHSR Route required over 5 times the quantity of bridge construction. In consultation with the firm that developed the FLHSR 30% design plans, HNTB, it was determined that studies performed during the design effort concluded that the extensive real property impacts and business damages along Taft-Vineland road were most cost effectively addressed through elevation on bridge and limitation of impacts to the footprint of the piers. These differences in both quantities and cost are further detailed in **Attachment 2**.

#### **2021 Taft-Vineland Route (Optimized 2010 FLHSR)**

The 2010 FLHSR alignment, after leaving OIA property, followed an independent alignment from Boggy Creek Road, across Tradeport, and down Taft-Vineland to SR 528. Shared use of the existing Orlando Utilities Commission ("OUC") and Central Florida Rail Corridor ("CFRC") tracks were precluded due to incompatibility between locomotive technologies (overhead catenary system with electric traction power vs. diesel electric).

Over the course of the joint CFX/Brightline/VHB meetings it was concluded that Brightline's use of diesel electric locomotives would enable a cost-saving modification to the 2010 FLHSR Route, allowing elimination of a segment of the alignment in favor of using the existing OUC and CFRC corridors. This optimization is depicted as the blue line in Attachment 1. This also reduces the number of private property impacts from over 70 to roughly 40, saving land costs.

FDOT recently presented to MetroPlan Orlando a value engineering concept for the I-4 Beyond the Ultimate that no longer preserves the 44-foot rail corridor in the median of I-4. This would have significant cost implications for the northerly alignments. In the event the median corridor is not preserved, Brightline's analysis indicates insufficient real estate will remain within the right-of-way to enable a rail system without elevating on bridge to reduce the footprint at ground level.

Based on the 2021 Taft-Vineland Route, Brightline performed quantity takeoffs and applied the parametric cost models described above. Land acquisition costs used the actual FDOT valuation for the alignment, adjusted for deletion of the eliminated segment, with no provision for escalation. The outcome with and without preservation of the median rail corridor in I-4 were **\$1.808 billion** and **\$2.363 billion**, respectively. This results in a cost difference compared with the 2021 Brightline SR 417 route ranging between \$780M to over \$1.3 billion dollars. Further details are included in **Attachment 2**.

### **Conclusions**

Brightline has used standard estimating methodologies combined with extensive experience and cost history in the development of high-speed rail programs to make program-level estimates of the three alignment alternatives described herein. The results are summarized below.

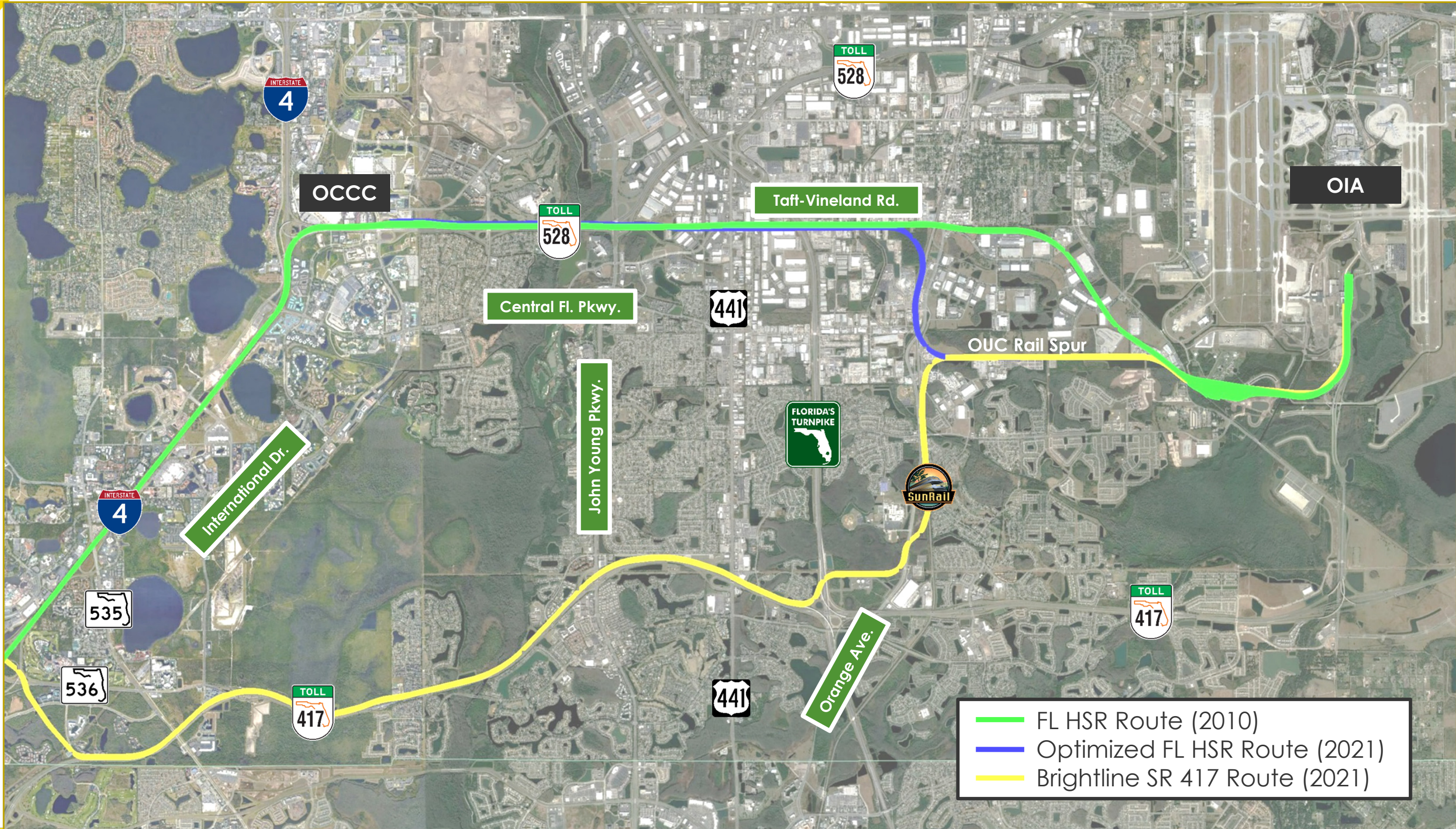
<b>Alignment</b>	<b>Estimated Cost</b>	<b>Difference</b>
2021 BL SR 417 Route	\$1.028 billion	\$0
2021 Taft-Vineland Route (44' I-4 Median Preserved)	\$1.808 billion	\$780 million
2010 FLHSR Route (44' I-4 Median Preserved)	\$2.115 billion	\$1.087 billion
2021 Taft-Vineland Route (I-4 Median NOT Preserved)	\$2.363 billion	\$1.335 billion

While certain refinements in the 2010 FLHSR route have reduced the cost delta by \$300 million dollars, a significant gap of between \$780 million and \$1.3 billion remains, with the latter considered by Brightline to be the probable outcome. Brightline's firm conclusion is that a northerly alignment remains cost prohibitive and is not cost feasible.

Brightline continues to welcome consideration of the Taft Vineland Route in partnership with the public or private sector to fully bridge this \$780 million to \$1.3 billion gap.

b

# Attachment 1: Routes Compared



OIA to Tampa Segment 1 - Conceptual Estimate - Route Comparison									
		2021 BL 417 Route		2010 FLHSR Route		2021 Taft-Vineland Route			
						I-4 At-Grade In Median		I-4 Elevated & Side Running	
Element	Unit	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost
<b>Rail Infrastructure</b>			<b>\$ 704,380,781</b>		<b>\$ 1,475,095,133</b>		<b>\$1,250,075,514</b>		<b>\$1,644,329,447</b>
Track & Ballast	TF	156,463	\$ 81,216,566	177,325	\$ 74,881,464	174,340	\$ 99,433,718	174,340	\$ 99,433,718
MSE Walls	SF	1,896,808	\$ 96,360,873	491,835	\$ 25,731,298	163,301	\$ 8,305,872	163,301	\$ 8,305,872
Bridges	SF	341,226	\$ 158,256,461	1,914,093	\$ 937,246,018	1,569,584	\$ 692,208,992	2,272,384	\$1,018,308,192
Civil/Site	RM	16.7	\$ 166,191,548	16.7	\$ 113,701,609	17.7	\$ 148,064,294	17.7	\$ 148,064,294
Train Control & Signals	RM	16.7	\$ 80,624,500	16.7	\$ 77,039,226	17.7	\$ 85,973,869	17.7	\$ 85,973,869
Contractor Indirect & General Costs	LS	20.9%	\$ 121,730,832	20.9%	\$ 246,495,417	20.9%	\$ 216,088,769	20.9%	\$ 284,243,501
<b>Land/Building/Other</b>	RM	16.7	<b>\$ 119,179,536</b>	16.7	<b>\$ 247,198,781</b>	11.7	<b>\$ 198,674,604</b>	17.7	<b>\$ 248,674,604</b>
Land	LS	1	\$ 56,579,536	1	\$ 157,198,782	1	\$ 78,674,604	1	\$ 128,674,604
Station Building	EA	1	\$ 57,000,000	2	\$ 90,000,000	2	\$ 114,000,000	1	\$ 114,000,000
Passenger Platform At-Grade	EA	2	\$ 6,000,000		\$ -	2	\$ 6,000,000	2	\$ 6,000,000
<b>Professional Fees</b>	%	7.7%	<b>\$ 63,613,249</b>	6.1%	<b>\$ 104,387,509</b>	7.7%	<b>\$ 111,608,663</b>	7.7%	<b>\$ 145,816,215</b>
Permitting	%	1.3%	\$ 10,734,736	1.3%	\$ 21,923,780	1.3%	\$ 18,841,597	1.3%	\$ 24,616,898
Design	%	6.4%	\$ 52,878,513	4.8%	\$ 82,463,729	6.4%	\$ 92,767,065	6.4%	\$ 121,199,317
<b>Project Management</b>		3.3%	<b>\$ 27,539,813</b>	3.3%	<b>\$ 56,157,992</b>	3.3%	<b>\$ 48,502,969</b>	3.3%	<b>\$ 63,386,732</b>
BL Project Management	LS	2.3%	\$ 19,190,575	2.3%	\$ 38,946,000	2.3%	\$ 33,733,306	2.3%	\$ 44,085,267
Insurance	LS	1.0%	\$ 7,951,656	1.0%	\$ 16,400,000	1.0%	\$ 14,380,082	1.0%	\$ 18,669,447
Financial Advisory	LS	0.03%	\$ 397,582	0.03%	\$ 811,992	0.03%	\$ 389,580	0.03%	\$ 632,017
<b>Construction Allowance/Contingency</b>	%	12.4%	<b>\$ 113,403,557</b>	12.4%	<b>\$ 232,600,802</b>	12.4%	<b>\$ 199,493,093</b>	12.4%	<b>\$ 260,667,904</b>
<b>GRAND TOTAL</b>	RM	16.7	<b>\$ 1,028,116,936</b>	16.7	<b>\$ 2,115,440,217</b>	17.7	<b>\$1,808,354,843</b>	17.7	<b>\$2,362,874,902</b>

**OIA to Tampa Segment 1 - Conceptual Estimate - Route Comparison**

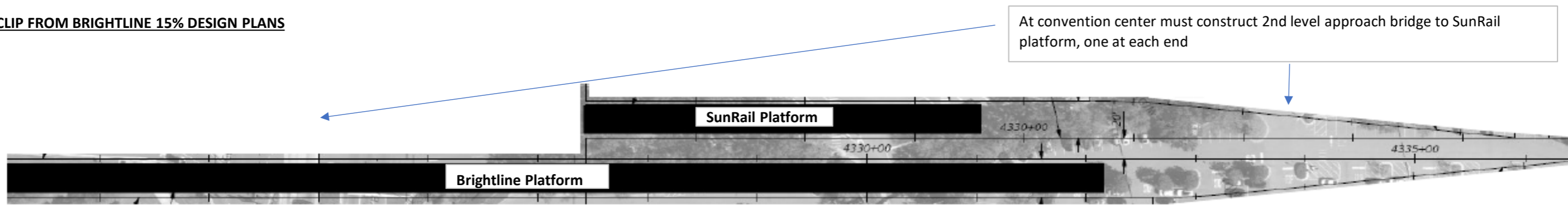
		417 Route		Taft Vineland-SR 528 Route	
Element	Unit	Quantity	Cost	Quantity	Cost
<b>Rail Infrastructure</b>			<b><u>\$ 704,380,781</u></b>		<b><u>\$ 1,475,095,133</u></b>
Track & Ballast	TF	156,463	\$ 81,216,566	177,325	\$ 74,881,464
MSE Walls	SF	1,896,808	\$ 96,360,873	491,835	\$ 25,731,298
Bridges	SF	341,226	\$ 158,256,461	1,914,093	\$ 937,246,018
Civil/Site	RM	16.7	\$ 166,191,548	16.7	\$ 113,701,609
Train Control & Signals	RM	16.7	\$ 80,624,500	16.7	\$ 77,039,226
Contractor Indirect & General Costs	LS	1	\$ 121,730,832	1	\$ 246,495,417
<b>Land/Building/Other</b>	RM	16.7	<b><u>\$ 119,179,536</u></b>	16.7	<b><u>\$ 247,198,781</u></b>
<b>Professional Fees</b>		7.7%	<b><u>\$ 63,613,249</u></b>	6.1%	<b><u>\$ 104,387,509</u></b>
Permitting	%	1.3%	\$ 10,734,736	1.3%	\$ 21,923,780
Design	%	6.4%	\$ 52,878,513	4.8%	\$ 82,463,729
<b>Project Management</b>		3.3%	<b><u>\$ 27,539,813</u></b>	3.3%	<b><u>\$ 56,157,992</u></b>
BL Project Management	LS	2.3%	\$ 19,190,575	2.3%	\$ 38,946,000
Insurance	LS	1.0%	\$ 7,951,656	1.0%	\$ 16,400,000
Financial Advisory	LS	1	\$ 397,582	1	\$ 811,992
<b>Construction Allowance/Contingency</b>	%	12.4%	<b><u>\$ 113,403,557</u></b>	12.4%	<b><u>\$ 232,600,802</u></b>
<b>GRAND TOTAL</b>	RM	16.7	<b><u>\$ 1,028,116,936</u></b>	16.7	<b><u>\$ 2,115,440,217</u></b>

OIA to Tampa Segment 1 - 417 Alignment Cost Breakdown											
Element	Unit	417 Route Total		Disney to I-4		I-4 to CFRC		CFRC		CFRC to OIA	
		Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost
<b>Rail Infrastructure</b>			<b>\$ 704,380,781</b>		<b>\$ 75,575,458</b>		<b>\$ 538,956,775</b>		<b>\$ 11,509,522</b>		<b>\$ 78,339,025</b>
Track & Ballast	TF	156,463	\$ 81,216,566	4,700	\$ 6,544,511	102,683	\$ 45,658,488	499	\$ 1,078,299	48,581	\$ 27,935,268
MSE Walls	SF	1,896,808	\$ 96,360,873	113,301	\$ 5,755,872	1,783,507	\$ 90,605,001	0	\$ -	0	\$ -
Bridges	SF	341,226	\$ 158,256,461	108,105	\$ 36,312,508	233,121	\$ 121,943,953	0	\$ -	0	\$ -
Civil/Site	RM	16.7	\$ 166,191,548	0.49	\$ 11,540,257	9.98	\$ 139,511,829	1.2	\$ 2,659,163	5.06	\$ 12,480,300
Train Control & Signals	RM	16.7	\$ 80,624,500	0.49	\$ 2,361,387	9.98	\$ 48,095,189	1.2	\$ 5,782,989	5.06	\$ 24,384,935
Contractor Indirect & General Costs	LS	1	\$ 121,730,832	1	\$ 13,060,923	1	\$ 93,142,315	1	\$ 1,989,071	1	\$ 13,538,522
			21%		17%		17%		17%		17%
<b>Land/Building/Other</b>	RM	16.7	<b>\$ 119,179,536</b>	0.49	<b>\$ 57,000,000</b>	9.98	<b>\$ 57,504,932</b>	1.2	<b>\$ -</b>	5.06	<b>\$ 4,674,604</b>
Land	LS	1	\$ 56,179,536	1	\$ -	1	\$ 51,504,932	1	\$ -	1	\$ 4,674,604
Station Building	EA	1	\$ 57,000,000	1	\$ 57,000,000	0		0		0	\$ -
Passenger Platform At-Grade	EA	2	\$ 6,000,000	0	\$ -	2	\$ 6,000,000	0	\$ -	0	\$ -
<b>Professional Fees</b>		7.7%	<b>\$ 63,613,249</b>		<b>\$ 10,240,362</b>		<b>\$ 46,071,753</b>		<b>\$ 889,016</b>		<b>\$ 6,412,119</b>
Permitting	%	1.3%	\$ 10,734,736	1.3%	\$ 1,728,061	1.3%	\$ 7,774,608	1.3%	\$ 150,021	1.3%	\$ 1,082,045
Design	%	6.4%	\$ 52,878,513	6.4%	\$ 8,512,301	6.4%	\$ 38,297,144	6.4%	\$ 738,994	6.4%	\$ 5,330,074
<b>Project Management</b>		3.3%	<b>\$ 27,539,813</b>	3.3%	<b>\$ 4,433,316</b>	3.3%	<b>\$ 19,945,648</b>	3.3%	<b>\$ 384,878</b>	3.3%	<b>\$ 2,775,971</b>
BL Project Management	LS	2.3%	\$ 19,190,575	2.3%	\$ 3,089,269	2.3%	\$ 13,898,731	2.3%	\$ 268,194	2.3%	\$ 1,934,381
Insurance	LS	1.0%	\$ 7,951,656	1.0%	\$ 1,280,045	1.0%	\$ 5,758,969	1.0%	\$ 111,127	1.0%	\$ 801,515
Financial Advisory	LS	1	\$ 397,582	1	\$ 64,002	1	\$ 287,948	1	\$ 5,556	1	\$ 40,076
<b>Construction Allowance/Contingency</b>	%	12.4%	<b>\$ 113,403,557</b>	12.4%	<b>\$ 18,255,528</b>	12.4%	<b>\$ 82,132,272</b>	12.4%	<b>\$ 1,584,851</b>	12.4%	<b>\$ 11,430,906</b>
<b>GRAND TOTAL</b>	RM	16.7	<b>\$ 1,028,116,936</b>	0.49	<b>\$ 165,504,664</b>	9.98	<b>\$ 744,611,379</b>	1.2	<b>\$ 14,368,267</b>	5.06	<b>\$ 103,632,626</b>

Convention Center			
BL Platform & Station		Sunrail Platform	
Quantity	Cost	Quantity	Cost
	<b>\$ 36,476,755</b>		<b>\$ 31,079,379</b>
2,000	\$ 2,000,000	3,000	\$ 1,900,000
0	\$ -	0	\$ -
54,083	\$ 15,715,313	60,396	\$ 23,808,171
0.19	\$ 11,540,257	0.00	\$ -
0.19	\$ 917,285	0.00	\$ -
1	\$ 6,303,900	1	\$ 5,371,208
0	\$ 57,000,000	0	\$ -
0	\$ -	0	\$ -
1	\$ 57,000,000	0	\$ -
0	\$ -	0	\$ -
7.7%	<b>\$ 7,197,710</b>	7.7%	<b>\$ 2,393,112</b>
1.3%	\$ 1,215,198	1.3%	\$ 404,032
6.4%	\$ 5,982,512	6.4%	\$ 1,989,080
3.3%	<b>\$ 3,366,554</b>	3.3%	<b>\$ 1,119,320</b>
2.3%	\$ 2,315,513	2.3%	\$ 769,867
1.0%	\$ 1,006,745	1.0%	\$ 334,725
1	\$ 44,297	1	\$ 14,728
12.4%	<b>\$ 12,901,086</b>	12.4%	<b>\$ 4,289,385</b>
0.19	<b>\$ 116,942,106</b>	0.19	<b>\$ 38,881,196</b>

Orange Avenue	
Bridge Replacement	
Quantity	Cost
	<b>\$ 5,485,503</b>
0	\$ -
0	\$ -
27,500	\$ 4,125,000
0	\$ 412,500
0	\$ -
0	\$ 948,003
0	\$ -
0	\$ -
0	\$ -
7.7%	<b>\$ 422,384</b>
1.3%	\$ 71,312
6.4%	\$ 351,072
3.3%	<b>\$ 197,560</b>
2.3%	\$ 135,881
1.0%	\$ 59,079
1	\$ 2,599
12.4%	<b>\$ 757,075</b>
0	<b>\$ 6,862,522</b>

CLIP FROM BRIGHTLINE 15% DESIGN PLANS



**Convention Center SunRail Platform Estimate**

Description	UOM	Quantity	UP	Total
<b>Track &amp; Ballast</b>				
Ballasted Track Construction	TF	2,000	\$ 350	\$ 700,000
Turnout-No. 10 on Structure	EA	2	\$ 100,000	\$ 200,000
Direct Fixation Track Construction	TF	1,000	\$ 1,000	\$ 1,000,000
		<b>Subtotal, Track &amp; Ballast</b>		<b>\$ 1,900,000</b>
<b>Bridges</b>				
Mainline Turnout to Platform Bridges	SF	35,100	\$ 460	\$ 16,146,000
Platform Bridges	SF	25,296	\$ 303	\$ 7,662,171
		<b>Subtotal, Bridges</b>		<b>\$ 23,808,171</b>

# ATTACHMENT 4

VHB Memorandum

Dated 7/6/21



To: Glenn Pressimone, P.E.  
Chief of Infrastructure  
Central Florida Expressway Authority

Date: 7/6/21  
Project #: 62375.34

From: Amy Sirmans, P.E.

Re: Brightline Route Cost Comparison

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## Introduction

We understand that Brightline submitted an unsolicited proposal to Florida Department of Transportation (FDOT) to provide intercity passenger rail service between the Orlando International Airport and Tampa utilizing the State Road (SR) 417 corridor. We also understand that Brightline is a private company with its own business model that is based on constructing new rail infrastructure within publicly owned right of way in order to stabilize and provide the best estimated costs of land for Brightline.

As you read on please note there are 3 alignments mentioned throughout the document as follows:

- Alignment 1 – 2010 Florida High Speed Rail Corridor (FLHSR) Re-evaluation
- Alignment 2 – Taft Vineland Road/SR 528 (Optimized version of the 2010 FLHSR alignment)
- Alignment 3 – SR 417 Brightline Alignment

We believe that an optimized version of the alignment along Taft-Vineland Road (TVR) and SR 528 that was approved in the Florida High Speed Rail (FLHSR) Environmental Impact Statement (EIS) Record of Decision (ROD) in 2005 and the Reevaluation from 2010, which also includes a station at the Orange County Convention Center (OCCC) and Disney, can set the course for an enhanced quality of life for those living and working in the greater Orlando area. This alignment not only provides a Brightline connection to the OCCC and Disney but also provides the opportunity to further extend the SunRail commuter rail system to these locations.

A station at the OCCC location is consistent with the planned development of the Orange County multi-modal station, making transit more accessible within the community to travel to and from their places of work, play, and their homes. Providing a station at this location also strengthens the ability of Orange County to attract convention business to the community, thereby keeping and expanding the number of jobs in the community.

We have prepared a high-level order of magnitude opinion of probable costs for Alignment 2 – TVE/SR 528 using cost data provided by Brightline based on their current construction costs and 15% estimated units cost for Alignment 3 – SR 417.

## Purpose

Following the June 10, 2021 CFX Board meeting, VHB was asked to meet with CFX staff, Brightline representatives and Dewberry (CFX general engineering consultant) to discuss assumptions made in developing cost estimates and aim to come to an agreement in the cost difference between the SR 417 and the Taft-Vineland Road / SR 528 routes. This memorandum summarizes the findings from the discussions held between June 16 and June 28, 2021 and the additional analysis of cost estimates conducted during this time. Meetings were held in person at the CFX office on

June 16, June 23, and June 28, 2021. Information was also shared by Brightline and HNTB via email on multiple dates between June 17 and June 28.

## Findings

The cost summary provided by Brightline for the SR 417 route, Alignment 3, is based on 15% design plans, prepared by HNTB. During our meetings, HNTB stated that 30% design plans will be available in approximately one month. We were told that the alignment revisions in the 30% plans will include additional segments of wall beyond what was included in the 15% plans.

Brightline's initial cost difference between the 2010 Florida High Speed Rail (FHSR) alignment and the SR 417 alignment was based on a comparison of their SR 417 15% design with the 30% design concept from the original FLHSR study. During our discussions Brightline, CFX, HNTB and VHB agreed that the new proposed Alignment 2 - TVR / SR 528 alignment utilizing the OUC and CFRC / SunRail corridor is a better option and less costly compared to the original alignment proposed in the 2010 FLHSR Re-evaluation study utilizing Tradeport Drive.

During our meeting on June 23, Brightline provided revised cost estimates based on the new proposed Alignment 2 - TVR / SR 528 alignment utilizing the OUC and CFRC / SunRail corridor. VHB has also incorporated information provided by Brightline into our cost analysis which ultimately added more costs to our proposed route. Not only will it narrow the cost differential between the TVR/SR 528 and SR 417 alignments, it also demonstrated our good faith in our effort to correctly quantify the difference.

However, in order to be able to conduct the task given to us by the CFX board, namely to compare the projected construction costs for the two alignments in question and to collectively determine the magnitude of the cost difference between the TVR/SR 528 and SR 417 alignments, we need to be able to review and analyze the underlying data and assumptions that support Brightline's provided cost summaries.

Through our discussions, Brightline has reduced the estimated costs for the proposed TVR / SR 528 alignment based on the alignment revisions to the 2010 FHSR and VHB has increased our estimated costs based on receipt of additional information as well as adding in right of way, engineering, and CEI costs not previously included in VHB's initial estimate. Just as the cost differential has decreased over the last month, we believe the cost difference can continue to shrink as there are opportunities to further optimize the TVR / SR 528 corridor from what was proposed in the FLHSR study. The section below describes areas we believe can further reduce the cost of the TVR/SR 528 alignment, thereby further reducing the cost differential between TVR/SR 528 and SR 417 alignments.

### Revision to Design from FLHSR plans

The FLHSR 30% plans are designed to accommodate higher speeds (up to 120 mph) than what is currently planned by Brightline along SR 417. In order to meet these higher speeds, the design maintains the rail elevated on bridge throughout the entire TVR / SR-528 alignment. By revising the speed along the TVR / SR-528 alignment to be consistent with what is designed along 417 (ranging from 30 mph to 90 mph) would allow for segments of the route to be built on wall or at-grade rather than just on bridge. This provides the opportunity for significant cost savings since the cost of bridge based on Brightline's provided estimates is roughly \$98M per mile compared with \$11.3M

per mile for tracks supported by wall. This is the approach that VHB used in the originally provided cost estimates for the TVR / SR-528 alignment.

The TVR proposed alignment also utilizes the south side of TVR from west of the Turnpike to the CFRC corridor as opposed to placing the rail on the north side of TVR as shown in the FLHSR concept.

The TVR proposed alignment also shifts the rail to the south side of SR 528 prior to approaching I-4. This keeps the rail on the outside of the I-4 / SR-528 interchange rather than the middle of the interchange as proposed by the FLHSR concept.

### I-4 Beyond the Ultimate (BtU)

FDOT D5 is currently evaluating options to reduce costs for the I-4 BtU construction. After our meeting on June 21st and MetroPlan meeting on June 23, we learned they are still in the early stages of this evaluation and have stated that options will continue to include a rail corridor, but that it may exist on the outside of I-4 rather than the middle. The revised cost estimates provided by Brightline includes two estimates: one assuming I-4 BtU design remains as was approved in the PD&E Study with the 44' rail corridor in the I-4 median, and the other if revisions are made to the design to place the rail corridor on the outside of I-4 and elevated throughout the entire corridor. We believe there is an opportunity to work with FDOT D5 in their current analysis of I-4 BtU to find a solution that will accommodate the rail corridor in an efficient manner.

Brightline added an additional assumed \$50M in land costs to the latter. Adding \$50M in land cost equates to an actual total addition of \$61.7M based on the Brightline's method of applying 23.4% (7.7% for Professional Fees, 3.3% for Project Management, and 12.4% in Construction Allowance/Contingency) to land costs in their estimates.

### Land Costs

The cost provided in the Brightline estimate for the TVR / SR-528 alignment is based on the 30% design plans developed during the FLHSR study. The estimated land costs are from 2010 but are based on land needed to place the rail on the north side of the planned widened Taft-Vineland Road. The costs provided in Brightline's estimate include acreage needed for a full swath to accommodate rail on the north plus the amount needed for the Taft-Vineland Road widening.

As mentioned in the previous section, our proposed alignment exists on the south side of TVR from west of Turnpike to the CFRC corridor resulting in the reduction of at least 11 parcels. We also believe that there is sufficient space to accommodate a large portion of the rail within existing Right of Way of TVR, greatly reducing the land costs that are currently shown by Brightline at \$78.6M to \$128.6M for the TVR/ SR 528 alignment.

Additionally, the 23.4% in fees and contingency has been applied to the land purchase costs in the Brightline estimate. Our team feels that percentage should not be applied to land purchase costs. This results in an added \$18.4M to \$30.1M in costs to the TVR / SR 528 alignment.

### Changes to the original VHB estimate

Through our discussions and a review of the 2010 FLHSR concept plans provided by HNTB on June 17, 2021, VHB revised our estimates to include additional bridge along I-4 from south of SR 528 to south of Central Florida Parkway consistent with the 2010 FLHSR concept. Based on input from Brightline regarding constructability of wall segments compared with bridge segments, we revised our estimate further replacing certain wall segments with bridge.

These additions since our last estimate resulted in an increase to our estimated costs for the TVR / SR 528 alignment.

### Additional items that will decrease the cost differential between the two alignments

#### Noise Walls:

The majority of the TVR / SR 528 alignment falls within an industrial corridor. An area of residential (Williamsburg) exists west of John Young Parkway and on the south side of SR-528. This section already has a noise wall in place on the south side of SR- 528.

- The SR 417 alignment will require the addition of noise walls. From our discussions this will be at the cost of Brightline and is included within the Civil/Site line items.
- Since the TVR/ SR 528 alignment already has noise walls in place, the costs for this item should be removed from the Civil/Site costs for the TVR / SR 528 alignment. At an estimated \$5M per mile, this results in approximately \$7.5M reduction on the TVR / SR 528 alignment.

#### Wetland Mitigation and Environmental Permitting

As evaluated by our environmental staff, the TVR / SR 528 alignment has nearly half the potential wetland impacts as the SR 417 route. Additionally, the wetlands along the SR 417 alignment are indicative of higher quality wetlands than the mostly fragmented wetlands along the Taft-Vineland Road / SR 528 alignment.

- Based on this knowledge, we feel the permitting fees and the wetland mitigation will be significantly less along the TVR / SR 528 alignment.
- The current Brightline estimates show permitting fees on the TVR / SR 528 alignment that are nearly double the SR 417 alignment on the low end and more than double on the high end.
- We believe that the permitting fees included for the TVR / SR 528 alignment should be reduced.
- Matching the permitting fees included for the SR 417 alignment, would result in a cost reduction of between \$8.1M to \$13.9M to the TVR / SR 528 alignment.

There are additional cost savings of the TVR/ SR 528 alignment compared to the SR 417 alignment that have not been quantified at this time These include site specific civil/site costs, costs for Toll Diversion and potential damages entitled to residents of Hunters Creek.

Following is a summary of the items that we believe can reduce the cost differential between the TVR/SR 528 and SR 417 alignments.

Summary of items that could reduce the cost differential:

	SR 417 Route	Taft-Vineland / SR 528 Route	Difference
Brightline Provided Estimates	\$1,028,116,936	\$1,808,354,843 - \$2,362,874,902	\$780M - \$1.3B
Revisions to alignment on bridge, wall or at-grade	Increased costs with additional wall to be added at 30% design	-\$296M or more by revising bridge to wall where possible	-\$296M with potential for more reductions
Assumed land cost by Brightline to the I-4 BtU costs		-\$61.7M	-\$61.7M
Noise Walls (estimated \$5M per mile)		-\$7.5M	-\$7.5M
Permitting Fees		-\$8.1M to -\$13.9M (assumes matching SR 417 permitting costs)	-\$8.1M to -\$13.9M
Convention Center Station / SunRail Station		-\$108.8M (\$70M Convention Center Station, \$38.8M SunRail Elevated Platform)	-\$108.8M
Wetland Mitigation		Currently not quantified	
Toll diversion			Currently not quantified
Potential damages to Hunters Creek residents			Currently not quantified
		Cost Differential	\$294M - \$814M

### Conclusion

Based on the information described in this memorandum, we believe the cost estimates provided by Brightline for the TVR / SR 528 alignment can be reduced by a minimum of \$490M. This revises the range of the cost differential to approximately \$294M to \$814M. The range is based on the two I-4 BtU scenarios described earlier. If the I-4 BtU **concept** remains as originally planned the cost differential would be approximately \$294M. If the I-4 BtU concept is revised to require Brightline to elevate the rail on bridge throughout this segment, the cost differential would become closer to \$800M.

Although we have provided our thoughts and developed a range for the cost delta based on cost data provided by Brightline, subsequent to the request by CFX, we have recently learned that the FRA will be requiring a supplemental EIS instead of just a reevaluation as Brightline has anticipated. Based on this, the alignments outlined herein should be vetted as part of the Supplemental EIS Brightline needs to complete to meet the NEPA requirements. This will provide the cost estimates be compared with similar methodologies and assumptions

Through the EIS process, we believe Brightline could provide valuable insight by applying the same cost savings techniques resulting in a direct correlation of all costs (design, ROW, construction, etc.). The result of this would be a convergence of the difference in cost estimates.

### Other considerations

We believe the cost differential can continue to shrink between the two alignments if further due diligence and analysis is conducted on each alignment. We understand that Brightline will be required to conduct a Supplemental EIS to meet the NEPA requirements. Based upon our experience, and our preliminary evaluation of the wetlands that will be impacted by the SR 417 route, we believe the mitigation costs for the previously supported SR 528 route will be much less than the proposed Brightline SR 417 route. We also believe the evaluation during this process should compare Brightline's current SR 417 alignment to the revised TVR / SR 528 alignment.



OIA to Tampa Segment 1 - Taft-Vineland SR 528 Alignment Cost Breakdown Provided by Brightline							FLHSR Modified to VHB Route I-4 At-Grade in Median					
			528 Route Total		Disney to I-4		I-4 at SR 536 to CFRC		CFRC		CFRC to OIA	
Element	Unit	Unit Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost
<b>Rail Infrastructure</b>				<b>\$ 1,250,089,975</b>		<b>\$ 75,575,458</b>		<b>\$ 1,012,108,584</b>		<b>\$ 11,509,522</b>		<b>\$ 78,339,025</b>
Track & Ballast	TF	\$ 519	174,340	\$ 99,433,718	4,700	\$ 6,544,511	115,560	\$ 59,975,640	499	\$ 1,078,299	48,581	\$ 27,935,268
MSE Walls	SF	\$ 51	163,301	\$ 8,305,872	113,301	\$ 5,755,872	50,000	\$ 2,550,000	0	\$ -	0	\$ -
Bridges	SF	\$ 464	1,569,584	\$ 692,208,992	108,105	\$ 36,312,508	1,319,500	\$ 612,248,000	0	\$ -	0	\$ -
Civil/Site*	RM		17.7	\$ 148,064,294	0.49	\$ 11,540,257	10.90	\$ 109,844,318	1.06	\$ 2,659,163	5.06	\$ 12,480,300
Train Control & Signals	RM		17.7	\$ 85,973,869	0.49	\$ 2,361,387	10.90	\$ 52,527,273	1.06	\$ 5,782,989	5.06	\$ 24,384,935
Contractor Indirect & General Costs	LS		20.90%	\$ 216,103,230	1	\$ 13,060,923	1	\$ 174,963,353	1	\$ 1,989,071	1	\$ 13,538,522
<b>Land/Building/Other</b>	RM		17.7	<b>\$ 198,674,604</b>	0.49	<b>\$ 57,000,000</b>	11.16	<b>\$ 137,000,000</b>	1.2	<b>\$ -</b>	5.06	<b>\$ 4,674,604</b>
Land	LS		1	\$ 78,674,604	1	\$ -	1	\$ 74,000,000	1	\$ -	1	\$ 4,674,604
Station Building	EA		1	\$ 114,000,000	1	\$ 57,000,000	1	\$ 57,000,000	0	\$ -	0	\$ -
Passenger Platform At-Grade	EA		1	\$ 6,000,000	0	\$ -	2	\$ 6,000,000	0	\$ -	0	\$ -
<b>Professional Fees</b>			7.7%	<b>\$ 111,905,127</b>		<b>\$ 10,240,362</b>		<b>\$ 88,759,170</b>		<b>\$ 889,016</b>		<b>\$ 6,412,119</b>
Permitting	%		1.3%	\$ 18,883,991	1.3%	\$ 1,728,061	1.3%	\$ 14,978,110	1.3%	\$ 150,021	1.3%	\$ 1,082,045
Design	%		6.4%	\$ 93,021,136	6.4%	\$ 8,512,301	6.4%	\$ 73,781,060	6.4%	\$ 738,994	6.4%	\$ 5,330,074
<b>Project Management</b>			3.3%	<b>\$ 48,144,786</b>	3.3%	<b>\$ 4,433,316</b>	3.3%	<b>\$ 38,159,334</b>	3.3%	<b>\$ 384,878</b>	3.3%	<b>\$ 2,775,971</b>
BL Project Management	LS		2.3%	\$ 33,759,064	2.3%	\$ 3,089,269	2.3%	\$ 26,776,490	2.3%	\$ 268,194	2.3%	\$ 1,934,381
Insurance	LS		1.0%	\$ 13,988,141	1.0%	\$ 1,280,045	1.0%	\$ 11,094,896	1.0%	\$ 111,127	1.0%	\$ 801,515
Financial Advisory	LS		1	\$ 397,582	1	\$ 64,002	1	\$ 287,948	1	\$ 5,556	1	\$ 40,076
<b>Construction Allowance/Contingency</b>	%		12.4%	<b>\$ 199,492,997</b>	12.4%	<b>\$ 18,255,528</b>	12.4%	<b>\$ 158,198,201</b>	12.4%	<b>\$ 1,584,851</b>	12.4%	<b>\$ 11,430,906</b>
<b>GRAND TOTAL</b>	RM		16.7	<b>\$ 1,808,307,489</b>	0.49	<b>\$ 165,504,664</b>	11.16	<b>\$ 1,434,225,290</b>	1.2	<b>\$ 14,368,267</b>	5.06	<b>\$ 103,632,626</b>

Convention Center				Orange Avenue	
BL Platform & Station		Sunrail Platform		Bridge Replacement	
Quantity	Cost	Quantity	Cost	Quantity	Cost
	<b>\$ 36,476,755</b>		<b>\$ 31,079,379</b>		<b>\$ 5,485,503</b>
2,000	\$ 2,000,000	3,000	\$ 1,900,000	0	\$ -
0	\$ -	0	\$ -	0	\$ -
54,083	\$ 15,715,313	60,396	\$ 23,808,171	27,500	\$ 4,125,000
0.19	\$ 11,540,257	0.00	\$ -	0	\$ 412,500
0.19	\$ 917,285	0.00	\$ -	0	\$ -
1	\$ 6,303,900	1	\$ 5,371,208	0	\$ 948,003
0	\$ 57,000,000	0	\$ -	0	\$ -
0	\$ -	0	\$ -	0	\$ -
1	\$ 57,000,000	0	\$ -	0	\$ -
0	\$ -	0	\$ -	0	\$ -
7.7%	\$ 7,220,309	7.7%	\$ 2,400,626	7.7%	\$ 423,710
1.3%	\$ 1,218,427	1.3%	\$ 405,106	1.3%	\$ 71,501
6.4%	\$ 6,001,882	6.4%	\$ 1,995,520	6.4%	\$ 352,209
3.3%	\$ 3,125,028	3.3%	\$ 1,039,017	3.3%	\$ 183,386
2.3%	\$ 2,178,192	2.3%	\$ 724,211	2.3%	\$ 127,823
1.0%	\$ 902,539	1.0%	\$ 300,078	1.0%	\$ 52,964
1	\$ 44,297	1	\$ 14,728	1	\$ 2,599
12.4%	\$ 12,871,567	12.4%	\$ 4,279,570	12.4%	\$ 755,343
0.19	\$ 116,693,659	0.19	\$ 38,798,592	0	\$ 6,847,942

<b>GRAND TOTAL -SR 417 Route</b>	RM	17.7	\$ 1,028,116,936	\$ 165,504,664	\$ 744,611,379	\$ 14,368,267	\$ 103,632,626	\$ -
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<b>DIFFERENCE TO SR 417 ROUTE</b>			\$ 780,190,553	\$ -	\$ 689,613,911	\$ -	\$ -	\$ 116,693,659
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\*Civil/Site includes, but not limited to, clear/grub, subsoil excavation, earthwork, drainage, utility adjustments, erosion & sediment control, roadway construction/reconstruction, guardrail/concrete barriers/wall copings, pavement markings, lighting, signage, ITS, fencing, mowing/litter during construction, sound walls, earth retention, aesthetics, maintenance of traffic, etc.



OIA to Tampa Segment 1 - Taft-Vineland SR 528 Alignment Cost Breakdown Provided by Brightline							FLHSR Modified to VHB Route I-4 Elevated & Side Running					
			528 Route Total		Disney to I-4		I-4 at SR 536 to CFRC		CFRC		CFRC to OIA	
Element	Unit	Unit Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost
<b>Rail Infrastructure</b>				<b>\$ 1,644,343,907</b>		<b>\$ 75,575,458</b>		<b>\$ 1,406,362,517</b>		<b>\$ 11,509,522</b>		<b>\$ 78,339,025</b>
Track & Ballast	TF	\$ 519	174,340	\$ 99,433,718	4,700	\$ 6,544,511	115,560	\$ 59,975,640	499	\$ 1,078,299	48,581	\$ 27,935,268
MSE Walls	SF	\$ 51	163,301	\$ 8,305,872	113,301	\$ 5,755,872	50,000	\$ 2,550,000	0	\$ -	0	\$ -
Bridges	SF	\$ 464	2,272,384	\$ 1,018,308,192	108,105	\$ 36,312,508	2,022,300	\$ 938,347,200	0	\$ -	0	\$ -
Civil/Site	RM		17.7	\$ 148,064,294	0.49	\$ 11,540,257	10.90	\$ 109,844,318	1.06	\$ 2,659,163	5.06	\$ 12,480,300
Train Control & Signals	RM		17.7	\$ 85,973,869	0.49	\$ 2,361,387	10.90	\$ 52,527,273	1.06	\$ 5,782,989	5.06	\$ 24,384,935
Contractor Indirect & General Costs	LS		20.90%	\$ 284,257,962	1	\$ 13,060,923	1	\$ 243,118,086	1	\$ 1,989,071	1	\$ 13,538,522
<b>Land/Building/Other</b>	RM		16.7	<b>\$ 248,674,604</b>	0.49	<b>\$ 57,000,000</b>	11.16	<b>\$ 187,000,000</b>	1.2	<b>\$ -</b>	5.06	<b>\$ 4,674,604</b>
Land	LS		1	\$ 128,674,604	1	\$ -	1	\$ 124,000,000	1	\$ -	1	\$ 4,674,604
Station Building	EA		1	\$ 114,000,000	1	\$ 57,000,000	1	\$ 57,000,000	0	\$ -	0	\$ -
Passenger Platform At-Grade	EA		1	\$ 6,000,000	0	\$ -	2	\$ 6,000,000	0	\$ -	0	\$ -
<b>Professional Fees</b>			7.7%	<b>\$ 146,220,083</b>		<b>\$ 10,240,362</b>		<b>\$ 123,074,126</b>		<b>\$ 889,016</b>		<b>\$ 6,412,119</b>
Permitting	%		1.3%	\$ 24,674,640	1.3%	\$ 1,728,061	1.3%	\$ 20,768,759	1.3%	\$ 150,021	1.3%	\$ 1,082,045
Design	%		6.4%	\$ 121,545,443	6.4%	\$ 8,512,301	6.4%	\$ 102,305,367	6.4%	\$ 738,994	6.4%	\$ 5,330,074
<b>Project Management</b>			3.3%	<b>\$ 62,786,146</b>	3.3%	<b>\$ 4,433,316</b>	3.3%	<b>\$ 52,800,694</b>	3.3%	<b>\$ 384,878</b>	3.3%	<b>\$ 2,775,971</b>
BL Project Management	LS		2.3%	\$ 44,111,054	2.3%	\$ 3,089,269	2.3%	\$ 37,128,480	2.3%	\$ 268,194	2.3%	\$ 1,934,381
Insurance	LS		1.0%	\$ 18,277,510	1.0%	\$ 1,280,045	1.0%	\$ 15,384,266	1.0%	\$ 111,127	1.0%	\$ 801,515
Financial Advisory	LS		1	\$ 397,582	1	\$ 64,002	1	\$ 287,948	1	\$ 5,556	1	\$ 40,076
<b>Construction Allowance/Contingency</b>	%		12.4%	<b>\$ 260,651,068</b>	12.4%	<b>\$ 18,255,528</b>	12.4%	<b>\$ 219,345,002</b>	12.4%	<b>\$ 1,584,851</b>	12.4%	<b>\$ 11,430,906</b>
<b>GRAND TOTAL</b>	RM		16.7	<b>\$ 2,362,675,808</b>	0.49	<b>\$ 165,504,664</b>	11.16	<b>\$ 1,988,582,339</b>	1.2	<b>\$ 14,368,267</b>	5.06	<b>\$ 103,632,626</b>

Convention Center			
BL Platform & Station		Sunrail Platform	
Quantity	Cost	Quantity	Cost
	<b>\$ 36,476,755</b>		<b>\$ 31,079,379</b>
2,000	\$ 2,000,000	3,000	\$ 1,900,000
0	\$ -	0	\$ -
54,083	\$ 15,715,313	60,396	\$ 23,808,171
0.19	\$ 11,540,257	0.00	\$ -
0.19	\$ 917,285	0.00	\$ -
1	\$ 6,303,900	1	\$ 5,371,208
0	\$ 57,000,000	0	\$ -
0	\$ -	0	\$ -
1	\$ 57,000,000	0	\$ -
0	\$ -	0	\$ -
7.7%	\$ 7,220,309	7.7%	\$ 2,400,626
1.3%	\$ 1,218,427	1.3%	\$ 405,106
6.4%	\$ 6,001,882	6.4%	\$ 1,995,520
3.3%	\$ 3,125,028	3.3%	\$ 1,039,017
2.3%	\$ 2,178,192	2.3%	\$ 724,211
1.0%	\$ 902,539	1.0%	\$ 300,078
1	\$ 44,297	1	\$ 14,728
12.4%	\$ 12,871,567	12.4%	\$ 4,279,570
0.19	\$ 116,693,659	0.19	\$ 38,798,592

Orange Avenue	
Bridge Replacement	
Quantity	Cost
	<b>\$ 5,485,503</b>
0	\$ -
0	\$ -
27,500	\$ 4,125,000
0	\$ 412,500
0	\$ -
0	\$ 948,003
0	\$ -
0	\$ -
0	\$ -
7.7%	\$ 423,710
1.3%	\$ 71,501
6.4%	\$ 352,209
3.3%	\$ 183,386
2.3%	\$ 127,823
1.0%	\$ 52,964
1	\$ 2,599
12.4%	\$ 755,343
0	\$ 6,847,942

<b>GRAND TOTAL - SR 417 Route</b>	RM	16.7	\$ 1,028,116,936	\$ 165,504,664	\$ 744,611,379	\$ 14,368,267	\$ 103,632,626	\$ -
<b>DIFFERENCE TO SR 417 ROUTE</b>			\$ 1,334,558,872	\$ -	\$ 1,243,970,960	\$ -	\$ -	\$ 116,693,659

\*Civil/Site includes, but not limited to, clear/grub, subsoil excavation, earthwork, drainage, utility adjustments, erosion & sediment control, roadway construction/reconstruction, guardrail/concrete barriers/wall copings, pavement markings, lighting, signage, ITS, fencing, mowing/litter during construction, sound walls, earth retention, aesthetics, maintenance of traffic, etc.

OIA to Tampa Segment 1 - Taft-Vineland SR 528 Alignment Cost Breakdown										SR 528 / TVR		SR 417		Difference		Convention Center			
			528 Route Total		Disney to I-4		I-4 at SR 536 to CFRC		I-4 to CFRC		Per Element	CFRC		CFRC to OIA		BL Platform & Station		Sunrail Platform	
Element	Unit	Unit Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost		Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost
<b>Rail Infrastructure</b>				<b>\$ 960,752,666</b>		<b>\$ 75,575,458</b>		<b>\$ 758,839,579</b>		<b>\$ 538,956,775</b>	<b>\$ 219,882,804</b>		<b>\$ 11,509,522</b>		<b>\$ 78,339,025</b>		<b>\$ 36,476,755</b>		<b>\$ 31,079,379</b>
Track & Ballast	TF	\$ 519	175,784	\$ 98,283,154	4,700	\$ 6,544,511	117,004	\$ 60,725,076	102,683	\$ 45,658,488	\$ 15,066,588	499	\$ 1,078,299	48,581	\$ 27,935,268	2,000	\$ 2,000,000	3,000	\$ 1,900,000
MSE Walls	SF	\$ 51	934,317	\$ 47,627,688	113,301	\$ 5,755,872	821,016	\$ 41,871,816	1,783,507	\$ 90,605,001	\$ (48,733,185)	0	\$ -	0	\$ -	0	\$ -	0	\$ -
Bridges	SF	\$ 464	1,031,984	\$ 427,589,421	108,105	\$ 36,312,508	809,400	\$ 375,561,600	233,121	\$ 121,943,953	\$ 253,617,647	0	\$ -	0	\$ -	54,083	\$ 15,715,313	60,396	\$ 23,808,171
Civil/Site	RM		17.8	\$ 140,564,294	0.49	\$ 11,540,257	10.99	\$ 102,344,318	9.98	\$ 139,511,829	\$ (37,167,511)	1.06	\$ 2,659,163	5.06	\$ 12,480,300	0.19	\$ 11,540,257	0.00	\$ -
Train Control & Signals	RM		17.8	\$ 80,602,661	0.49	\$ 2,361,387	10.99	\$ 47,156,065	9.98	\$ 48,095,189	\$ (939,124)	1.06	\$ 5,782,989	5.06	\$ 24,384,935	0.19	\$ 917,285	0.00	\$ -
Contractor Indirect & General Costs	LS		20.90%	\$ 166,085,448	1	\$ 13,060,923	1	\$ 131,180,705	1	\$ 93,142,315	\$ 38,038,389	1	\$ 1,989,071	1	\$ 13,538,522	1	\$ 6,303,900	1	\$ 5,371,208
<b>Land/Building/Other</b>	RM		16.7	<b>\$ 139,674,604</b>	0.49	<b>\$ 57,000,000</b>	11.16	<b>\$ 78,000,000</b>	9.98	<b>\$ 57,504,932</b>	<b>\$ 20,495,068</b>	1.2	<b>\$ -</b>	5.06	<b>\$ 4,674,604</b>	0	<b>\$ 57,000,000</b>	0	<b>\$ -</b>
Land	LS		1	\$ 79,674,604	1	\$ -	1	\$ 75,000,000	1	\$ 51,504,932		1	\$ -	1	\$ 4,674,604	0	\$ -	0	\$ -
Station Building	EA		1	\$ 57,000,000	1	\$ 57,000,000	0	\$ -	0	\$ -		0	\$ -	0	\$ -	1	\$ -	0	\$ -
Passenger Platform At-Grade	EA		1	\$ 3,000,000	0	\$ -	1	\$ 3,000,000	2	\$ 6,000,000		0	\$ -	0	\$ -	0	\$ -	0	\$ -
<b>Professional Fees</b>			7.7%	<b>\$ 78,844,733</b>		<b>\$ 10,240,362</b>		<b>\$ 61,505,746</b>		<b>\$ 46,071,753</b>	<b>\$ 15,433,993</b>		<b>\$ 889,016</b>		<b>\$ 6,412,119</b>	7.7%	<b>\$ 7,220,309</b>	7.7%	<b>\$ 2,400,626</b>
Permitting	%		1.3%	\$ 13,305,049	1.3%	\$ 1,728,061	1.3%	\$ 7,774,608	1.3%	\$ 7,774,608	\$ -	1.3%	\$ 150,021	1.3%	\$ 1,082,045	1.3%	\$ 1,218,427	1.3%	\$ 405,106
Design	%		6.4%	\$ 65,539,684	6.4%	\$ 8,512,301	6.4%	\$ 53,731,137	6.4%	\$ 38,297,144	\$ 15,433,993	6.4%	\$ 738,994	6.4%	\$ 5,330,074	6.4%	\$ 6,001,882	6.4%	\$ 1,995,520
<b>Project Management</b>			3.3%	<b>\$ 34,807,994</b>	3.3%	<b>\$ 4,433,316</b>	3.3%	<b>\$ 27,867,826</b>	3.3%	<b>\$ 19,945,648</b>	<b>\$ 7,922,178</b>	3.3%	<b>\$ 384,878</b>	3.3%	<b>\$ 2,775,971</b>	3.3%	<b>\$ 3,125,028</b>	3.3%	<b>\$ 1,039,017</b>
BL Project Management	LS		2.3%	\$ 23,785,544	2.3%	\$ 3,089,269	2.3%	\$ 19,500,008	2.3%	\$ 13,898,731	\$ 5,601,277	2.3%	\$ 268,194	2.3%	\$ 1,934,381	2.3%	\$ 2,178,192	2.3%	\$ 724,211
Insurance	LS		1.0%	\$ 10,624,867	1.0%	\$ 1,280,045	1.0%	\$ 8,079,870	1.0%	\$ 5,758,969	\$ 2,320,901	1.0%	\$ 111,127	1.0%	\$ 801,515	1.0%	\$ 902,539	1.0%	\$ 300,078
Financial Advisory	LS		1	\$ 397,582	1	\$ 64,002	1	\$ 287,948	1	\$ 287,948	\$ -	1	\$ 5,556	1	\$ 40,076	1	\$ 44,297	1	\$ 14,728
<b>Construction Allowance/Contingency</b>	%		12.4%	<b>\$ 140,666,269</b>	12.4%	<b>\$ 18,255,528</b>	12.4%	<b>\$ 114,829,266</b>	12.4%	<b>\$ 82,132,272</b>	<b>\$ 32,696,995</b>	12.4%	<b>\$ 1,584,851</b>	12.4%	<b>\$ 11,430,906</b>	12.4%	<b>\$ 12,871,567</b>	12.4%	<b>\$ 4,279,570</b>
<b>GRAND TOTAL</b>	RM		16.7	<b>\$ 1,354,746,265</b>	0.49	<b>\$ 165,504,664</b>	11.16	<b>\$ 1,041,042,418</b>	9.98	<b>\$ 744,611,379</b>	<b>\$ 296,431,038</b>	1.2	<b>\$ 14,368,267</b>	5.06	<b>\$ 103,632,626</b>	0.19	<b>\$ 116,693,659</b>	0.19	<b>\$ 38,798,592</b>

<b>GRAND TOTAL -SR 417 Route</b>	RM	16.7	<b>\$ 1,028,116,936</b>	<b>\$ 165,504,664</b>	<b>\$ 744,611,379</b>	<b>\$ 219,882,804</b>	<b>\$ 14,368,267</b>	<b>\$ 103,632,626</b>	<b>\$ -</b>	<b>\$ -</b>
<b>DIFFERENTIAL</b>			<b>\$ 326,629,329</b>	<b>\$ -</b>	<b>\$ 296,431,038</b>		<b>\$ -</b>	<b>\$ -</b>	<b>\$ 116,693,659</b>	<b>\$ 38,798,592</b>

# ATTACHMENT 5

VHB Addendum

Dated 7/12/21

To: Glenn Pressimone, P.E.  
Chief of Infrastructure  
Central Florida Expressway Authority

Date: 7/12/21

Project #: 62375.34

From: Amy Sirmans, P.E.

Re: Brightline Route Cost Comparison Addendum

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Thank you for meeting with VHB representatives on July 6, 2021, to review our report and findings on the comparison of Brightline's cost estimates for two different rail alignments from Orlando International Airport to a proposed Brightline station at Disney Springs. At your request, we are providing this addendum to our July 6 report which provides additional information and summarizes responses to questions received since the July 6 meeting.

VHB has undertaken the difficult task of comparing two significantly different levels of cost estimate Brightline provided for each route, as described below:

- Brightline's estimate for the **Convention Center Route** along Taft-Vineland Road/SR 528 is based on a 30% design developed for Florida High Speed Rail (FLHSR), a fully identified route that was studied in detail and initially approved in 2005, and again in 2010 based on a re-evaluation.
- Brightline's estimate for the **417 Route** is based on a 15% design for a proposed alignment that Brightline has advised is no longer valid. In fact, during our July 6 meeting, Brightline's representatives further advised that they have not determined the final alignment for the section from the 417 right-of-way to the I-4 crossing, and they redacted all information for this more than 3 mile section from the information they provided. Therefore, Brightline has neither provided a final 417 Route alignment nor a cost estimate that can be directly compared to the detailed estimate for the Convention Center Route.

Most importantly, we believe that a thorough "apples-to-apples" comparison of the estimated costs of the approved Convention Center route and Brightline's yet to be finalized 417 route would require that Brightline complete an extensive supplemental Environmental Impact Statement (EIS) so the details of both routes could be fully analyzed and objectively compared.

Notwithstanding the above, as Brightline has continued their alignment iterations and value engineering in an attempt to finalize a route and complete their estimated cost of the 417 Route, VHB has in a similar vein identified a number of refinements to Brightline's estimate of the approved Convention Center route. Based on these Convention Center route refinements coupled with significant questions and unaddressed issues in Brightline's evolving 417 Route estimate, it appears that the difference between the actual costs of these two routes is most likely lower than originally believed. This is based on the following significant items we found that were not included in the estimate submitted on July 6.

- Unit costs of bridges applied to Convention Center route estimate (approximately \$107M)
- Increased length to the 417 route (approximately 0.5 mile) (approximately \$40M increase to 417 route)
- Revised property costs for Convention Center route (\$45M savings)

Based on FDOT's current plan for the rail alignment to be centered in the I-4 corridor, Brightline has estimated the difference in cost between the Taft-Vineland/Convention Center Route and the yet to be finalized 417 Route is approximately \$780 million. The Brightline estimate received by our team did account for an alignment adjustment, however, it does not address the modifications regarding the use of bridge structure and MSE walls as suggested in the July 6th memo. We believe that various adjustments in that difference are warranted, especially while Brightline attempts to finalize a 417 Route alignment and complete the supplemental EIS. The table at the end of this document summarizes the adjustments we have described herein, which taken together indicates a potential difference of \$199M between the Taft-Vineland/Convention Center Route and the yet to be finalized 417 Route.

In support of this conclusion we offer the following summary analysis and corresponding backup provided in the cited appendices.

1. **Convention Center Route Refinements**

**a. REDUCTION IN BRIDGE COSTS AND CONVERSION TO MSE WALLS – SEE EXHIBIT A**

The length of bridges along the Convention Center route has been reduced by approximately 3 miles from what was proposed in the FLHSR study and replaced with MSE wall for elevated sections. See the attached Exhibit A which depicts the locations of bridge structures and wall. This reduces Brightline's estimate for the TVR / SR 528 route by approximately \$310 million. This reduction in bridge length is based on using a train speed similar to what Brightline is proposing on the SR 417 route, rather than the higher speed train as proposed in the FLHSR study. Additional civil/site cost savings may be gained if the alignment is shifted to the Universal property north of SR 528, west of Shingle Creek.

In addition, the initial estimate prepared by VHB for the Convention Center route utilized an average unit cost (\$464/sf) for the bridge structures along the entire 417 route that included specialized and standard bridges. Based on review of the 417 bridge quantities provided by Brightline, 68% of the bridges along 417 are the specialized more costly bridges at \$523/sf. The cost for Brightline's standard bridges is \$336/sf. Approximately 75% of the bridges along the Convention Center route would be considered standard bridges. Using \$336/sf for 75% of the bridge quantities and \$523/sf for the remainder of the route would result in a savings of at least \$107M to the Convention Center route estimate.

Note that the \$107M savings was calculated after increasing the bridge length on the Convention Center route to accommodate the I-4 / SR 528 connection.

**b. REDUCED ESTIMATED PROPERTY COST– SEE EXHIBIT B**

As with the bridge costs savings, we anticipate that the savings in land acquisition will also increase when Brightline's estimate recognizes the significant property donation Universal has set aside to support this project. A graphic depicting the parcels owned by Universal is included as Exhibit B.

Brightline's land cost estimate for the I-4 Beyond-the-Ultimate right-of way needs related to the option of an elevated rail corridor located on the outside edge of the I-4 right of way should be reduced by \$50 million based on the currently approved FDOT District 5 plans which will eliminate the need to purchase additional property. In addition, we eliminated Brightline's 23.4% markup of land acquisition for professional fees, project management, and construction allowance (all of which is inapplicable to the purchase of land) resulting in an initial land acquisition savings of \$61.7 million. The inclusion of such cost is not appropriate at this point, as FDOT has not changed the currently approved plan.

In addition, Brightline's land cost estimate for the Convention Center route right-of way needs was based on the 2010 FLHSR Study estimate. Brightline requested an updated estimate from FDOT to remove the parcels east of the CFRC corridor pertaining to the old alignment. The cost in 2010 dollars that Brightline received was \$75M. VHB also requested an updated estimate to include the parcels potentially impacted along the optimized route and to remove parcels that have already been purchased by Orange County and parcels owned by Universal. This resulted in a 2010 cost of \$30M. The difference between these two values, \$45M, represents the additional savings identified between the two alignment estimates.

**c. REDUCTION IN SOUND WALL COSTS CONTAINED IN CIVIL “PER MILE” COST**

VHB estimates reduced civil costs by \$7.5 million for noise walls on the grounds that the TVR / SR 528 route does not run immediately adjacent to and will not have a negative impact on residential communities and due to the fact that there is an existing noise wall on the south side of SR 528 for the residential community.

**d. REDUCTION IN CONVENTION CENTER STATION COST**

Brightline’s estimate for the Convention Center Station (Brightline station and SunRail platform) has been reduced by \$108.8 based on the following facts; (1) the Orange County Commission has approved a multi-modal station as part of the previously approved Convention Center route study (2005 and 2010), (2) a site adjacent to the Orange County Convention Center has been dedicated for the multi-modal station, (3) the Orange County Convention Center Client Advisory Board has consistently recommended supporting the development of this facility as one of their highest priority transportation initiatives, (4) and the Universal Boulevard Property Owners Association is working with the adjacent private property owners on development and financing plans for the integration of a new multi-modal facility into adjacent high density developments; all of which clearly demonstrate the continuing commitment to build a station by the various entities invested in the region. In addition, part of Brightline’s estimate included a new \$38 million elevated Sun Rail station, which should be removed from the Brightline estimate for comparison of the two routes. The cost estimate includes the track & ballast, bridges and other associated costs for Brightline to construct an elevated platform at the Convention Center Station.

**2. SR 417 Route Questions and Observations**

**a. INCREASED ROUTE LENGTH – SEE EXHIBIT C**

The new alignment from 417 to Disney appears to add .5 miles to the overall 417 route distance. Using Brightline’s per mile route cost for this section adds a minimum of \$40 million.

**b. INCREASED CONSTRUCTION COST MSE WALLS – SEE EXHIBIT D**

The unit costs of the walls for the 417 route and the Convention Center route cannot be the same. The costs of the walls on the 417 will be greater due to the increased heights of walls shown in the plan, restrictive access along the property line, and constructability issues associated with construction along 417, etc. Over the length of the alignment, the delta in unit cost combined with the significant amount of wall could create a significant increase in the 417 route estimate. Actual unit costs associated with these specific walls are required in order to make a reasonable comparison.

**c. TRACK CONSTRUCTION COSTS**

Similar to the MSE wall construction, does the construction estimate account for increase in track construction costs associated with limited access from within the trackbed itself or impacts to CFX due to lane closures of construction from the roadway? It is assumed that these costs would vary from traditional track at grade, or on lower retained fill with more accessible staging areas, and therefore should be represented in the updated estimate.

**d. LACK OF DOCUMENTATION OF DRAINAGE DESIGN**

No information is contained in the 15% design relative to the proposed drainage anticipated within the rail corridor. Is Brightline intending to utilize existing CFX drainage facility capacity? How will that impact CFX future serviceability. If new infrastructure, where is it located and what are the land/environmental impacts? Additional details of the drainage system are required to more fully evaluate impacts to the CFX assets.

**e. ADDITIONAL LAND COST**

It is our understanding that Brightline has not yet finalized the alignment for the 417 route therefore it is unclear as to the estimated land cost. However, the latest proposed alignment would require the acquisition of additional private property, as well as securing Orange County property and possibly Duke Energy property. Brightline's proposed 417 route includes impact to a 34-acre Orange County mitigation site. With rapidly increasing land values and wetland mitigation costs in this region, it is difficult and premature to even estimate the actual cost of these additional requirements until a more refined design is developed.

**f. SUNRAIL AT GRADE PLATFORMS**

Brightline showed two "passenger at grade platforms" in their estimate, at \$3 million each. However, the 15% design plans show the Hunter's Creek station as an elevated station 30 feet above surrounding grade. Brightline's provided cost for a SunRail elevated platform is \$39 million, which is more in line with the Hunters Creek design, resulting in a \$36 million increase in their estimate.

It has been asked of this team by you and your staff to try to compare the costs for the two routes. As set forth above, we believe this will be a more fruitful effort when we have the opportunity to review Brightline's completed route, its 30% drawings, its 30% rollout plots for the Brightline, and its projected costs for wetland mitigation and damages from Hunter's Creek. Along the same lines, the cost analysis is not complete without the estimated costs for the damages and legal fees arising out of the eminent domain proceedings with the residents of Hunter's Creek and South Chase.

Finally, we believe Brightline will soon be required to perform an extensive Supplemental Environmental Impact Statement (EIS) for its proposed route. That assessment will take considerable time and effort, but the end result will be a report that actually includes Brightline's "final" route, an assessment of all the environmental impacts currently missing or not developed, and otherwise answer all of the questions we have raised in this exercise.

OIA to Tampa Segment 1 - Taft-Vineland SR 528 Alignment Cost Breakdown							TVR / SR 528					
			528 Route Total		Disney to I-4		I-4 at SR 536 to CFRC		CFRC		CFRC to OIA	
Element	Unit	Unit Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost
<b>Rail Infrastructure</b>				<b>\$ 929,081,080</b>		<b>\$ 75,575,458</b>		<b>\$ 727,167,994</b>		<b>\$ 11,509,522</b>		<b>\$ 78,339,025</b>
Track & Ballast	TF	\$ 519	176,138	\$ 98,466,880	4,700	\$ 6,544,511	117,358	\$ 60,908,802	499	\$ 1,078,299	48,581	\$ 27,935,268
MSE Walls	SF	\$ 51	1,056,369	\$ 53,852,340	113,301	\$ 5,755,872	943,068	\$ 48,096,468	0	\$ -	0	\$ -
Bridges	SF	\$ 464	1,044,188	\$ 389,613,321	108,105	\$ 36,312,508	882,000	\$ 337,585,500	0	\$ -	0	\$ -
Civil/Site	RM		17.8	\$ 140,564,294	0.49	\$ 11,540,257	10.99	\$ 102,344,318	1.06	\$ 2,659,163	5.06	\$ 12,480,300
Train Control & Signals	RM		17.8	\$ 85,973,869	0.49	\$ 2,361,387	10.99	\$ 52,527,273	1.06	\$ 5,782,989	5.06	\$ 24,384,935
Contractor Indirect & General Costs	LS		20.90%	\$ 160,610,377	1	\$ 13,060,923	1	\$ 125,705,633	1	\$ 1,989,071	1	\$ 13,538,522
<b>Land/Building/Other</b>	RM		17.8	<b>\$ 94,674,604</b>	0.49	<b>\$ 57,000,000</b>	11.16	<b>\$ 33,000,000</b>	1.2	<b>\$ -</b>	5.06	<b>\$ 4,674,604</b>
Land	LS		1	\$ 34,674,604	1	\$ -	1	\$ 30,000,000	1	\$ -	1	\$ 4,674,604
Station Building	EA		1	\$ 57,000,000	1	\$ 57,000,000	0	\$ -	0	\$ -	0	\$ -
Passenger Platform At-Grade	EA		1	\$ 3,000,000	0	\$ -	1	\$ 3,000,000	0	\$ -	0	\$ -
<b>Professional Fees</b>			7.7%	<b>\$ 74,716,334</b>		<b>\$ 10,240,362</b>		<b>\$ 54,656,661</b>		<b>\$ 889,016</b>		<b>\$ 6,412,119</b>
Permitting	%		1.3%	\$ 11,210,194	1.3%	\$ 1,728,061	1.3%	\$ 7,774,608	1.3%	\$ 150,021	1.3%	\$ 1,082,045
Design	%		6.4%	\$ 63,506,140	6.4%	\$ 8,512,301	6.4%	\$ 46,882,052	6.4%	\$ 738,994	6.4%	\$ 5,330,074
<b>Project Management</b>			3.3%	<b>\$ 32,994,912</b>	3.3%	<b>\$ 4,433,316</b>	3.3%	<b>\$ 24,775,921</b>	3.3%	<b>\$ 384,878</b>	3.3%	<b>\$ 2,775,971</b>
BL Project Management	LS		2.3%	\$ 23,047,534	2.3%	\$ 3,089,269	2.3%	\$ 17,014,350	2.3%	\$ 268,194	2.3%	\$ 1,934,381
Insurance	LS		1.0%	\$ 9,549,795	1.0%	\$ 1,280,045	1.0%	\$ 7,473,623	1.0%	\$ 111,127	1.0%	\$ 801,515
Financial Advisory	LS		1	\$ 397,582	1	\$ 64,002	1	\$ 287,948	1	\$ 5,556	1	\$ 40,076
<b>Construction Allowance/Contingency</b>	%		12.4%	<b>\$ 136,002,248</b>	12.4%	<b>\$ 18,255,528</b>	12.4%	<b>\$ 100,371,972</b>	12.4%	<b>\$ 1,584,851</b>	12.4%	<b>\$ 11,430,906</b>
<b>GRAND TOTAL</b>	RM		17.8	<b>\$ 1,267,469,179</b>	0.49	<b>\$ 165,504,664</b>	11.16	<b>\$ 939,972,548</b>	1.2	<b>\$ 14,368,267</b>	5.06	<b>\$ 103,632,626</b>

Convention Center			
BL Platform & Station		Sunrail Platform	
Quantity	Cost	Quantity	Cost
	<b>\$ 36,476,755</b>		<b>\$ 31,079,379</b>
2,000	\$ 2,000,000	3,000	\$ 1,900,000
0	\$ -	0	\$ -
54,083	\$ 15,715,313	60,396	\$ 23,808,171
0.19	\$ 11,540,257	0.00	\$ -
0.19	\$ 917,285	0.00	\$ -
1	\$ 6,303,900	1	\$ 5,371,208
0	\$ -	0	\$ -
0	\$ -	0	\$ -
1	\$ -	0	\$ -
0	\$ -	0	\$ -
7.7%	<b>\$ 2,817,529</b>	7.7%	<b>\$ 2,400,626</b>
1.3%	\$ 475,458	1.3%	\$ 405,106
6.4%	\$ 2,342,071	6.4%	\$ 1,995,520
3.3%	<b>\$ 1,246,468</b>	3.3%	<b>\$ 1,039,017</b>
2.3%	\$ 849,980	2.3%	\$ 724,211
1.0%	\$ 352,191	1.0%	\$ 300,078
1	\$ 44,297	1	\$ 14,728
12.4%	<b>\$ 5,026,127</b>	12.4%	<b>\$ 4,279,570</b>
0.19	<b>\$ 45,566,879</b>	0.19	<b>\$ 38,798,592</b>

<b>GRAND TOTAL - SR 417 Route (15% Design plans)</b>	RM		16.7	<b>\$ 1,068,116,936</b>
<b>DIFFERENTIAL - SR 417 Route (15% Design) compared to TVR / SR 528 with I-4 At-Grade</b>	RM		16.7	<b>\$ 199,352,242</b>

Includes addition of 0.5 mile of route (see paragraph 2.a above)



## Attachment

This information below is included to document questions received by CFX's consultant Dewberry and responses by VHB during the estimate reviews.

Questions were received regarding the lengths of bridge and wall in the VHB estimates. The questions and response are included below.

- Q. Upon further review, the FLHSR plans show the tracks on MSE walls approaching and departing the bridge overpass at SR 535. The kmz (VHB alignment) shows these same limits at grade. Please confirm the intent and your estimate was based on the MSE walls approaching this bridge.
- A. Revisions have been made to the quantities to reflect this change.
- Q. Also, the KMZ rail alignment at grade under the Darryl Carter Parkway overpass will be in conflict with the bridges center piers located in the center of the existing median. What is the plan to deal with this conflict? Replace the bridge? Offset the rail corridor?
- A. The typical section and plans for the currently approved I-4 BtU design includes the rail corridor at grade under the existing Darryl Carter Parkway overpass. Please see the attached exhibit I-4 BtU typical section.
- Q. Upon review of the I-4 BTU plans and comparing that to your KMZ, do you have an exhibit to show how you can fit the proposed rail alignment will fit within the R/W at the southwest quadrant of the SR 528/I-4 interchange with the I-4 BTU improvements?
- A. The kmz files of the I-4 BtU design in this section along with the kmz file of the TVR / SR 528 alignment were provided to Keith Jackson (Dewberry). Below is a screenshot of this section.

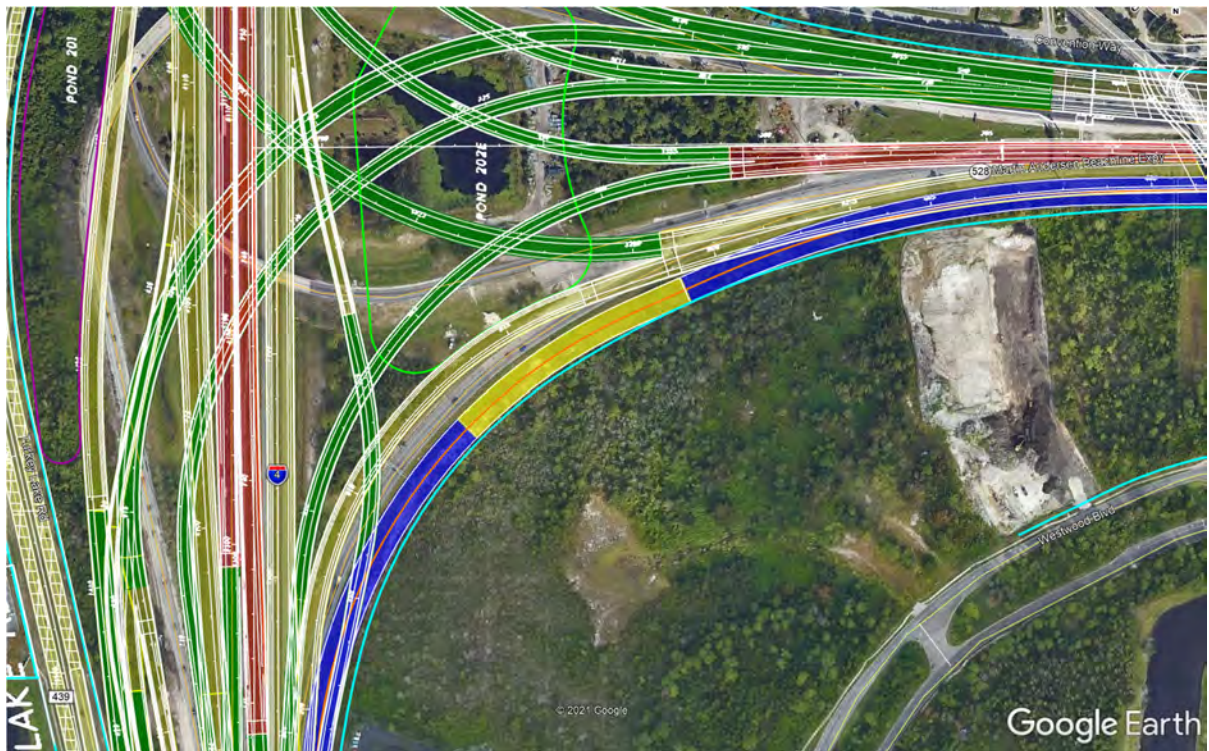
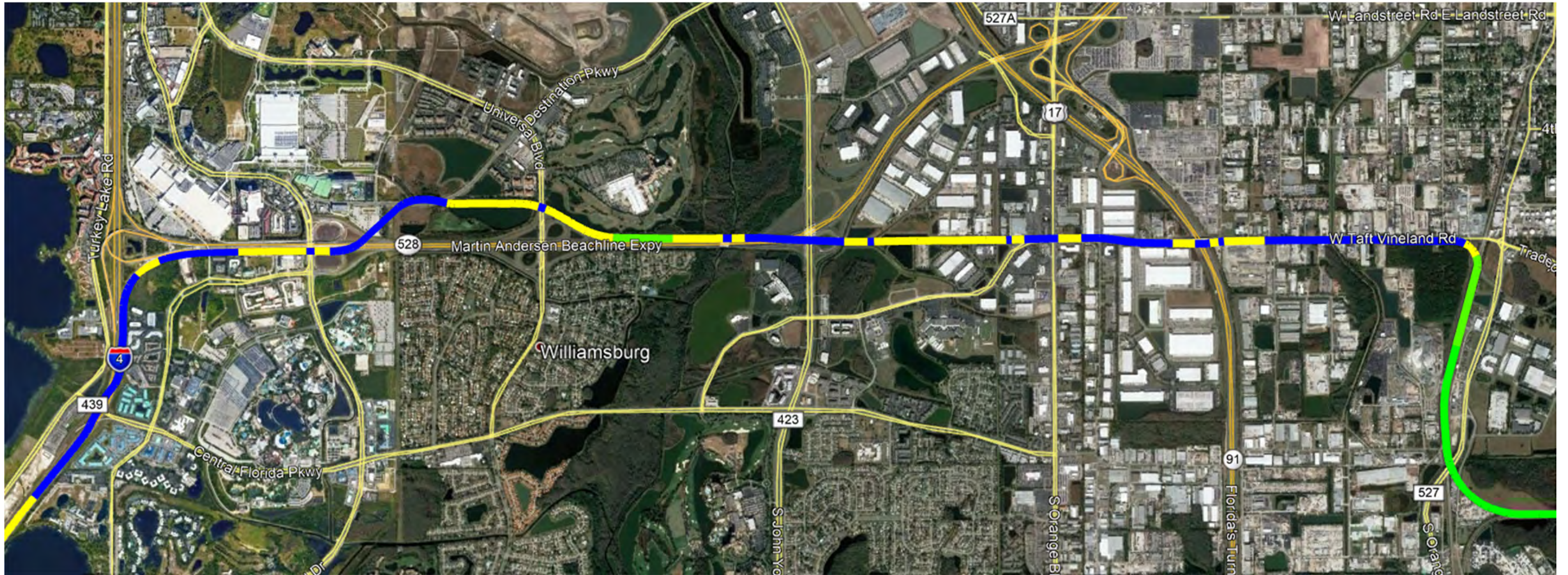


Exhibit A

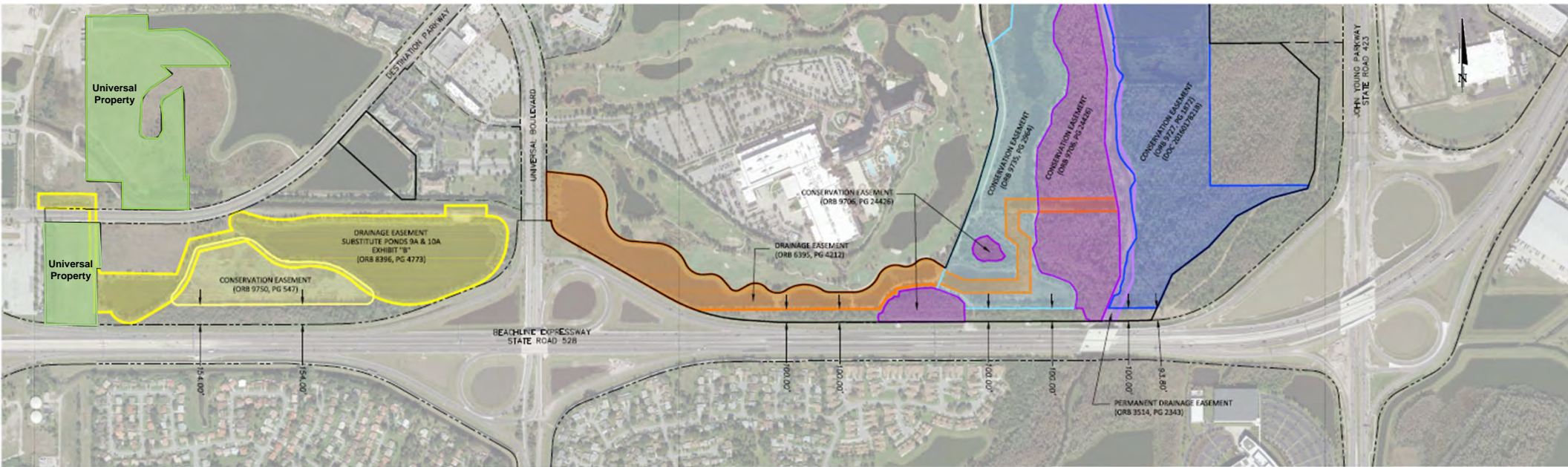
Taft Vineland Road / SR 528 Alignment



Legend

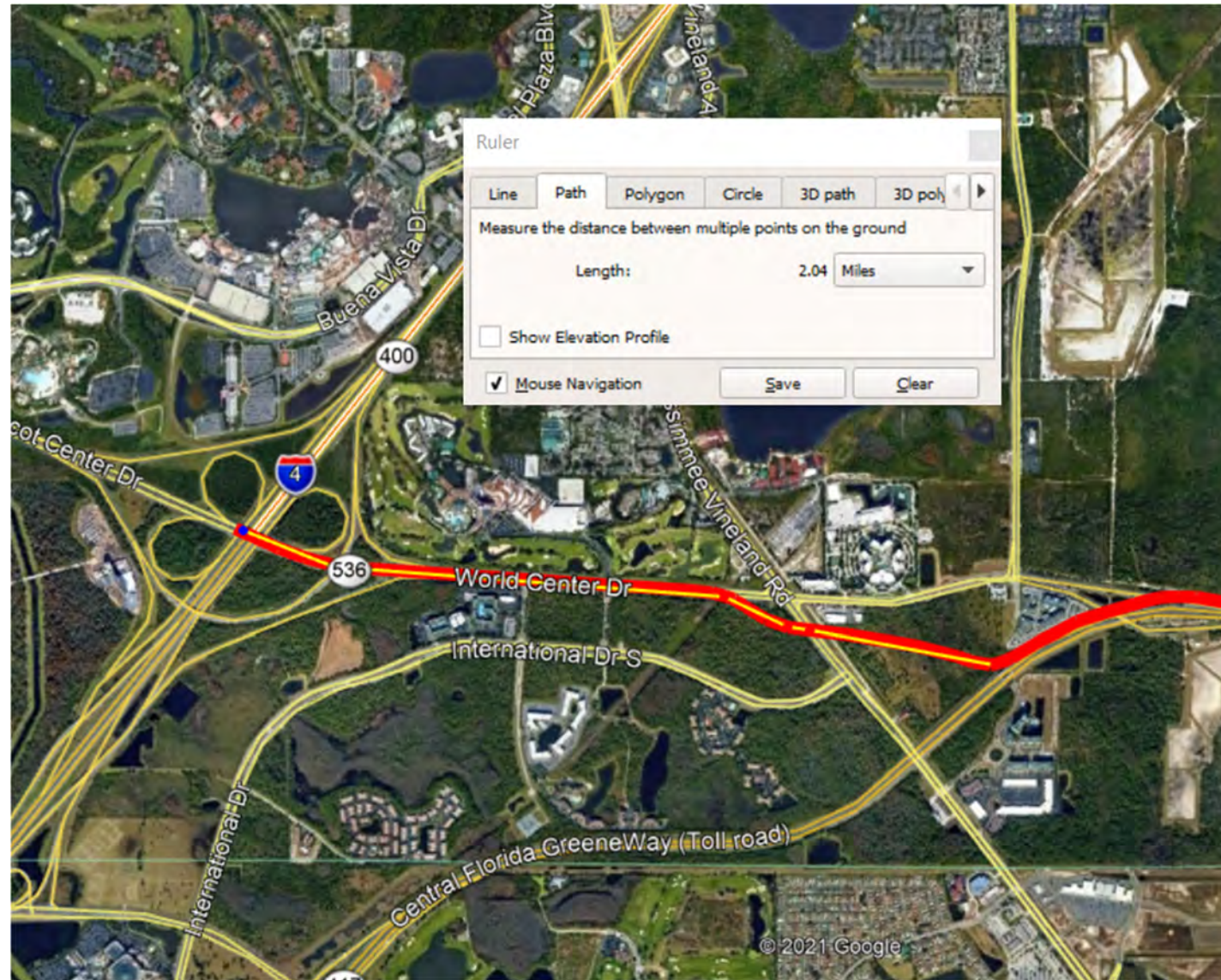
- Bridge Structure
- MSE Wall
- At-Grade

Exhibit B  
Beachline Expressway Right-of-Way Buffer and Universal Owned Property



### Exhibit C – Increased 417 Route Length

Initial 15% Design plans – Connection to I-4 / Disney



Revised 15% Design plans – Connection to I-4 / Disney

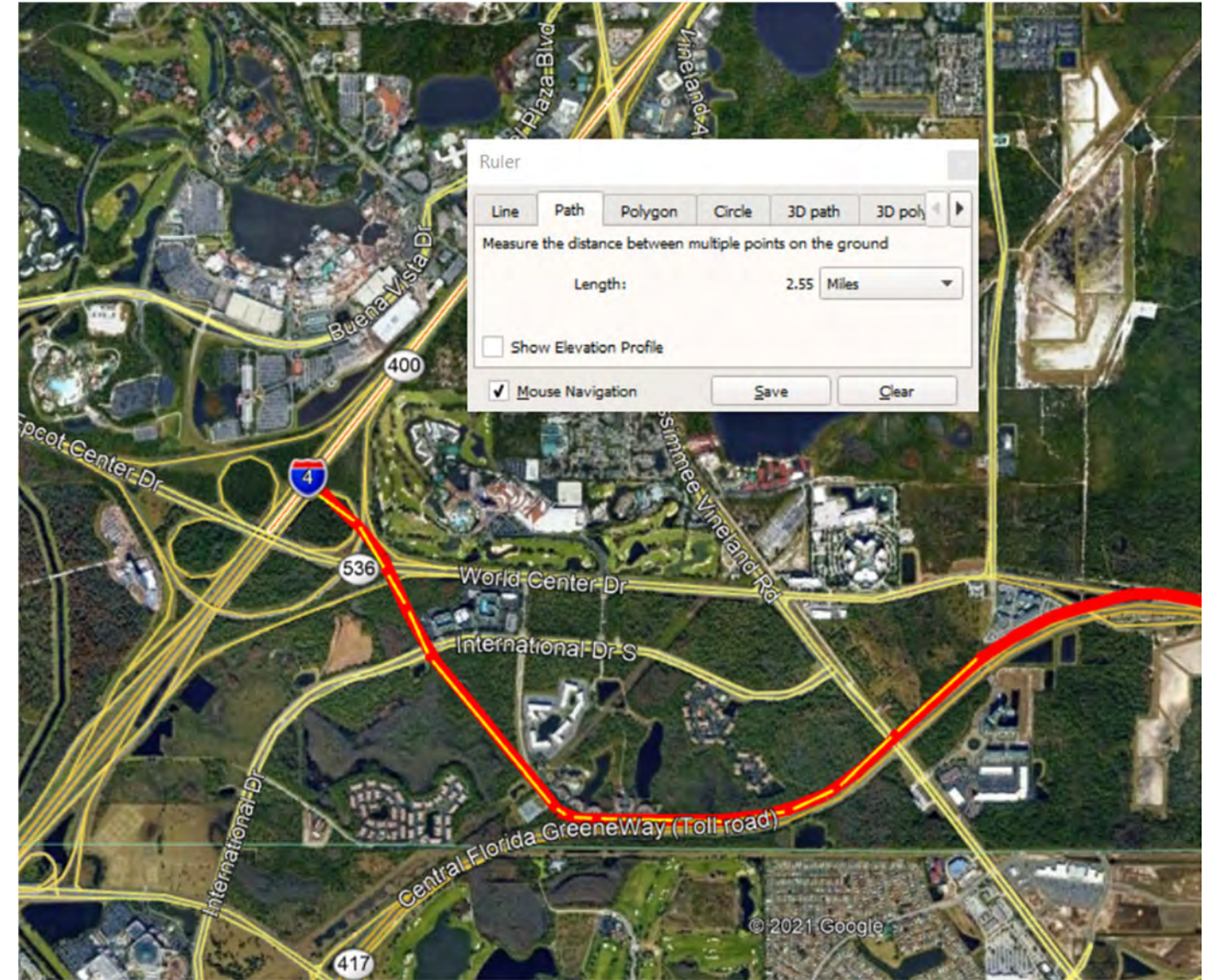
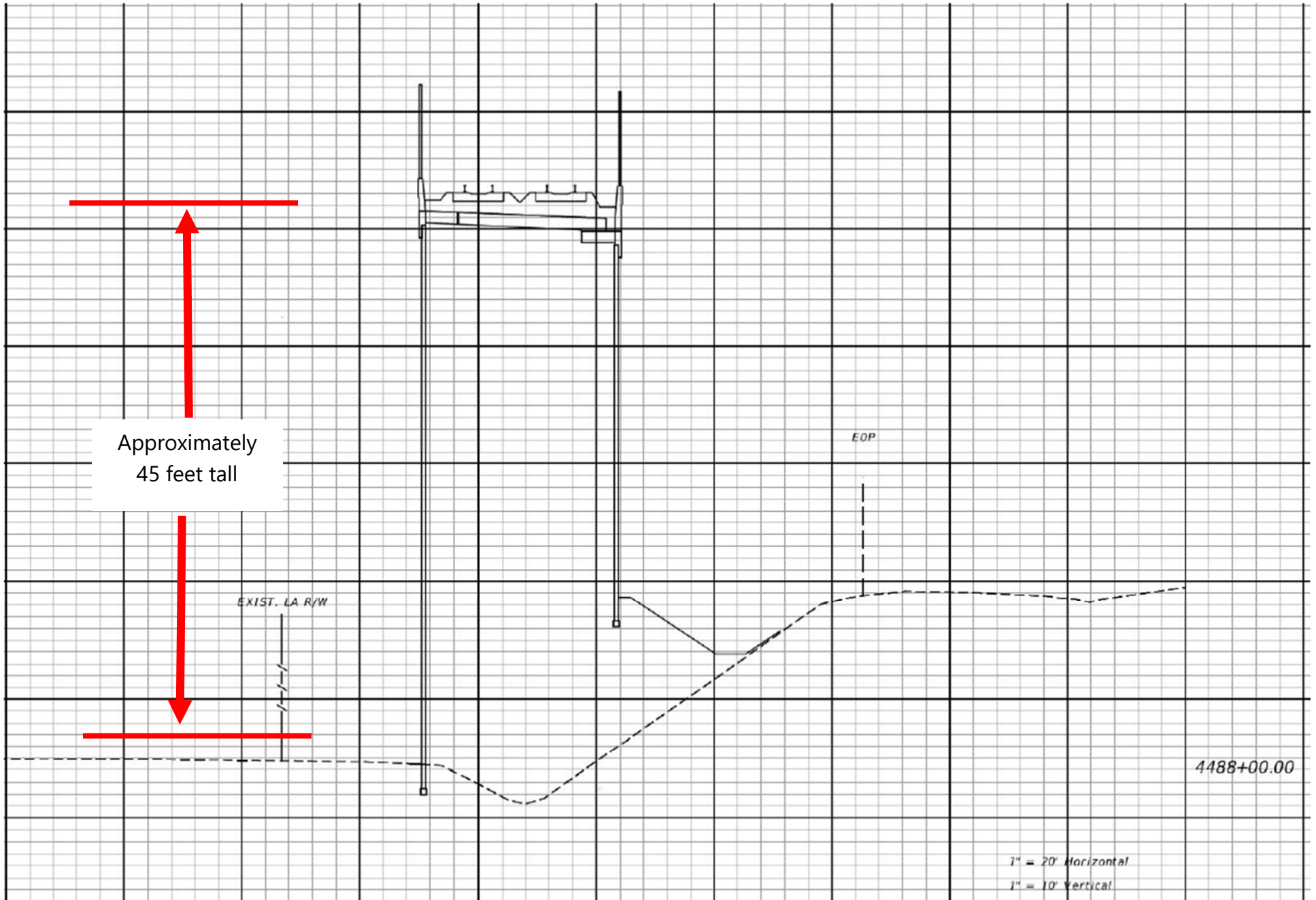


Exhibit D – MSE Wall Along SR 417 Route



# ATTACHMENT 6

Dewberry Project  
Cost Estimates

SR 417 Alignment: OIA to Disney Dewberry Project Cost Estimate (2021\$)											
		417 Route Total		Segment 1 OIA Intermodal Facility to CFRC		Segment 2 CFRC		Segment 3 CFRC to I-4 / SR 536 Interchange		Segment 4 I-4 / SR 536 Interchange to Disney	
Element	Unit	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost
<b>Rail Infrastructure</b>			<b>\$ 745,018,760</b>		<b>\$ 87,014,788</b>		<b>\$ 22,296,736</b>		<b>\$ 563,218,608</b>		<b>\$ 72,488,629</b>
Track & Ballast	TF	169,594	\$ 91,906,558	48,576	\$ 27,932,393	3,326	\$ 7,187,220	112,992	\$ 50,242,434	4,700	\$ 6,544,511
MSE Walls	SF	1,896,435	\$ 96,341,924	45,837	\$ 2,328,593	0	\$ -	1,737,297	\$ 88,257,460	113,301	\$ 5,755,872
Bridges	SF	367,127	\$ 170,756,280	17,685	\$ 8,202,088	0	\$ -	241,337	\$ 126,241,685	108,105	\$ 36,312,508
Civil/Site	RM	17.3	\$ 173,888,706	4.6	\$ 11,345,727	1.6	\$ 3,545,551	10.7	\$ 149,576,810	0.4	\$ 9,420,618
Train Control & Signals	RM	17.3	\$ 83,371,420	4.6	\$ 22,168,123	1.6	\$ 7,710,652	10.7	\$ 51,564,982	0.4	\$ 1,927,663
Contractor Indirect & General Costs	%	21%	\$ 128,753,873	21%	\$ 15,037,864	21%	\$ 3,853,314	21%	\$ 97,335,236	21%	\$ 12,527,459
<b>Building/Other</b>			<b>\$ 66,000,000</b>		<b>\$ 3,000,000</b>		<b>\$ -</b>		<b>\$ 6,000,000</b>		<b>\$ 57,000,000</b>
<b>Land</b>	<b>LS</b>										
Station Building	EA	1	\$ 57,000,000	0	\$ -	0	\$ -	0	\$ -	1	\$ 57,000,000
Passenger Platform At-Grade	EA	3	\$ 9,000,000	1	\$ 3,000,000	0	\$ -	2	\$ 6,000,000	0	\$ -
<b>SUBTOTAL CONSTRUCTION</b>			<b>\$ 811,018,760</b>		<b>\$ 90,014,788</b>		<b>\$ 22,296,736</b>		<b>\$ 569,218,608</b>		<b>\$ 129,488,629</b>
<b>Professional Fees (Design /Permitting)</b>	%	7.7%	\$ 62,448,445	7.7%	\$ 6,931,139	7.7%	\$ 1,716,849	7.7%	\$ 43,829,833	7.7%	\$ 9,970,624
<b>Project Management</b>	%	3.3%	\$ 26,763,619	3.3%	\$ 2,970,488	3.3%	\$ 735,792	3.3%	\$ 18,784,214	3.3%	\$ 4,273,125
<b>Construction Allowance/Contingency</b>	%	12.4%	\$ 100,566,326	12.4%	\$ 11,161,834	12.4%	\$ 2,764,795	12.4%	\$ 70,583,107	12.4%	\$ 16,056,590
<b>GRAND TOTAL</b>			<b>\$ 1,000,797,150</b>		<b>\$ 111,078,248</b>		<b>\$ 27,514,172</b>		<b>\$ 702,415,762</b>		<b>\$ 159,788,969</b>
<b>Land</b>	<b>LS</b>	1	\$ 56,179,536	1	\$ 4,674,604	1	\$ -	1	\$ 51,504,932	1	\$ -
<b>Land Acquisition Support (Legal/Appraisers/Surveyors)</b>	<b>EA</b>	26	\$ 1,300,000								
<b>GRAND TOTAL + LAND ITEMS</b>			<b>\$ 1,058,000,000</b>		<b>\$ 116,000,000</b>		<b>\$ 28,000,000</b>		<b>\$ 754,000,000</b>		<b>\$ 160,000,000</b>

Notes:

- 1) Unit costs and percentages utilized in this estimate are based off of those calculated from the SR 417 Brightline Rail Cost Estimate.
- 2) Land costs have been placed after the grand total and are not included in the line item calculations for Professional Fees, Project Management, and Construction Allowance/Contingency. A line item has been included to account for land acquisition support (e.g. attorney's fees, appraisal fees, surveying fees, legal and description preparation, etc.) at \$50k per parcel.
- 3) Quantities for SR 417 Route (Brightline) segments 1, 2, 3 (that portion from CFRC to the SR 417 / I-Drive interchange) and 4 are based on the 15% SR 417 Brightline Rail Plans. Quantities for the portion of segment 3 from the SR 417 / I-Drive interchange to I-4 at SR 536 are based off of the alternate alignment presented at the June 2021 CFX Board Meeting ("Blue" corridor).
- 4) Segment 1: Bridges and MSE walls were included in this segment for the SunRail crossing over Terminal C Exit Road and SunRail Station Bridge.
- 5) Segment 1: A station platform is included for SunRail at OIA Intermodal Facility (per 15% SR 417 Rail Plans).
- 6) Segment 3: A station platform is included near Hunter Vista Blvd. (per 15% SR 417 Rail Plans).

Prepared by: Dewberry  
Date: 7/14/2021

SR 528 Modified FHSR Alignment: OIA to Disney Dewberry Project Cost Estimate (2021\$)												
		528 Route Total		Segment 1 OIA Intermodal Facility to CFRC		Segment 2 CFRC		Segment 3 CFRC to I-4 / SR 536 Interchange			Segment 4 I-4 / SR 536 Interchange to Disney	
Element	Unit	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Convention Center	Quantity	Cost
<b>Rail Infrastructure</b>			<b>\$ 1,457,452,140</b>		<b>\$ 87,014,788</b>		<b>\$ 30,935,290</b>		<b>\$ 1,199,457,396</b>	<b>\$ 67,556,036</b>		<b>\$ 72,488,629</b>
Track & Ballast	TF	180,260	\$ 96,389,449	48,576	\$ 27,932,393	11,880	\$ 6,831,000	115,104	\$ 51,181,545	\$ 3,900,000	4,700	\$ 6,544,511
MSE Walls	SF	638,539	\$ 32,438,800	45,837	\$ 2,328,593	72,200	\$ 3,667,875	407,201	\$ 20,686,461	\$ -	113,301	\$ 5,755,872
Bridges	SF	1,520,921	\$ 803,561,224	17,685	\$ 8,202,088	27,500	\$ 4,125,000	1,367,631	\$ 715,398,145	\$ 39,523,484	108,105	\$ 36,312,508
Civil/Site	RM	17.4	\$ 188,415,694	4.6	\$ 11,345,727	1.5	\$ 3,736,454	10.9	\$ 152,372,639	\$ 11,540,257	0.4	\$ 9,420,618
Train Control & Signals	RM	17.4	\$ 84,770,620	4.6	\$ 22,168,123	1.5	\$ 7,228,736	10.9	\$ 52,528,814	\$ 917,285	0.4	\$ 1,927,663
Contractor Indirect & General Costs	%	21%	\$ 251,876,352	21%	\$ 15,037,864	21%	\$ 5,346,226	21%	\$ 207,289,794	\$ 11,675,010	21%	\$ 12,527,459
<b>Building/Other</b>			<b>\$ 126,000,000</b>		<b>\$ 3,000,000</b>		<b>\$ 3,000,000</b>		<b>\$ -</b>	<b>\$ 63,000,000</b>		<b>\$ 57,000,000</b>
<b>Land</b>	<b>LS</b>											
Station Building	EA	2	\$ 114,000,000	0	\$ -	0	\$ -	1		\$ 57,000,000	1	\$ 57,000,000
Passenger Platform At-Grade	EA	4	\$ 12,000,000	1	\$ 3,000,000	1	\$ 3,000,000	2		\$ 6,000,000	0	\$ -
<b>SUBTOTAL CONSTRUCTION</b>			<b>\$ 1,583,452,140</b>		<b>\$ 90,014,788</b>		<b>\$ 33,935,290</b>		<b>\$ 1,199,457,396</b>	<b>\$ 130,556,036</b>		<b>\$ 129,488,629</b>
<b>Professional Fees (Design /Permitting)</b>	%	7.7%	\$ 121,925,815	7.7%	\$ 6,931,139	7.7%	\$ 2,613,017	7.7%	\$ 92,358,220	\$ 9,590,815	7.7%	\$ 9,970,624
<b>Project Management</b>	%	3.3%	\$ 52,253,921	3.3%	\$ 2,970,488	3.3%	\$ 1,119,865	3.3%	\$ 39,582,094	\$ 4,110,349	3.3%	\$ 4,273,125
<b>Construction Allowance/Contingency</b>	%	12.4%	\$ 196,348,065	12.4%	\$ 11,161,834	12.4%	\$ 4,207,976	12.4%	\$ 148,732,717	\$ 15,444,948	12.4%	\$ 16,056,590
<b>GRAND TOTAL</b>			<b>\$ 1,953,979,940</b>		<b>\$ 111,078,248</b>		<b>\$ 41,876,148</b>		<b>\$ 1,480,130,427</b>	<b>\$ 159,702,148</b>		<b>\$ 159,788,969</b>
<b>Land</b>	<b>LS</b>	1	\$ 78,674,604	1	\$ 4,674,604	0	\$ -	1	\$ 74,000,000		0	\$ -
<b>Land Acquisition Support (Legal/Appraisers/Surveyors)</b>	<b>EA</b>	51	\$ 2,550,000									
<b>GRAND TOTAL + LAND ITEMS</b>			<b>\$ 2,035,000,000</b>		<b>\$ 116,000,000</b>		<b>\$ 42,000,000</b>		<b>\$ 1,714,000,000</b>			<b>\$ 160,000,000</b>

Notes:

- Unit costs and percentages utilized in this estimate are based off of those calculated from the SR 417 Brightline Rail Cost Estimate.
- Land costs have been placed after the grand total and are not included in the line item calculations for Professional Fees, Project Management, and Construction Allowance/Contingency. A line item has been included to account for land acquisition support (e.g. attorney's fees, appraisal fees, surveying fees, legal and description preparation, etc.) at \$50k per parcel.
- Quantities for SR 528 Modified Route (Brightline Revisions) segments 1, and 4 are based on the 15% SR 417 Brightline Rail Plans. Quantities for segment 2 are based on the SR 528 Modified alignment which utilizes the CFRC corridor north of Orange Avenue. Segment 3 quantities are based on the 30% FLHSR Plans which parallels Taft Vineland Road and SR 528, on the north side.
- Segment 1: Bridges and MSE walls were included in this segment for the SunRail crossing over Terminal C Exit Road and SunRail Station Bridge.
- Segment 1: A station platform is included for SunRail at OIA Intermodal Facility (per 15% SR 417 Rail Plans).
- Segment 2: Includes replacement of the Orange Avenue bridge over the existing/proposed tracks and a transfer platform for SunRail just north of Orange Avenue.
- Segment 2: Includes tracks on MSE wall to go from existing grade to the proposed bridge crossing over Taft Vineland Road.
- Segment 3: Quantities for MSE walls along this segment are based on the 30% FLHSR Plans and cross sections.
- Segment 3: Includes a Brightline station at the Orange County Convention Center Station (both Brightline and SunRail platforms).
- Segment 3: The limits of rail MSE wall were lengthened within the I-4 median as it approaches the I-4 / SR 536 interchange to accommodate a bridge crossing over I-4 and the WB SR 536 ramp to reach the Disney Station. This differs from the 30% FLHSR Plans as the rail transitions from wall to grade as it approaches the I-4 / SR 536 interchange.

Prepared by: Dewberry  
Date: 7/14/2021



SR 528 Refined Modified FHSR Alignment (tracks within I-4 median): OIA to Disney Dewberry Project Cost Estimate (2021\$)												
		528 Route Total		Segment 1 OIA Intermodal Facility to CFRC		Segment 2 CFRC		Segment 3 CFRC to I-4 / SR 536 Interchange			Segment 4 I-4 / SR 536 Interchange to Disney	
Element	Unit	Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost	Convention Center	Quantity	Cost
<b>Rail Infrastructure</b>			<b>\$ 1,156,353,676</b>		<b>\$ 87,014,788</b>		<b>\$ 19,619,288</b>		<b>\$ 909,674,936</b>	<b>\$ 67,556,036</b>		<b>\$ 72,488,629</b>
Track & Ballast	TF	170,360	\$ 90,696,949	48,576	\$ 27,932,393	1,980	\$ 1,138,500	115,104	\$ 51,181,545	\$ 3,900,000	4,700	\$ 6,544,511
MSE Walls	SF	902,658	\$ 45,856,467	45,837	\$ 2,328,593	0	\$ -	743,520	\$ 37,772,002	\$ -	113,301	\$ 5,755,872
Bridges	SF	1,030,018	\$ 546,773,322	17,685	\$ 8,202,088	27,500	\$ 4,125,000	876,728	\$ 458,610,243	\$ 39,523,484	108,105	\$ 36,312,508
Civil/Site	RM	17.4	\$ 188,415,694	4.6	\$ 11,345,727	1.5	\$ 3,736,454	10.9	\$ 152,372,639	\$ 11,540,257	0.4	\$ 9,420,618
Train Control & Signals	RM	17.4	\$ 84,770,620	4.6	\$ 22,168,123	1.5	\$ 7,228,736	10.9	\$ 52,528,814	\$ 917,285	0.4	\$ 1,927,663
Contractor Indirect & General Costs	%	21%	\$ 199,840,625	21%	\$ 15,037,864	21%	\$ 3,390,598	21%	\$ 157,209,694	\$ 11,675,010	21%	\$ 12,527,459
<b>Building/Other</b>			<b>\$ 126,000,000</b>		<b>\$ 3,000,000</b>		<b>\$ 3,000,000</b>		<b>\$ -</b>	<b>\$ 63,000,000</b>		<b>\$ 57,000,000</b>
<b>Land</b>	<b>LS</b>											
Station Building	EA	1	\$ 114,000,000	0	\$ -	0	\$ -			\$ 57,000,000	1	\$ 57,000,000
Passenger Platform At-Grade	EA	4	\$ 12,000,000	1	\$ 3,000,000	1	\$ 3,000,000	2		\$ 6,000,000	0	\$ -
<b>SUBTOTAL CONSTRUCTION</b>			<b>\$ 1,282,353,676</b>		<b>\$ 90,014,788</b>		<b>\$ 22,619,288</b>		<b>\$ 909,674,936</b>	<b>\$ 130,556,036</b>		<b>\$ 129,488,629</b>
<b>Professional Fees (Design /Permitting)</b>	%	7.7%	\$ 98,741,233	7.7%	\$ 6,931,139	7.7%	\$ 1,741,685	7.7%	\$ 70,044,970	\$ 9,590,815	7.7%	\$ 9,970,624
<b>Project Management</b>	%	3.3%	\$ 42,317,671	3.3%	\$ 2,970,488	3.3%	\$ 746,436	3.3%	\$ 30,019,273	\$ 4,110,349	3.3%	\$ 4,273,125
<b>Construction Allowance/Contingency</b>	%	12.4%	\$ 159,011,856	12.4%	\$ 11,161,834	12.4%	\$ 2,804,792	12.4%	\$ 112,799,692	\$ 15,444,948	12.4%	\$ 16,056,590
<b>GRAND TOTAL</b>			<b>\$ 1,582,424,437</b>		<b>\$ 111,078,248</b>		<b>\$ 27,912,201</b>		<b>\$ 1,122,538,871</b>	<b>\$ 159,702,148</b>		<b>\$ 159,788,969</b>
<b>Land</b>	<b>LS</b>	1	\$ 78,674,604	1	\$ 4,674,604	0	\$ -	1	\$ 74,000,000		0	\$ -
<b>Land Acquisition Support (Legal/Appraisers/Surveyors)</b>	<b>EA</b>	51	\$ 2,550,000									
<b>GRAND TOTAL + LAND ITEMS</b>			<b>\$ 1,664,000,000</b>		<b>\$ 116,000,000</b>		<b>\$ 28,000,000</b>		<b>\$ 1,356,000,000</b>			<b>\$ 160,000,000</b>

Notes:

- Unit costs and percentages utilized in this estimate are based off of those calculated from the SR 417 Brightline Rail Cost Estimate.
- Land costs have been placed after the grand total and are not included in the line item calculations for Professional Fees, Project Management, and Construction Allowance/Contingency. A line item has been included to account for land acquisition support (e.g. attorney's fees, appraisal fees, surveying fees, legal and description preparation, etc.) at \$50k per parcel.
- Quantities for SR 528 Modified Route (VHB Revisions) segments 1, and 4 are based on the 15% SR 417 Brightline Rail Plans. Quantities for segment 2 are based on the SR 528 Modified alignment which utilizes the CFRC corridor north of Orange Avenue. Segment 3 quantities are based on the VHB Revisions between CFRC and the Orange County Convention Center (parallels Taft Vineland Road and SR 528, generally on the south side) and the 30% FLHSR Plans for the section from the Orange County Convention Center to the I-4 / SR 536 Interchange.
- Segment 1: Bridges and MSE walls were included in this segment for the SunRail crossing over Terminal C Exit Road and SunRail Station Bridge.
- Segment 1: A station platform is included for SunRail at OIA Intermodal Facility (per 15% SR 417 Rail Plans).
- Segment 2: Includes replacement of the Orange Avenue bridge over the existing/proposed tracks and a transfer platform for SunRail just north of Orange Avenue.
- Segment 3: Includes a Brightline station at the Orange County Convention Center Station (both Brightline and SunRail platforms).

Prepared by: Dewberry  
Date: 7/14/2021

# Regular Agenda Item

C.2.

# West Palm Beach to Orlando Service

## TIMELINE

Aug. 2013: Board approved easement agreement for service from the West Palm Beach Station to OIA which included the following:

- Negotiated toll diversion amount
- Identified Right-of-Way and easement rights

Dec. 2015: Toll diversion payment made to CFX

May 2019: Construction began from West Palm to OIA

Dec. 2022: Anticipated construction completion

1st Quarter 2023: Anticipated service open from Miami to Orlando



# Resolution of Support: Brightline Service Orlando to Tampa

- CFX is committed to multimodal options for future capacity improvements on the CFX system
- CFX will continue to meet with Brightline and key stakeholders to discuss all options and corridors
- If Brightline requests the use of CFX right-of-way, Board approval would be required for a proposed Rail Line Easement and Rail Line Easement Maintenance Agreement

## **RESOLUTION OF SUPPORT**

The Central Florida Expressway Authority (“CFX”), an agency of the State of Florida, created by Part III of Chapter 348, Florida Statutes, hereby adopts this resolution of support on July 20, 2021 for the extension of the BRIGHTLINE intercity passenger rail service from the Orlando International Airport to Tampa, Florida.

WHEREAS, BRIGHTLINE has established the first new major private passenger intercity railroad in the United States in over a century and asserts that its rail system offers a fast, safe, and reliable travel experience; and

WHEREAS, BRIGHTLINE has invested over \$1.7 billion, has built three (3) stations, and extensive rail infrastructure in the Florida East Coast Railway corridor to connect Miami, Fort Lauderdale, and West Palm Beach; and

WHEREAS, BRIGHTLINE is currently expending an additional \$2.7 billion to extend the rail system to the Orlando International Airport (“OIA”) and this expansion is currently under construction; and

WHEREAS, BRIGHTLINE is planning to extend its intercity passenger train service from Orlando International Airport to Tampa; and

WHEREAS, CFX has put forth a vision to provide the region with a world-class, integrated mobility network that drives economic prosperity and quality of life; and

WHEREAS, the mission of CFX is to build, operate and maintain a mobility network through accountability, fiscally sound practices and a community focus; and

WHEREAS, CFX is committed to address future capacity issues on the CFX system and will collaborate with public and private stakeholders to develop and advance a sustainable mobility service along the State Road 528 and State Road 408; and

WHEREAS, CFX is committed to providing all Central Florida residents and visitors with a world-class regional mobility network that incorporates multimodal corridors and intermodal facilities to bring convenient and reliable mobility options.

NOW THEREFORE, BE IT RESOLVED BY THE GOVERNING BOARD OF THE CENTRAL FLORIDA EXPRESSWAY AUTHORITY as follows:

[Signature Page Follows]

CFX will continue to meet with BRIGHTLINE to discuss and consider all options and corridors to advance the High-Speed Rail project. If the High-Speed Rail Project ultimately requires the use of CFX right of way, a contract for the sale and purchase of a rail line easement and a rail line easement maintenance agreement will be negotiated.

This Resolution was approved and adopted by the Central Florida Expressway Authority on July 20, 2021.

**CENTRAL FLORIDA EXPRESSWAY AUTHORITY**

By: \_\_\_\_\_  
Mayor of Orlando, Buddy Dyer, Chairman

**ATTEST:**

By: \_\_\_\_\_  
Mimi Lamaute  
Board Services Coordinator

Approved as to form and legality by legal counsel to the Central Florida Expressway Authority on this \_\_\_\_\_ day of July, 2021 for its exclusive use and reliance.

By: \_\_\_\_\_  
Diego "Woody" Rodriguez, General Counsel