APPENDIX A

OASIS Park Alternatives Summary Report



Oasis Rail Corridor - Sawyer Point Park Alignments Study

HAM/CLE – OASIS Rail Corridor PID No. 86463

Prepared For: Ohio Department of Transportation District 8 505 S. State Route 741 Lebanon, Ohio 45036

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1 INTRODUCTION

1.1 Introduction/Background

The Oasis Rail Corridor runs for approximately 17 miles between downtown Cincinnati, and eastern communities in Hamilton and Clermont counties. The Oasis Rail Transit project is planned to start at the Riverfront Transit Center (RTC), below Second Street adjacent to the Banks development, and run eastward to a terminus south of the City of Milford. A map of the proposed system is provided below. The Oasis line could provide a rail-based transit option to broaden the transportation network within the region. It is an important multi-modal component of the larger Eastern Corridor Program.



Oasis Rail Corridor Alignment

The Eastern Corridor Program was initiated to address mobility and connectivity issues between the City of Cincinnati core and the eastern suburbs. The original Ohio Kentucky Indiana Regional Council of Governments (OKI)-led Major Investment Study (MIS), completed in 2000, identified an area covering approximately 165 square miles, extending from the Cincinnati Central Business District and riverfront redevelopment (The Banks), east to the I-275 Outer-Belt in Clermont County. The MIS resulted in a recommended multi-modal strategy for addressing current and future deficiencies in the area. A tiered environmental document approach was undertaken next to address federal requirements. The Tier 1 Final Environmental Impact Statement (FEIS) was completed and a Record of Decision (ROD) issued by the Federal Highway Administration in June 2006.

These efforts provided a "road map" of multi-modal transportation initiatives to benefit the Eastern Corridor communities through a variety of improvement projects. Currently, the Eastern Corridor Partners (a consortium composed of ODOT, City of Cincinnati, Hamilton County TID, Clermont County TID, SORTA, OKI) are developing numerous multi-modal mobility projects including highway capacity improvements, rail transit improvements, bus and bikeway improvements, and smaller Transportation System Modification (TSM) projects such as signal and turn lane addition improvements. The Oasis Rail



Transit project is being developed to fulfill one aspect of the rail transit system proposed within the Eastern Corridor Program.

1.2 System Overview

Commuter rail typically operates between a city center and the suburbs and transports large volumes of commuters. The OASIS Rail Corridor is a nearly 17-mile commuter rail corridor connecting communities in eastern Hamilton and western Clermont counties, including the City and neighborhoods of Cincinnati, Anderson Township, Village of Newtown, Village of Fairfax, and City of Milford.

Numerous operating scenarios are being studied, including the implementation of a weekday, peak-hour service for commuters currently traveling within the corridor. Ten initial stations were proposed previously and are being studied to determine their viability. The preferred option is to operate in existing freight rail right-of-way, within a segment owned by Southwest Ohio Regional Transit Authority (SORTA) and another owned by Norfolk Southern Railroad.

1.3 System Infrastructure

The OASIS Rail Transit System will operate within its own right of way, separate from roadway, bikeways and pedestrian facilities. The system will utilize standard gage ballasted track on the current or new rail alignment. The system will primarily be single track, with passing tracks provided as needed to facilitate two-way operation and short-term vehicle storage at each end of the route. Rail/roadway crossings will utilize modern crossing gate and signal systems, in coordination with traffic signal system as needed, for vehicle and pedestrian safety. Any adjacent pedestrian and bicycle facilities will be separated by code compliant fencing or railing. A minimum of 18'-0" right of way width is required to accommodate the rail vehicles.

Station types have yet to be determined, but in general, they will likely be vehicle floor-level, elevated platforms with modest shelters and park and ride facilities as determined by ongoing station ridership analysis. The downtown terminus will be in the RTC with modifications to provide at least one platform and as-needed facility modifications to accommodate the proposed vehicles in compliance with current life safety codes.

1.4 Vehicles

The Tier 1 EIS recommended the use of Diesel Multiple Units (DMUs) as the preferred rail transit technology within the OASIS Rail Corridor. In 2010, the partners reviewed the OASIS Rail Transit Technology Alternatives document, which provided an overview of the available rail transit technologies and how they relate to these factors.





A vehicle similar to the Stadler DMU GTW 2/8 low-floor is being considered for planning purposes as the vehicle for the Oasis rail service. MetroRail in Austin, Texas operates a similar, but slightly smaller vehicle (the GTW 2/6), as shown in the image to the left, to provide its commuter rail service. The DMU is a sleek, modern train consisting one or more articulated railcars powered by one or more on-board engines. The 184-foot long railcars provide seating for 136 passengers and standing room

forover 100 additional passengers. As the project is advanced for further study, all similar vehicles regardless of manufacturer will be considered.

1.5 Proposed Basic Rail Service

The potential ridership forecasts for the OASIS Rail Corridor were developed by HNTB and OKI using OKI's regional Travel Demand Model. The ridership projections for the basic service were refined to include only those six stations recommended for initial service: RTC, Columbia Tusculum, Red Bank, Newtown, Ancor and Milford. Ridership projections for the basic service were further categorized into the peak and off-peak ridership. The peak period represents potential riders commuting to and from work in the morning and afternoon, while the off-peak period includes riders traveling during the midday. The table below summarizes the forecasted ridership for the OASIS Rail Corridor for the opening year of 2015/2016 and for future year 2035.

OASIS Line Ridership Summary for Basic Service

	2015 / 2016		2035	
	Daily Boarding	Annual Boarding	Daily Boarding	Annual Boarding
Peak ridership from Travel Model	2,360	613,600	2,740	712,400
Off-peak ridership from Travel Model	700	182,000	700	182,000

An number of services are being considered at this time, including a basic service, which would target commuters working in downtown Cincinnati. In the morning, five westbound trips would be provided from Milford to downtown Cincinnati generally between 6:00am and 7:30am. Five eastbound trips would be provided in the afternoon from downtown Cincinnati to Milford between 4:30pm and 6:00pm. Commute service generally would be provided every 30 minutes during those time periods on weekdays. During the heaviest passenger peak, one

Basic Service				
Length of System	16.6 miles			
Number of Stations	6			
Days of Operation	Monday-Friday			
Headway	30 minutes			
One-way travel time	28 minutes			
	6:00am-8:00am			
Span of Service	11:30am-1:10pm			
	4:30pm-6:30pm			



additional trip would be provided to enable a 15 minute frequency during the morning and afternoon commute periods.

Operating a schedule with 30-minute headways provides enough time to "recycle" one train during the commute period; that is, sending the train back to Milford so that it can make a second inbound trip to the RTC. Rather than sending an empty train back for a second run, this train can be used to provide a reverse commute trip. Reverse commute trips would leave RTC at 6:40am and 5:10pm.

Under basic service, midday service will be provided on weekdays between 11:30am and 1:10pm to serve the off-peak passengers. Two roundtrips can be made using the same vehicles that will be operating during the commute period.

Maximum operating speeds will vary from under 20 MPH (west of the Boathouse to RTC) up to 50 MPH east of Fairfax out to Milford. Due to the relatively short length of the trainsets, at grade roadway crossing cycles between the Boathouse and RTC will be less than one minute in duration.

2 SAWYER POINT PARK ALIGNMENT ALTERNATIVES

2.1 Overview and History

In 1994, the City of Cincinnati purchased the Norfolk and Western Railway's (NW) Riverfront Running Track which extended from approximately the east terminus of the Oasis Rail Line (owned by SORTA) at the Boathouse, westward through Sawyer Point Park, behind Bicentennial Commons, along the Ohio River and through what is now Paul Brown Stadium, ultimately to Smith Street at the west end of the current Bengals practice field. In 1995, the City entered into an agreement (Ordinance No. 102-95) with SORTA to make the NW Riverfront Running Track, or a substituted property, available to SORTA for future transit service through the riverfront area when SORTA was able to utilize the Oasis line for transit. Currently the trackway through Sawyer Point Park has been paved and is frequently utilized as an access drive for maintenance and event support vehicles along the length of the park.

In 2009, the Hamilton County TID commissioned a study by the consulting firm URS to determine a suitable route to connect the Oasis line with the RTC. Three double-track alternatives were developed that pass through Sawyer Point Park, and westward along the north side of Pete Rose Way. Two alternatives were at-grade through the park's parking lot, a third alternative was on elevated structure running south behind the Flying Pig gateway bridge and down to grade to the existing tracks behind the tennis courts.

In 2009, HDR Engineering was retained by the Eastern Corridor Partners to refine the alternatives and, in coordination with City of Cincinnati Parks and DOTE staff, develop a conceptual preferred alternative to advance to preliminary engineering, incorporate into the environmental documentation process and ultimately initiate the right of way acquisition process. An important concurrence point is the conditional approval of the preferred alignment by Cincinnati Park Board so the designated preferred preliminary alignment can be advanced as described above.



2.2 Alternative Alignment Summary

Five rail alignment alternatives were evaluated with each utilizing a single track route that requires a minimum of 18 feet of width to maintain the required vehicle clearances (as opposed to the wider double track originally evaluated in the 2009 study). Four of the alignments encroach upon Sawyer Point Park. The National Environmental Policy Act (NEPA) process requires that at least one alternative that avoids a designated park also be evaluated. Accordingly, one alignment with no park property impact was investigated by placing the trackway on Pete Rose Way across from Sawyer Point Park. A graphic of the five alignments is provided in the attached *Figure 1*. A written description of each alternative is given below and a comparative summary of impacts from each alignment is provided in *Table 1*.

Alternative 1:

This alternative is primarily on elevated structure permitting park access, parking and Pete Rose Way to pass underneath. Starting near the Boathouse to the east, the routing runs westward up a sloped embankment along the former NW Running Track route until it goes on structure approximately 15 ft. above grade southeast of the Flying Pig entry. The track continues on structure diagonally across the west half of the parking lot across the Pete Rose Way/Butler Street intersection, and then goes back to grade on a sloped embankment on the north side of Pete Rose Way.

Comments: The alignment on structure minimizes impacts on parking and park patron access. However, it does have a large visual impact on the park with an estimated beam depth of 6 ft., blocks use of the former NW Running Track for service and event vehicle access, and would cut through the planned solar collection array planned for the west parking lot.

Alternative 2a:

This alternative is at grade and runs along the north half of the Sawyer Point Park parking lot just south of the existing I-471 bridge piers and across an at-grade crossing with signals at the Eggleston Ave. park entrance. The alignment continues west to an extended, diagonal at-grade crossing of Pete Rose Way at the Butler Street intersection. The sidewalk along the south side of Pete Rose Way is maintained. Pedestrian fencing will be required on both sides of the trackway.

Comments: The alignment has a considerable impact on parking capacity of the lot with a reduction of approximately 175 spaces. Also, pedestrian access to the parking lot from the south Pete Rose Way sidewalk is restricted by the trackway. The parking entry/payment system will need to be revised to avoid having cars trapped in the payment queue and rail crossing when the gates are activated.

Alternative 2b:

This alternative is at essentially the same horizontal alignment as Alternative 2a except the track is on an above-grade structure from approximately 400 ft. east of the Eggleston entrance, and continues on structure until past Butler Street on the north side of Pete Rose Way. The east approach to the bridge will require the tracks be on-grade transitioning to a retaining wall supported embankment until a clearance of 12 ft. is attained below the bridge for vehicular access 400 ft. east of the Eggleston entrance.



Comments: The alignment has a large impact on parking capacity of the lot with a reduction of approximately 140 spaces, primarily in the east end of the lot where the bridge approach ramp is located. Pedestrian and vehicular access is maintained from Pete Rose Way without a rail grade crossing at the Eggleston entrance or on Pete Rose Way at Butler. The high skew of the bridge requires that pier column be place in the center of Pete Rose Way to keep bridge spans feasible. The bridge would block view of Flying Pig gateway from Eggleston entrance and Pete Rose Way.

Alternative 3:

This is an avoidance alternative that misses the Sawyer Point Park property completely by placing the trackway on the north side of Riverside Drive and Pete Rose Way without widening the roadway into the park property. Due to the buildings and I-471 bridge piers on the north side, the roadway cannot be widened to the north. Therefore, the existing roadway can only accommodate the track, and one traffic lane in each direction, without turn lanes at Eggleston Avenue and Butler Street. Signalized rail grade crossings will need to be installed to get across Riverside Drive west of the Boathouse, and cross Adams Crossing and Eggleston Avenue. To accommodate the required rail grades, Riverside Drive will need to be lowered in front to Adams Landing necessitating a retaining wall to be constructed in front of the building.

Comments: As part of this study, a traffic impact analysis was performed using VISSIM traffic modeling software to measure the effects of reducing Pete Rose Way to one lane each way without turn lanes at intersections. The model predicts a Level of Service (LOS) for the intersections along the roadway with a graduated scale of 'A' (free of congestion) to 'F' (congested to point of failure). The model indicates that during AM Peak Hour Traffic, the intersection at Mehring Way would have a LOS of 'F' and the Eggleston intersection would have a LOS of 'E'. Traffic counts taken during an afternoon Reds game were also put into the model to verify traffic during special events, and all intersections were found to fail with Alternative 3 in place.

Extensive stormwater and sanitary sewer modifications will also be required in the roadway. Train noise/vibration remediation may be required for Adams Landing and other adjacent buildings.

Alternative 4:

This alternative placed the track as close to the south side of Pete Rose Way as possible while maintaining the current roadway section as is. The south sidewalk was moved to the south side of tracks to maintain free access to the Sawyer Point Park parking area to the south. The track was also positioned to fit between Pete Rose Way and the I-471 bridge pier to the south of Pete Rose Way. Signalized at-grade crossings are required at the Eggleston entrance to the park and across Pete Rose Way at Butler Street.

Comments: The proposed alignment would eliminate approximately 115 parking spaces in the Sawyer Point Park lot. It also maintains a continuous pedestrian access between parking lot and north sidewalk and requires the least right of way acquisition when compared to other alternatives encroaching on Sawyer Point Park.



2.3 Preferred Alternative

On September 12, 2012, the five alternative alignments described herein were presented to City of Cincinnati Parks and DOTE staff, along with representatives from the Eastern Corridor Partners. The group agreed that Alignment Alternative 4 should be carried forward and recommended for conditional approval of the alignment by the Cincinnati Park Board. The primary reasons for the selection were:

- 1. Provides minimum visual obstruction to the park from Pete Rose Way and Eggleston Ave.
- 2. Maintains continuous pedestrian access between the parking lot and east/west sidewalk.
- 3. Minimizes parking and right of way impacts.
- 4. Avoids impacts to park green spaces.
- 5. Avoids impacts to proposed solar energy panel array.
- 6. Provides better grade crossing geometrics at Eggleston park entrance.

For further reference, detailed plans, typical sections and renderings of Alignment Alternative A have been developed and are provided in Appendix A.

In the process of further study, the Eastern Corridor Partners, in coordination with Cincinnati Parks staff, will investigate opportunities to avoid, minimize and mitigate impacts.

2.4 Schedule and Funding

The Oasis Rail Transit project is currently funded through the conceptual alternatives study, final NEPA documentation, and preliminary engineering (30% design). Funding for final design, right of way acquisition, construction and operations has yet to be identified. The Eastern Corridor Partners are currently investigating funding packages that will include local, state, federal and private funds. A public/private partnership is being explored that would also provide for future, long-term system operations. The preliminary engineering and NEPA documentation is scheduled to be completed in late-2013. If funding for final engineering and construction is secured, the system could be built and running in 2016-17.

The Hamilton County Transportation Improvement District made a request for FY 2013 HB 114 funding of \$250,000.00 to begin the process of right of way easement and property acquisition for the Oasis Rail "Boathouse to Transit Center" rail project. In addition, Commissioner Portune has scheduled a meeting with Federal Transportation officials, including Transportation Secretary Ray LaHood in October 2013, to discuss as much as a \$25 Million request for the same from MAP 21 Transportation Bill "Projects of National and Regional Significance" funding.



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Alternative	Estimated Cost*	Parking Impacts	Grade Crossings	Traffic Impacts	Utility/Infrastructure Impacts
Alternative 1: On structure	\$5,600,000	Loss of 20 Spaces Conflicts with planned solar panel array in W. parking lot	None	None	Bridge pier foundations need to avoid 12 ft. sewer.
Alternative 2a: At-grade	\$3,600,000	Loss of 175 Spaces Major changes balance of lot and revision of pay system required to avoid blocking crossing	 Pete Rose Way at Butler Park Entrance Drive 	Extended grade crossing in Pete Rose Way at Butler Street. Will require signal modification at park entrance.	Crosses 60" water main twice and 12 ft. sewer. May require encasement.
Alternative 2b: On structure	\$6,900,000	Loss of 140 Spaces Major changes balance of lot with MSE approach at East end	None Required	Pier required in center of roadway on PRW east of Butler	Crosses 60" water main at east end, may require encasement. Bridge pier foundations to be located away from 60" W.M. and 12 ft. sewer crossings.
Alternative 3: At-grade with no park impacts	\$5,500,000 (excludes private utilities, CWW, MSD)	None	 Pete Rose Way at Butler Eggleston Adams Place West of Boathouse 	Reduces Riverside Drive and Pete Rose Way to one lane each way, no turn lanes. Closes Kilgour St. Extended rail crossing near Boathouse Restricts access to north side of PRW Level of Service of 'E' at Eggleston, 'F' at Mehring Way & Broadway	Crosses 60" water main and 12' sewer on Eggleston. May require encasement. Extensive stormwater system modifications. Large retaining walls at Adams Landing.
Alternative 4: At-grade	\$3,900,000	Loss of 115 Spaces Minor changes to balance of lot and revision of pay system required to avoid blocking crossing.	 Pete Rose Way at Butler Park Entrance Drive 	Extended grade crossing in Pete Rose Way at Butler Street. Will require signal modification at park entrance.	Crosses 60" water main twice and 12 ft. sewer. May require encasement.

Table 1:	Oasis Rail Transit Project	, Segment 1 - Sawye	r Point Park Alignment	Alternatives Summary
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*Project costs are only for work from approx. 200 feet west of Butler Street to Boathouse.

HDR 9/28/12



APPENDIX B

OASIS Segment 1 Parks Meeting Summary



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APPENDIX C

Representative Examples of Typical Station Types

STATION INFRASTRUCTURE DIAGRAM





OASIS Rail Corridor

Eastern Corridor Station Design Concepts - Typical Community-Serving Station





STATION INFRASTRUCTURE DIAGRAM





OASIS Rail Corridor

Eastern Corridor Station Design Concepts - Typical District-Serving Station Ν



STATION INFRASTRUCTURE DIAGRAM





OASIS Rail Corridor

Eastern Corridor Station Design Concepts - Typical Regional -Serving Station



STREET

PEDESTRIAN & BICYCLIST ZONE RESIDENTIAL UNITS

VEGETATION ZONE





APPENDIX D OASIS Survey Results Final



Oasis Rail Transit Project Public Information Meeting COMMENT FORM SUMMARY REPORT

December, 2012

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Report Summary

The Eastern Corridor Implementation Partners held a series of three public involvement meetings on July 31, August 1 and August 2, 2012. The first two meetings were focused primarily on the Oasis Rail Transit project. The August 2 meeting was a combined meeting focused on both the Oasis project and the SR 32 Relocation project. The public involvement meetings were held at the following locations:

- Tuesday, July 31: Milford High School in Milford
- Wednesday, August 1: LeBlond Recreation Center near downtown Cincinnati
- Thursday, August 2: Nagel Middle School in Forest Hills

Attendance

A total of 235 people signed in at the public meetings. Actual attendance numbers were slightly higher as some attendees chose not to sign in. The meeting at Nagel Middle School had the highest attendance (137) and the meeting at Milford High School had the lowest (41).

Comment Forms

Upon entering the meetings, participants were given comment forms on which they could document their responses to specific questions as well as any additional comments or questions they may have. Participants at the Oasis Rail Transit meetings were asked to complete a general Eastern Corridor comment form and an Oasis Rail Transit project comment form. Participants at the combined Oasis and SR 32 Relocation meeting were asked to complete the Oasis Rail Transit comment form and a SR 32 Relocation project comment form (the Eastern Corridor Program comment form was not distributed at the combined meeting in an effort to encourage more responses to the project specific comment forms).

The 12-question Oasis Rail Transit survey was designed to assess respondents' current travel habits within the Eastern Corridor, how respondents would likely use the Oasis Rail Line, opinions toward the proposed Oasis rail schedule and any changes that should be made before and after the rail line is in operation, and respondents' level of interest for participating in Station Area Planning workshops. The comment form also provided respondents an opportunity to submit free response questions and comments. A copy of the form is provided in Appendix A: Oasis Rail Transit Public Involvement Meeting Comment Form.

Responses

Fifty-six people filled in and returned the Oasis Rail Transit comment forms. Not all respondents answered all questions. As such, the percentages given for questions in the following results summary are based on the number of people who answered the specific question at hand; they are not based on total number of surveys returned. Also, Question 10 allowed respondents to check multiple answers. Therefore, percentages provided for Question 10 reflect the number of respondents to the Question 10 who selected a particular response option. As a result, the percentages provided for Question 10 (parts A and B) add up to more than 100%.

Question 12 provided respondents an opportunity to submit additional comments and questions to the project team. All answers given are documented verbatim in this report. In addition, upon review of the Eastern Corridor Program surveys completed at the meetings, it was found that an additional group

of people submitted Oasis-specific comments using that form. Their comments have been added into this summary report.

Results

The results presented in this Public Meeting Comment Form Summary Report for the Oasis Rail Transit project will be included as part of the Oasis project's documentation of Tier 2 public involvement activities. Survey results and the comments, suggestions and opinions expressed by respondents will be provided to all Eastern Corridor Program representatives and project consultant teams to be considered during the Tier 2 alternative evaluation and decision-making process.

COMMENT FORM RESPONSE SUMMARY

The following is a summary of information gained from responses to the questions on the Oasis Rail Transit comment form.

Questions 1 and 2

The majority of individuals completing comment forms reported living and/or working in Eastern Corridor communities.

Questions 3 and 4

The majority of respondents to Question 3 drive to work in an automobile (approximately 96%) in either a single vehicle (92.2%) or carpool (3.9%). Nearly 88% of respondents don't pay for parking at work.

Question 5

Respondents who have used buses for commuting said that they liked the convenience buses offer. Respondents who have used buses for commuting reported not liking long wait times generated by the length of trips, distance between stops or infrequency of service.

Question 6

Approximately 66% of respondents to Question 6 reported that they Definitely Would Not or Probably Would Not use the Oasis Rail Transit line to travel to and from work. Reasons offered from respondents who would not use Oasis for commuting include:

- Respondents don't live/work near the rail corridor/stations
- The rail line does not go where they need it to go
- They need their vehicle for work

Reasons offered for why respondents <u>would</u> use the Oasis Rail Line for commuting included cost-savings and convenience.

Question 7

Approximately 77% of respondents to Question 7 said they would either be Very Likely (51%) or Somewhat Likely (26%) to use the Oasis line for weekend, evening and/or special event service. Approximately 84% of respondents to Question 10 said that special event service should be added to the rail service schedule before service begins and 47% said that evening service should be added before service begins.

Questions 8 and 9

Approximately 47% of respondents to Question 8 said that the proposed service schedule would meet their commuting needs. However, 62% of respondents to Question 9 said that the number of trips currently proposed would <u>not provide flexibility</u> for their work schedule.

Question 10

Although a large percentage of respondents said they would not use Oasis for commuting, 24% of those who provided feedback on Question 10 [what changes, if any, should be made to the proposed Oasis schedule BEFORE or AFTER initial service begins?] said additional commute trips should be added before service begins and 37% said additional midday trips should be added before service begins. Approximately 55% of those who answered the question said that additional commute trips should be considered AFTER initial service begins and 45% said additional midday trips should also be considered. A notable portion of free response questions also suggested that additional commute and midday trips be added to the rail service schedule.

Question 11

Twenty-one people said they are interested in participating in Station Area Planning workshops and provided their contact information. Stations they indicated interest in include*:

- RTC (1)
- East End (1)
- Columbia Tusculum (3)
- Lunken Airport (3)
- Beechmont (3)
- Fairfax/Red Bank (2)
- Newtown (5)
- Ancor (2)
- Milford (3)
- All (1)

*Note: Some respondents noted that more than one station is of interest to them. These stations are noted individually above.

Question 12

Forty-seven free responses were received that relate to the Oasis Rail Transit project. Of these, the most frequent topic addressed pertained to the proposed rail service schedule (discussed in 34% of free responses) and most of these requested an expanded commuter schedule or the addition of evening, weekend or special event service. Nineteen percent of the responses addressed accessibility/connectivity of the rail line in terms of station locations, the line's integration with other transit modes or an expansion of the Oasis line. Another 19% of comments expressed some form of support for the Oasis line or the rail transit concept. Only one comment was received that expressed a lack of support for the rail line.

<u>Question 1</u>

Which zip code do you live in?

Number of respondents: 56

Respondents answering this question came from 22 different zip codes. The most frequently reported zip codes were:

- 45202, Downtown Cincinnati 8 people, 14%
- 45244, Village of Newtown, Mt. Carmel, Anderson Township, Ancor 8 people, 14%
- 45150, Milford area 5 people, 9%

Eleven people (nearly 20%) did not provide a specific zip code but instead listed a regional reference (southwest Ohio, Hamilton County, Cincinnati, various) or said they were retired (3 people, 5%) or the question wasn't applicable to them (4 people, 7%).

Zip Code of Residence					
Zip Code	Approximate Community	Responses	Percent		
41011	Covington, Park Hills, Fort Wright	1	2%		
45019	Blue Ash	1	2%		
45040	Mason	1	2%		
45071	West Chester	1	2%		
45103	Batavia, Clermont County	1	2%		
45150	Milford	5	9%		
45202	Downtown Cincinnati	8	14%		
45205	East Price Hill, West Price Hill	1	2%		
45209	Oakley	1	2%		
45214	Fairmount, Northwest Downtown Cincinnati	1	2%		
45215	Wyoming, Reading, Woodlawn, Lincoln Heights, Lockland, Arlington Heights	1	2%		
45226	Mt. Lookout, Columbia Tusculum, East End, Linwood	2	4%		
45227	Village of Mariemont, Madisonville, Fairfax	2	4%		
45230	Anderson Township, California,	2	4%		

	Mt. Washington		
45236	Silverton, Deer Park, Kenwood, Blue Ash	1	2%
45240	Forest Park	1	2%
45242	Montgomery, Blue Ash	2	4%
45243	Village of Indian Hill, Madeira	1	2%
45244	Newtown, Mt. Carmel, Anderson	8	14%
	Township, Ancor		
45245	Mt. Carmel, Anderson Township, Eastgate Area	1	2%
45255	Anderson Township	2	4%
45431	Riverside, Beavercreek (Dayton Area)	1	2%
	Cincinnati, Hamilton County, Southwest Ohio, Various	4	7%
	Not Applicable	4	7%
	Retired	3	5%
TOTAL			100%

Question 2

Which zip code do you work in?

Number of respondents: 48

Respondents answering this question reported working in 15 different zip codes. The most frequently reported zip codes were:

- 45244, Village of Newtown, Mt. Carmel, Anderson Township, Ancor 12 people, 25%
- 45230, Anderson Township, California, Mt. Washington 10 people, 21%
- 45202, Downtown Cincinnati 5 people, 10%
- 45150, Milford area 5 people, 10%

Zip Code of Residence				
Zip Code	Approximate Community	Responses	Percent	
45039	Maineville, Mason, South Lebanon	1	2%	
45102	Amelia	1	2%	
45103	Batavia, Clermont County	1	2%	
45140	Loveland-Madeira Corridor	1	2%	
45147	Miamiville	1	2	
45150	Milford	5	10%	
45202	Downtown Cincinnati	5	10%	
45209	Oakley	1	2%	
45226	Mt. Lookout, Columbia Tusculum, East End, Linwood	3	6%	
45227	Village of Mariemont, Madisonville, Fairfax	1	2%	
45230	Anderson Township, California, Mt. Washington	10	21%	
45243	Village of Indian Hill, Madeira	2	4%	
45244	Village of Newtown, Mt. Carmel, Anderson Township, Ancor	12	25%	
45245	Mt. Carmel, Anderson Township, Eastgate Area	1	2%	
45255	Anderson Township	3	6%	
TOTAL		48	100%	

Question 3

How do you primarily get to and from work?

Number of respondents: 51

The majority of respondents to Question 3 (47 people, 92%) said they primarily get to and from work using an automobile. Approximately 4% (2 people) said they ride a bus and another 4% (2 people) said they carpool. No one selected bicycles or walking as their travel mode. Approximately 12% of respondents (6 people) selected "Other" as their travel option, however, when they explained their answers, only one person used an alternate from of transportation (motorcycle). The other respondents either worked from home, were retired or said the question wasn't applicable.



If "Other," please explain your answer.

- 1. N/A (3 responses)
- 2. Work at home
- 3. Retired
- 4. Motorcycle

Question 4

Do you pay for daily parking at work?

Number of respondents: 56

The majority of respondents to this question (49 people, 88%) do not pay for parking at work. Of those who said they did, fees ranged from \$20 to \$145.



If YES, how much do you pay to park?

- 1. \$20
- 2. \$40
- 3. \$60
- 4. \$80
- 5. \$145
- 1. N/A
- 2. n/a
- 3. N/A

<u>Question 5</u>

Have you previously used buses to commute back and forth to work?

Number of respondents: 55

Approximately 66% of respondents to this question (36 people) said they have not used buses to get back and forth to work. General reasons provided for why people liked using buses include convenience and fast travel times. General reasons for why people did not like using buses included cost, length of travel time and waiting times/infrequency of buses.



If yes, please describe your previous experience with bus transit. What did you like and/or dislike? *What did you like*?

- 1. Few buses and too expensive. I like it because I don't have to worry about parking.
- 2. Fast commute, reasonable costs.
- 3. Previously Price Hill to downtown on a bus. I tried to catch the express when I could. Great experience on the express bus. Very quick to downtown.
- 4. Express bus from Terrace Park to Fountain Square takes 30 minutes. I will not use commuter rail with a 10-minute drive to Milford station, 30-minute train ride and a 10-minute walk to Fountain Square.
- 5. Enjoy the convenience of not having to drive. Don't like the price.
- 6. Convenience.

What did you dislike?

- 1. Few buses and too expensive. I like it because I don't have to worry about parking.
- 2. Not in Cincinnati. It takes too long.
- 3. Difficult to match bus work schedule.
- 4. Too crowded, no dedicated place to park. Bus driver would not even pull over to pick up one rider.
- 5. How infrequent they ran. The Sun Run is the only option from my neighborhood.
- 6. Too large of a vehicle, too long of a wait.
- 7. Poor bus service to West Chester.
- 8. Takes too long between rides.
- 9. N/A
- 10. N/A

<u>Question 6</u>

How likely would you be to use the Oasis Rail Transit line to travel to and from work?

Number of respondents: 57

The majority of respondents to this question (66%) said they are Definitely Not Likely (21 people, 37%) or Probably Not Likely (17 people, 29%) to use the Oasis line to travel to and from work. The most frequently reported reason provided for not using the Oasis rail line is that the line and/or its stations was not near or convenient to where respondents live and/or work. Several respondents reported that they need their vehicles for their jobs.

Approximately 32% of respondents said that they were Very likely (13 people, 23%) or Somewhat Likely (5 people, 9%) to use the Oasis line to travel to and from work. The reasons offered varied, but individual answers referenced convenience, cost savings and the fact that Oasis offers an alternative transportation resource. Some respondents said that while they may not use the line for traveling to and from work, they may use it for traveling downtown and for getting to recreational, shopping and entertainment destinations.

Other responses provided said that their use of the Oasis line depends on its schedule, station locations and whether or not their employer changes their policy for subsidized parking.



6. Please explain your answer.

Why:

- 1. Only if my employer no longer offered subsidized parking.
- 2. I have experienced the immense savings in transportation costs of using public transit v. cars and it allows me to use travel time as a productive/recreational reading time.
- 3. I'm a carpenter. Rail doesn't seem practical, but I would use it for recreational activities, shopping and entertainment.
- 4. I would use it if it was affordable, reliable, and went directly to where I wanted to go.
- 5. Does not go where I work. May use for trips downtown.
- 6. With the traffic on 71 and 75 at rush hour, this would help us get around faster and cheaper.
- 7. It would open up another way for me to travel to Clermont County without driving.

Why Not:

- 1. I'm a carpenter. Rail doesn't seem practical, but I would use it for recreational activities, shopping and entertainment.
- 2. My workplace is not located near the proposed rail line.
- 3. I work in Hyde Park area; route does not connect.
- 4. Retired.
- 5. Station not convenient to office.
- 6. Unless my work location changes. I live 1/4 mile from my current job.
- 7. I don't live near the rail.
- 8. I work in Blue Ash.
- 9. Too expensive takes too much time. It has been implemented in many cities to connect suburbia to city and doesn't work it's cheaper and takes less time to drive or carpool.
- 10. Doesn't go to the last three schools I worked at Oyler Winton Hills and Westwood.
- 11. Need car for unplanned trips to office and clients.
- 12. It won't go to Warren County.
- 13. 45140 to 45150 is not covered by proposal.
- 14. Semi-retired.
- 15. The station in Milford from Batavia would make it too far to be a viable route for me.
- 16. I have to walk part of it because there is not connection to my work area.
- 17. No reason to go east.
- 18. Service repair homes and buildings.

Other:

- 1. Depends on how early is starts/ends.
- 2. Driving in Hamilton and Clermont county is horrible. Rail is the best option available.
- 3. Depends on where the stops pick up.

<u>Question 7</u>

How likely would you be to use the Oasis Rail Transit line to travel for weekend, evening or special event transportation?

Number of respondents: 63

Nearly 77% of respondents (48 people) said they would be either Very Likely (32 people, 51%) or Somewhat Likely (16 people, 25%) to use the Oasis line to travel during the weekends or evenings or for special event transportation. Approximately 17% (11 people) said they are either Definitely Not Likely (4 people, 6%) or Probably Not Likely (7 people, 11%) to use the line for these purposes. Four people (6%) were not sure.



The proposed schedule would meet my commuting needs.

Respondents: 45

Approximately 47% of respondents to Question 8 (21 people) said that the proposed service schedule <u>would</u> meet their commuting needs. Approximately 53% (24 people) said it <u>would not</u> meet their needs.



The number of trips offered by this schedule would provide flexibility for my work schedule.

Number of respondents: 37

Approximately 38% of respondents to Question 9 (14 people) said that the number of trips offered by the proposed schedule <u>would</u> provide flexibility in their schedule. Approximately 63% (23 people) said it <u>would not.</u>



Please indicate which, if any, of the following changes should be made to the Oasis Rail Transit service schedule to better fit your needs.

NOTE: Respondents were asked to evaluate the proposed answers for two separate time frames:

- "At the start of service" defined as before the rail line first opens
- "For future service," defined as changes that don't need to be made right away but should be considered in the future

Also, respondents had the ability to check more than one option. Therefore, the percentages provided below add up to more than 100%.

Number of respondents: 38

Responses to the question about what changes should be made to the proposed Oasis schedule BEFORE the initial service is started varied widely. However, 84% of respondents (32 people) said that special event service should be added and 47% of respondents (18 people) said that evening service should be added. Approximately 32% (12 people) said travel times should be faster and another 32% said there should be additional midday trips.



Responses to the question about what changes should be made to the proposed Oasis schedule AFTER the initial service also varied widely. Nearly 55% (21 people) said additional commuting trips should be expanded beyond the proposed schedule and another 45% (17 people) said additional midday trips should be added. Approximately 42% of respondents said that there should be more frequent service (less than 20 minutes between departures).



If you are interested in participating in a future Station Area Planning Workshop, please identify the station(s) you are interested in and provide your contact information below. You will be added to our interest list.

Number of respondents: 21

Names, Email Addresses, and Stations of Interest of respondents withheld

Your feedback is valuable to the project team. Please use the space below to share any comments you may have.

Thirty-two respondents to the Oasis Rail Transit comment form submitted comments and/or questions for Question 12. An additional group of people submitted Oasis-specific comments on the Eastern Corridor Program survey. Those comments have been included with the free-responses comments and questions received for Question 12 of the Oasis comment form.

Responses received were placed into the general topic categories listed below. The distribution of answers by category is illustrated in the chart that follows and all comments received are documented verbatim.

Free Response – General Topic Categories

- Service Comments in this category generally contain suggestions regarding schedule changes such as adding more commuting and midday rail trips and for adding evening, weekend and special event service.
- Accessibility/Connectivity Includes comments pertaining to station locations, coordination of the Oasis line with other local mass transit facilities and future expansion of the Oasis rail line.
- Rail Vehicle Type Includes comments pertaining to the use of the proposed rail vehicle technology (diesel multiple unit) on the Oasis line.
- Support for Oasis Comments in this category express either support or excitement about the Oasis project or the general rail concept, or the planned transportation improvements within the Eastern Corridor.
- Non-Support for Oasis Includes one comment from a person who doesn't support the Oasis project.
- Probably won't use Oasis Contains comments from those saying that they probably won't use the Oasis rail line.
- Concerns Includes general concerns expressed about the Oasis project and/or its affect on nearby communities.
- Miscellaneous Includes comments that didn't fit within other categories.



Service

- 1. More service for evening events. Service at least hourly on a daily schedule.
- 2. There should be additional commute trips Friday and Saturday, regular evening trips until 2 am, and some Sunday trips. For evening non-commute service, rail should run on Friday and Saturday until 2am. There should be some Sunday trips every two hours. Not everyone needs to be downtown all day. Don't trap everyone by having only one morning, evening, and midday trips. Think about shopping, seeing an attorney, entertaining out of town guests...etc. I am very excited about this project. I own property in Newtown and will probably move there if the rail moves forward.
- 3. They should have it run Friday and Saturday nights.
- 4. I would like to see continual service. I would like to attend downtown Cincinnati events in the evening/weekends by rail
- 5. I believe there should be hourly service every day except Sunday. For evening non-commute services the hourly service should run until 2:00 am. I would use the service for Reds Games
- 6. Add both outbound morning and inbound evening to create roundtrips five each way for commuting. For midday trips have five each way morning and evening. Evening and non-commute service should be hourly
- 7. Need three midday trips. Evening trips 7:00 pm-10:30 pm.
- 8. I would like faster travel time. Please put in fewer, larger stations. For evening, noncommute service, put in one commute for the evening 6:30-7:00 pm for games and the symphony. Would the rail usage fees integrate with Cincinnati Metro transportation fees? In viable cities like Chicago, one pass allows usage of all modes of transportation.

- 9. Add additional midday trips (10:00 am to 2:00 pm). Last trip out at 7:00 pm or 8:00 pm would be optimal. Get this done as soon as possible.
- 10. The rail should run from 6:00 am to 7:00 pm because I have flex work hours.
- 11. We need hourly mid-day trips. For evening and special events, we need 30 minutes until midnight and 2:00 am on weekends. We definitely need more evening non-commute weekend service to be viable. Allows people to explore communities/local shops during leisure time.
- 12. There should be seven inbound and seven outbound trips. There should be evening and non commute trips.
- 13. I think the special event service may have more value than the commuting service
- 14. I would use the rail for special events and games downtown.
- 15. I would use it for weekend entertainment downtown.
- 16. The service needs to run later into the evening 7:00 pm or 7:30 pm from downtown.

Accessibility/Connectivity

- 1. I might use the rail if there were a park-n-ride at Eastgate. I'd have to drive north a few miles to catch the train since I live south of Beechmont
- 2. Could join with CTC existing bus service in Milford to act as feeder to station in River's edge, but a streetcar in the future would be ideal. But probably dreaming...
- 3. Steering for communities to get them to a flexibility in building their community to optimize the use of the rail project. Frequency should be adjusted in relation to usage. This should be attractive to downtown Cincinnati for expansion of downtown business. If they don't coordinate with providing shuttles so rail riders can get to the Music hall, Union Museum center Aronoff Casino without walking over a mile uphill all the way. There need to be shuttles running downtown to move riders within the city.
- 4. Not enough stations for all residents of Cincinnati
- 5. Inconvenient to travel to stations for me and get where I want to go downtown. Bus routes to transit stations will be difficult. Most of the rail riders live north of Little Miami River and there are only two ways to cross river in Milford and Newtown which are Winchester. Total travel time needs to be in your ridership model it will impact the ridership total.
- 6. Can't wait for this plan to exist in the Cincinnati suburbs of Springdale, Forest Park, Wyoming.
- 7. I'm concerned about north/south connectors. I'm in favor of the light rail and the Oasis corridor. I'd use it to go from 45208 suburb to downtown for evening events. I would like to see a Beechmont station, a way to improve access for pedestrians and bicyclists north-south (in other words that the rail project would have a connector and not divide, for example, Armleder Park from Mt. Lookout/Linwood Ave. Could a station act as a link across (North-South) as well as East-West links?
- 8. Where ridership levels increase I would use rail to get to and from work (reverse commute) from downtown Cincinnati to Milford

Rail Vehicle Type/Accessibility

- 1) Why diesel? It is the only option mentioned, yet you provide no other options in your proposal. Diesel is slow. 2.) Too few stops, because you're projecting with diesel. Highly populated areas from downtown, to East End, to Columbia Tusculum are ignored and unrepresented. 3.) This solely benefits Milford. A special event in downtown happens weekly, when has one happened in Milford? I do not want freight on this line. Get away from diesel and at least show some alternatives.
- 2. I'm concerned stations are too far apart in Cincinnati. The last presentation had multiple types of vehicle options but DMUs were heavily pushed. Now DMUs are the only option. They are not designed to start/stop frequently. Due to that, stations are over a mile apart. From Leblond Recreation center (and vacant land and houses) where is the benefit to the neighborhood and the city?

General Support

- Please move forward with the rail projects (including Wasson, Oasis and others) as quickly as possible. Make some substantial investments and buy the best technology possible (hybrid electric - less polluting, less noise) Drop the highway plan. Please add evening not commute service for weekend trips.
- 2. 45226 zip code area would get great benefit from this rail as 80% of the people in this area don't own a car and they are too elderly to drive should be handicap accessible. East End, Lunken Airport, Columbia Tusculum Metro only runs per hour. They need a way to shop and enjoy what Cincinnati has to offer
- 3. Cell phone service and the gaming casino are paid for by private enterprise. This commuter rail system could also be licensed by the local or regional government to private industry. DO IT! This project is important to the quality of life in Cincinnati. The traffic on I71 and I75 is at capacity during rush hours. If this rail system is installed it will be a real growth potential for the east corridor. It would also relieve traffic from the east using I-71
- 4. The more, the better.
- 5. We need safer more efficient travel within the 275 loop. Anything would be a help to reduce the heavy traffic and help prevent accidents on the SR32 road.
- 6. I travel all over the country and the world. Before any trip, I look into passenger rail in the region/city I'm going to. I know that as long as there is light rail, regardless of language, I can get around easily. I want the same options in my hometown. I don't want to be dependent on an S.O.V. anymore.
- 7. I would like to be still living when I could go downtown to the sports activities there and shopping. Soon I will not be able to drive myself. It would seem to me that all of the older generation would welcome transportation without driving automobiles.
- 8. Cincinnati needs light rail. I'm glad to see progress being made and community involvement.
- 9. Moving away from development is important to me. Light rail, bus and bike trails are equally important to offer communities for many reasons including street congestion and healthier alternatives.

General Non-Support

 The taxpayers are not interested in this for the most part. Why do people we put in office fail to listen to what the majority of the voters want. I will be working very hard to see this does not take place - you are ruining small towns- nature preserves and trails for something that won't be used by the masses - or is it going to be mandatory since we seem to be changing the basics of what this country was based on originally

Probably Won't Use Oasis

- 1. I would not be able to use the service for work unless the train originated in Batavia. I would use it from Newtown to Downtown for the Cyclone games.
- 2. I live outside of the proposed rail line and see no value to me or any of my neighbors. An electric streetcar line would be a better approach.
- 3. I will probably not use the rail line

Concerns

- 1. I'm concerned about one-sided planning. No one along the line will be able to the use the rail without having to walk really far to access a stop.
- 2. I fear there will be a decrease in patronage of local businesses such as Milford's historic district, which is already competing with new, unwalkable, big box corporation development along River's edge. Diesel may be cheaper upfront option, but what is the long term cost/risks associated with continued oil dependency? Ridership amounts and use will Metro users/service discontinue? Will they work together?
- 3. I'm concerned the rail will be developed for road. While I support the rail, any rail, there should be more stops than what is in proposal. Also there is a rumor that this is only a reason to tap into rail funds to build a road.

Miscellaneous

- 1. Lower cost rolling stock!!
- 2. Missed opportunity to do rail transit on RT 50
- 3. I don't understand why the local media is not covering the connection between this railway and the downtown streetcar.
- 3. The safety improvement to I275 RT275 commends this project; the Red Bank expressway is great for motor vehicles but the neighborhoods are negatively affected; The Wasson line would be more preferable than the Oasis line.

Comment/Comment Category	Name and Community	ODOT Response
1 Service	Unknown	Initial ridership is seen as strongest
Comments in this category focused		for the basic commute service. We
on additional potential services		have undertaken an assessment of
beyond those suggested as the basic		the potential costs and equipment
Monday-Friday commuter service		needs required to provide
wonday-i nday commuter service.		expanded services to include the
Service requests included additional		three types in the comments.
evening and weekend service		Evening weekend and special
evnanded mid-day service beyond		event services
the proposed service and special		
event service		As the Oasis rail transit service is
event service.		introduced and people see it as an
		established and viable travel option
		we anticipate increased ridership
		demand which could justify the
		phased introduction of one or more
		additional services This will
		naturally be incumbent on ridership
		demand as well as on the availability
		of capital and operating
		funds to provide evening, weekend.
		or special event service.
		The travel time is dependent on the
		number of stations to be served.
		and is planned to be as short as
		possible consistent with safety and
		accommodation to allow for
		adequate boarding/alighting.
2. Accessibility/Connectivity	Unknown	1) Park-and-Ride access to the
Comments in this category included:		Eastgate area is part of the bus
1) Park-and-Ride access from the		feeder network planned to
Eastgate Mall area, 2) interest in a		expand the Oasis service area.
future Milford Streetcar service, 3) a		2) Local shuttle and circulator
desire for active community		services in individual
involvement, 4) interest in additional		communities have not vet been
stations to serve other Cincinnati		studied but could be a part of
communities, 5) suggestion that total		the Station Area Planning
travel time include time on feeder		workshops in the next phase of
routes, 6) enthusiasm for		the Oasis line's development
consideration of rail service in other		
Cincinnati suburbs, 7) suggestion that		3) Active engagement with the
Oasis rail stations can serve as		communities where Oasis rail
connections allowing north/south		stations are proposed is an
travel, particularly for pedestrians		essential element of the
and bicyclists, and 8) a "reverse		planning process, and this
commute service" that would allow		would be a part of the
for those who work in Milford,		previously-mentioned Station

Table 1. Comments on Question 12 (ODOT Response)

Comment/Comment Category	Name and Community	ODOT Response		
		Area Planning workshops.		
		4) The Oasis rail corridor is just one of a number of proposed rail corridors that would be expanded over time to help create an rail network to connect Cincinnati and adjoining neighborhoods and communities throughout the region.		
		5) Travel time on feeder buses varies, and is dependent on where the rider boards the feeder service, and so that is why travel time is expressed in station-to-station, which can be more easily determined. Overall, the travel time allows for comparison with travel time by automobile over a similar route/distance.		
		6) As noted above, the Oasis rail corridor is just one of several that have been previously identified as potential elements of a regional passenger rail network. As resources are available to expand the network through the development of additional rail services, new suburbs and communities will be added through these additional corridors.		
		7) Providing opportunities for pedestrians and bicyclists to enjoy new north/south access via the Oasis rail stations is a topic that can be discussed during the Station Area Planning workshops to be held in the next planning phase.		
		8) Based on comments and feedback received during the public meetings, a reverse commute option has been incorporated into the basic		

Table 1. Comments on Question 12 (ODOT Response)

Comment/Comment Category	Name and Community	ODOT Response			
		Oasis service plan.			
3. General Support	Unknown	1) Thank you for your comment.			
The comments in this category expressed support for the Oasis rail service. Comments included: 1) Advancing the rail projects and adding expanded service options. 2)		 Thank you for your comment. There is bus feeder service planned to help move people between the neighborhood and the rail station. 			
support in the 45226 2ip code area, noting the high percentage of potential riders who don't own/use a car. 3) Suggestions about alternative funding options to operate the service. 4) A comment seeking as much rail service as possible. 5) A		 The Eastern Corridor Partners are open to exploring all opportunities for funding construction, operations and maintenance of the rail service. Thank you for your suggestions. 			
comment about safer, more-efficient		4) Thank you for your comment.			
Support for rail transit service from a resident of the region who travels extensively and enjoys access to it wherever he/she goes. 7) Support for rail transit use, particularly by		5) While the focus of this effort is on the Eastern Corridor, the intent is consistent with the expressed desire for increased travel safety within the region.			
older persons. 8) Enthusiasm to see		6) Thank you for your comment.			
light rail in Cincinnati, and 9) Support for the health benefits that can come from reduced travel by automobile as it shifts to other modes.		 Rail transit service can certainly provide for the travel needs of all ages, including by seniors. Thank you for your comment. 			
		8) Thank you for your comment.			
		9) The Eastern Corridor program is focused on increasing access and connectivity for all travel modes. Thank you for your comment.			
4. General Non-Support	Unknown	Thank you for your comment.			
The comment in this category expressed opposition to the Oasis rail service.					
5. Probably Won't Use Oasis	Unknown	1) Thank you for your comment.			
Comments in this category expressed the reasons behind why they individually probably wouldn't use the Oasis rail service. Reasons included: 1) That the service didn't include a stop in Batavia, though the commenter would likely use the service to access sporting events via the Newtown Station 2) The		 The Oasis rail service, its technology and its service configuration are based on a number of factors. Streetcars are typically "pedestrian- accelerators", allowing for longer walking trips. The distances between stops on the 			
		Uasis corridor are more			

Table 1. Comments on Question 12 (ODOT Response)

Comment/Comment Category	Name and Community	ODOT Response			
commenter noted that he/she lived outside the rail corridor, and didn't		consistent with light rail/commuter rail services.			
see the value in it. He/she suggested a streetcar line might be a better approach. 3) The commenter noted that he/she probably will not use the rail line.		3) Thank you for your comment.			
 6. Concerns Comments in this category expressed random concerns about the Oasis rail service. Concerns included: 1) Walking distances to the stations. 2) Potential impacts to local businesses in Milford from big-box commercial developments elsewhere in Milford. 3) Use of diesel as a fuel. 4) Ridership 	Unknown	 Depending on the Oasis station location, walking distances will vary. Station access by all modes: walking, bicycling, feeder bus service, drop-off at a "Kiss-and_Ride" or via automobile (with parking lots at selected stations) will be available. 			
and impacts to bus ridership after the introduction of the rail service. 5) METRO's involvement in Oasis planning. 6) Concerns regarding the role of the rail service as part of the overall Eastern Corridor and fears		 Any competition between businesses within Milford is within the purview of the City and its residents, and outside the scope of the Oasis/Eastern Corridor program. 			
about the roadway component.		 Low-Sulfur, low-emission diesel fuel is an appropriate, efficient, and cost-effective fuel for the Oasis service, based on all the factors (Cost, ridership, and corridor length) considered for this service. 			
		4) After the introduction of the Oasis rail service, there would be shifts between Metro riders as some moved to the rail from existing bus routes. There will also be changes to bus services along the corridor, to optimize routes to better serve Oasis stations. Net ridership impacts can not be determined at this time.			
		5) Metro is an active member of the Eastern Corridor Partners and has participated in all phases of the project's planning to-date.			
		 The Eastern Corridor program of projects is a multi-modal 			

 Table 1. Comments on Question 12 (ODOT Response)

Comment/Comment Category	Name and Community	ODOT Response
		effort to improve connections for all modes, including non- motorized modes, bus and rail transit, and highway improvements.
7. Miscellaneous The comments in this category did not fall within any other category and so are collectively presented here. Comments included: 1) A desire for lower-cost rolling stock. 2) A statement about a missed oppertunitiy to do rail transit on RT 50. 3) a question about media attention on the connection between the Oasis rail service and the Cincinnati Streetcar project. 4) a preference for a Wasson corridor rail service .	Unknown	 "Lower-cost rolling stock" would necessitate locomotives to pull the coaches. This combination is not consistent with community desires as expressed during Oasis rail planning. Additionally, it is not necessarily less-expensive compared to the proposed DMU service. Earlier studies have examined opportunities for rail service throughout the region. The Oasis corridor has been selected as the most-promising for initial development.
		 The two services mentioned in the comment are independent of each other and would provide for different trip types. The Eastern Corridor program has an extensive, engaged public involvement process that includes media outreach. As noted in Response 3 above, the Oasis corridor has been selected as the most-promising for initial development.

Table 1. Comments on Question 12 (ODOT Response)

APPENDIX A:

Oasis Rail Transit Public Involvement Meeting COMMENT FORM

Oasis Rail Transit Project | Public Information Meetings Comment Form Summary Report Prepared December 2012

The Ea	astern Corridor	Oasis Pu	Rail Transit Project blic Information Meeting COMMENT FORM
Please use and heard i appreciate	this form to record your co tonight. The information you your attendance and look for	mments and provide feedback (i provide will be factored into th rward to your input.	on the Oasis Rail Transit information you've se he Oasis Rail Transit decision-making process. V
Oasis Ra	nil Transit Service – (Commuting Questions	
1. Which a	zip code do you WORK in?		
2. Which a	zip code do you LIVE in? _		
3. How do	you primarily commute to	and from work? (Please circ	te one)
a.	Automobile	c. Bus transit	e. Walk
b.	Car/Vanpool	d. Bicycle	f. Other (please explain):
4. Do you If yes, a	pay for daily parking at we	ork? YES NO o you pay per month?	
5. Have yo If YES,	ou previously used buses to please describe your previ	commute back and forth to w ous experience with bus transi	rork? YES NO it. What did you like and/or dislike?:
6. How like	cly would you be to use the	Oasis Rail Transit line to trav	vel to and from work?
Ver	y Likely Somewhat Likely	Not Sure Prof	bably Not Likely Definitely Not Likely
Please e	xplain your answer:		
7. How lil transpo	kely would you be to use th rtation?	e Oasis Rail Transit line to tra	avel for weekend, evening or special event
Ver IIIIIIIII IIIII	y Likely Somewhat Likely !	Not Sare Pro !	əbably Not Likely Definitely Not Likely

Oasis Rail Transit Project Public Information Meeting COMMENT FORM

tro ar in op	uins every 20 minutes of provide one midday formation is importan erating and maintend	on Mondays through v roundtrip. Please an t in determining rail v ince costs:	Fridays during peak nswer the following o vehicle equipment re	morning an questions reg quirements, t	d evening commuting garding this conceptu track and signal impr	periods (rush k al schedule. Th ovements, and	hour), ris
7.	The proposed schee	lule would meet my	commuting needs.	YES	NO		
8.	The number of trip	s offered by this sch	edule would provid	e flexibility i	for my work schedu	le. YES	NO
9.	By placing a check the Oasis Rail Tran changes that should that don't need to b	in the boxes below, p isit service schedule (l be made before the se made right away, l	olease indicate whic to better fit your ne rail line first opens but should be consi	h, if any, of eds. The "A ; the "For F dered in the	the following chang At Start of Service" c future Service" colu future.	es should be m column refers t mn refers to ch	ade to to langes
		hare any addi	tional comments re	garding the	conceptual rail sche	dule.	

Station Area Planning

Information was presented this evening on the evaluation process applied to the ten rail stations proposed in Tier 1 and the development capacity and evaluation criteria rating (High, Medium and Low) each station has been assigned. These ratings will be used in helping determine which stations will be built and when:

Station Development Capacity /		Station	Development Capacity /
	Evaluation Criteria Ratings		Evaluation Criteria Ratings
Riverfront Transit Center:	High/High	Beechmont:	Low/Low
Boathouse:	Low/Low	Fairfax:	High/High
East End:	Low/Low	Newtown:	Medium/Medium
Columbia Tusculum:	Medium/Medium	Ancor:	High/High
Lunken Airport:	Low/Low	Milford:	High/High

11. In the next phase of the Oasis Rail Transit project development process, the project teams will be working to develop Station Area Plans for each of the transit stations under consideration. If you are interested in participating in a future Station Area Planning Workshop, please identify the station(s) you are interested in and provide your contact information below. You will be added to our interest list.

Station(s) of interest:

Name and Address:

Email Address:

12. Please use the space below to share any addition comments you may have regarding the Oasis Rail Transit project and the information presented this evening.

Page 3 of 3!



APPENDIX E Cost Estimates



Oasis Rail Corridor				Alt. A		Alt. B		Alt. A w/FRA
scc		UNIT		LINE	ITEM COST	LINE	ITEM COST	
CAT.	ITEM	COST	UNIT	QTY	TOTAL	QTY	TOTAL	
10	Guideway and Track Elements							
	Track Construction (mainline)		TF	87,639	\$17,583,780	88,607	19,990,520	
	Track Construction (sidings)		TF	15,495	\$3,625,600	15,416	3,608,220	
	Track Construction (embedded)		TF	5,200	\$1,560,000	5,200	1,560,000	
	Special Trackwork (turnouts, crossovers)		EA	20	\$2,400,000	20	2,360,000	
	Embankment		CU YD	0	\$0	160,000	680,000	
	New Bridges		EA	2	\$3.500.000	, 8	15.500.000	
	Refurbished Bridges		EA	9	\$5.300.000	4	2.000.000	
	Retaining Walls		SO FT	30,000	\$3,600,000	80 000	9 600 000	
	Grade Crossings		FΔ	20	\$3,890,000	20	4 400 000	
	Subtotal		L/\	20	\$41 459 380	20	\$59 698 740	\$41 459 380
	Contingency	20%	15	1	\$8 291 876	1	\$11 939 748	\$8 291 876
	Category 10 Subtotal	2070	- 13	-	\$49 800 000	1	\$71,600,000	\$49 800 000
20	Stations, Stops, Terminals, Intermodal				<i>\$45</i> ,000,000		\$71,000,000	Ş43,000,000
	Parking & Assoc Site Imp		FΔ	5	8 500 000	5	8 500 000	\$8 500 000
	Platform & Portals		FΔ	5	6,500,000	5	6,500,000	\$10,600,000
	PTC Upgrades			1	4,000,000	1	4,000,000	\$4,000,000
	Cubtotal		LJ		\$19 100 000	1	\$19,000,000	\$4,000,000
	Contingonov	25%	15		\$13,100,000		\$19,100,000	\$23,100,000
	Cotogory 20 Subtotal	2370	LS		\$4,773,000		\$4,775,000	33,773,000
20	Category 20 Subtotal				\$23,900,000		\$23,900,000	28,900,000
30	Track Construction (ward tracks)		тс	4 200	840.000	1 200	840.000	
				4,200	840,000	4,200	840,000	
	Admin & Maintonanco Pldgs			0	960,000	0	960,000	
	Autilit & Maintenance Blugs.		EA	1	15,000,000	1	15,000,000	10 000 000
	Sublolui	200/	10	1	\$10,800,000	1	\$10,800,000	16,800,000
		20%	LS	1	\$3,360,000	1	\$3,360,000	3,360,000
40	Category 30 Subtotal				\$20,200,000		\$20,200,000	20,200,000
40	Sitework and Special Conditions		1.6		62 440 505		62.044.627	
			LS	1	\$2,119,595	1	\$3,941,637	
	Drainage / Erosion Control		LS	1	\$2,539,278	2	\$3,823,950	
	Environmental Mitigation		LS	1	\$1,109,675	3	\$2,931,717	
	Landscaping		LS	1	\$899,834	4	\$1,082,227	
	Fencing		LS	1	\$773,594	5	\$955,987	
	Subtotal				\$7,441,976		\$12,735,519	7,441,976
	Contingency	20%	LS	1	\$1,488,395	1	\$2,547,104	1,488,395
	Category 40 Subtotal				\$8,900,000		\$15,300,000	8,900,000
50	Systems				40.0.000			
	Train Control and Signaling		Mile	17.3	\$9,047,900	17.3	9,047,900.0	
	Traffic Signaling		EA	3.0	\$293,000	3.0	293,000.0	
	Crossing Protection		EA	20.0	\$6,200,000	20.0	6,200,000.0	
	Communication Systems		Mile	17.3	\$515,500	17.3	503,100.0	
	Safety and Security		Mile	17.3	\$515,500	17.3	503,100.0	
	Fare Collections System and Eq		EA	6.0	\$348,000	6.0	348,000.0	
	Subtotal				\$16,919,900		\$16,895,100	16,919,900
	Contingency	20%	LS	1	\$3,383,980	1	\$3,379,020	3,383,980
	Category 50 Subtotal				\$20,300,000		\$20,300,000	20,300,000



	Oasis Rail Corridor			ŀ	Alt. A	Д	lt. B	Alt. A w/FRA
scc		UNIT		LINE	LINE ITEM COST		TEM COST	
CAT.	ITEM	COST	UNIT	QTY	TOTAL	QTY	TOTAL	
60	Right of Way, Land, Existing Improvements							
	Category 60 Subtotal				\$34,800,000		\$34,800,000	34,800,000
70	Vehicles							
	DMU	\$7,000,000	EA	10	\$70,000,000	10	\$70,000,000	56,100,000
	Subtotal				\$70,000,000		\$70,000,000	56,100,000
	Contingency	10%	LS	1	\$7,000,000	1	\$7,000,000	5,610,000
	Category 70 Subtotal				\$77,000,000		\$77,000,000	61,700,000
80	Professional Services							
	Preliminary Engineering	3.0%	LS	1	\$5,151,638	1	\$5,856,881	
	Final Design	6.0%	LS	1	\$10,303,275	1	\$11,713,762	
	Project Management	3.5%	LS	1	\$6,010,244	1	\$6,833,028	
	Construction Admin & Mgmt	3.5%	LS	1	\$6,010,244	1	\$6,833,028	
	Insurance	2.0%	LS	1	\$3,434,425	1	\$3,904,587	
	Legal	1.0%	LS	1	\$1,717,213	1	\$1,952,294	
	Surveys, Testing & Inspection	0.4%	LS	1	\$686,885	1	\$780,917	
	Mobilization / Force Account	0.7%	LS	1	\$1,202,049	1	\$1,366,606	
	Start up	1.0%	LS	1	\$1,717,213	1	\$1,952,294	
	Category 80 Subtotal				\$36,200,000		\$41,000,000	36,200,000
90	Unallocated Contingency	10.0%	LS	1	\$17,172,126	1	\$19,522,936	16,182,126
	Category 90 Subtotal				\$17,200,000		\$19,500,000	16,200,000
100	Finance Charges							
	Finance Charges	0.5%	LS	1	\$1,225,797	1	\$1,628,647	1,211,000
	Subtotal				\$1,225,797		\$1,628,647	1,211,000
	Contingency	20%	LS	1	\$245,159	1	\$325,729.36	242,200
	Category 100 Subtotal				\$1,500,000		\$2,000,000	1,500,000
	TOTAL ESTIMATED COST				\$289,800,000		\$325,600,000	278,500,000



Oasis Rail Corridor - Segment 1

SCC CAT		UNIT		LINE	TEM COST
SCC CAT.	ITEM	COST	UNIT	QTY	TOTAL
10	Guideway and Track Elements				
	Track Construction (mainline)	\$280	TF	3,800	\$1,064,000
	Track Construction (sidings)	\$210	TF	0	\$0
	Track Construction (embedded)	\$300	TF	5,200	\$1,560,000
	Special Trackwork (turnouts, crossovers)	\$120,000	EA	6	\$720,000
			CU		
	Embankment	\$6	YD	0	\$0
	New Bridges	\$1,500,000	EA	1	\$1,500,000
	Refurbished Bridges	\$500,000	EA	0	\$0
		¢120	SQ	15 000	ć1 800 000
		\$120		15,000	\$1,800,000
	Grade Crossings	\$220,000	EA	4	\$880,000
	Subtotul	20%	15	1	\$7,524,000
	Category 10 Subtotal	20%	LS	1	\$1,304,800
20	Stations Stons Terminals Intermodal				<i>\$3,</i> 028,800
20	Parking & Assoc Site Imp	\$500.000	FΔ	1	\$500.000
	Platform & Portals	\$600,000	FA	1	\$600,000
	RTC Upgrades	\$4,000,000	15	1	\$4,000,000
	Subtotal	\$4,000,000			\$5 100 000
	Contingency	25%	LS		\$1,275,000
	Category 20 Subtotal				\$6.375.000
30	Support Facilities				+ - / /
	Track Construction (yard tracks)	\$200	TF	0	\$0
	Turnouts	\$120,000	EA	0	\$0
	Admin & Maintenance Bldgs.	\$15,000,000	EA	0	\$0
	Subtotal				\$0
	Contingency	20%	LS	1	\$0
	Category 30 Subtotal				\$0
40	Sitework and Special Conditions				
	Utility Relocations	8%	LS	1	\$1,009,920
	Drainage / Erosion Control	4%	LS	1	\$504,960
	Environmental Mitigation	0%	LS	1	\$0
	Landscaping	2%	LS	1	\$252,480
	Fencing	1%	LS	1	\$126,240
	Subtotal				\$1,893,600
	Contingency	20%	LS	1	\$378,720
	Category 40 Subtotal				Ş2,272,32 0
50	Systems	4			4=00.000
	Train Control and Signaling	\$523,000	Mile	1.4	\$732,200
	Traffic Signaling	\$75,000	EA	2	\$150,000
	Crossing Protection	\$350,000	EA	4	\$1,400,000
	Communication Systems	\$30,000	IVIIIe	1.4	\$42,000
	Satety and Security	\$30,000	IVIIIe	1.4	\$42,000
	Fare collections System and Eq	\$60,000	ΕA	2	\$120,000
	Subtotal	2001			\$2,486,200
	Contingency	20%	LS	1	\$497,240



Oasis Rail Corridor - Segment 1

CCC CAT		UNIT		LINE	ITEM COST
SCC CAT.	ITEM	COST	UNIT	QTY	TOTAL
	Category 50 Subtotal				\$2,983,440
60	Right of Way, Land, Existing Improvements	\$4,000,000	Mile	0.2	\$800,000
	Category 60 Subtotal				\$800,000
70	Vehicles				
	DMU	\$7,000,000	EA		\$0
	Subtotal				\$0
	Contingency	10%	LS	1	\$0
	Category 70 Subtotal				\$0
80	Professional Services				
	Preliminary Engineering	3.0%	LS		\$0
	Final Design	6.0%	LS		\$0
	Project Management	3.5%	LS		\$0
	Construction Admin & Mgmt	3.5%	LS		\$0
	Insurance	2.0%	LS		\$0
	Legal	1.0%	LS		\$0
	Surveys, Testing & Inspection	0.4%	LS		\$0
	Mobilization / Force Account	0.7%	LS		\$0
	Start up	1.0%	LS		\$0
	Category 80 Subtotal				\$0
90	Unallocated Contingency	10.0%	LS	0	\$0
	Category 90 Subtotal				\$0
100	Finance Charges				
	Finance Charges	0.5%	LS	0	\$0
	Subtotal				\$0
	Contingency	20%	LS	0	\$0
	Category 100 Subtotal				\$0
	TOTAL ESTIMATED COST				\$21,459,560



Oasis Rail Corridor - Segment 2A

SCC CAT		UNIT		LINE	ITEM COST
SCC CAT.	ITEM	COST	UNIT	QTY	TOTAL
10	Guideway and Track Elements				
	Track Construction (mainline)	\$220	TF	35,719	\$7,858,180
	Track Construction (sidings)	\$220	TF	4,660	\$1,025,200
	Track Construction (embedded)	\$300	TF		\$0
	Special Trackwork (turnouts, crossovers)	\$120,000	EA	5	\$600,000
			CU		
	Embankment	\$6	YD		\$0
	New Bridges	\$2,000,000	EA	1	\$2,000,000
	Refurbished Bridges	\$500,000	EA	4	\$2,000,000
		6420	SQ	45.000	¢4,000,000
		\$120		15,000	\$1,800,000
	Grade Crossings	\$220,000	EA	6	\$1,320,000
	Subtotal	200/	1.6		\$16,603,380
	Contingency	20%	LS	1	\$3,320,676
20	Category 10 Subtotal				\$19,924,056
20	Darking & Assoc Site Imp	62 000 000	ГА	1	ć2.000.000
	Parking & Assoc. Site imp	\$2,000,000		1	\$2,000,000
	Plation & Portais	\$1,500,000		1	\$1,500,000
	Subtotal	\$4,000,000	LS		\$0 \$2,500,000
	Contingency	25%	15		\$3,300,000
	Category 20 Subtotal	23/0	LJ		\$875,000
30	Support Eacilities				34,373,000
50	Track Construction (vard tracks)	\$200	TF		\$0
	Turnouts	\$120,000	FΔ		\$0 \$0
	Admin & Maintenance Bldgs	\$15,000,000	FΔ		\$0 \$0
	Subtotal	\$13,000,000	273		\$0
	Contingency	20%	LS	1	\$0
	Category 30 Subtotal				\$0
40	Sitework and Special Conditions				֥
	Utility Relocations	2%	LS	1	\$402,068
	Drainage / Erosion Control	4%	LS	1	\$804,135
	Environmental Mitigation	2%	LS	1	\$402,068
	Landscaping	1%	LS	1	\$201,034
	Fencing	1%	LS	1	\$201,034
	Subtotal				\$2,010,338
	Contingency	20%	LS	1	\$402,068
	Category 40 Subtotal				\$2,412,406
50	Systems				
	Train Control and Signaling	\$523,000	Mile	6.8	\$3,556,400
	Traffic Signaling	\$143,000	EA		\$0
	Crossing Protection	\$300,000	EA	6	\$1,800,000
	Communication Systems	\$30,000	Mile	6.8	\$204,000
	Safety and Security	\$30,000	Mile	6.8	\$204,000
	Fare Collections System and Eq	\$57,000	EA	1	\$57,000
	Subtotal				\$5,821,400
	Contingency	20%	LS	1	\$1,164,280



Oasis Rail Corridor - Segment 2A

666 6AT		UNIT		LINE	ITEM COST
SCC CAT.	ITEM	COST	UNIT	QTY	TOTAL
	Category 50 Subtotal				\$6,985,680
60	Right of Way, Land, Existing Improvements	\$4,000,000	Mile	0	\$0
	Category 60 Subtotal				\$0
70	Vehicles				
	DMU	\$7,000,000	EA		\$0
	Subtotal				\$0
	Contingency	10%	LS	1	\$0
	Category 70 Subtotal				\$0
80	Professional Services				
	Preliminary Engineering	3.0%	LS	1	\$0
	Final Design	6.0%	LS	1	\$0
	Project Management	3.5%	LS	1	\$0
	Construction Admin & Mgmt	3.5%	LS	1	\$0
	Insurance	2.0%	LS	1	\$0
	Legal	1.0%	LS	1	\$0
	Surveys, Testing & Inspection	0.4%	LS	1	\$0
	Mobilization / Force Account	0.7%	LS	1	\$0
	Start up	1.0%	LS	1	\$0
	Category 80 Subtotal				\$0
90	Unallocated Contingency	10.0%	LS	1	\$0
	Category 90 Subtotal				\$0
100	Finance Charges				
	Finance Charges	0.5%	LS	1	\$0
	Subtotal				\$0
	Contingency	20%	LS	1	\$0
	Category 100 Subtotal				\$0
	TOTAL ESTIMATED COST				\$33,697,142

Oasis Rail Corridor - Segment 2B

CCC CAT		UNIT		LINE	ITEM COST
SCC CAT.	ITEM	COST	UNIT	QTY	TOTAL
10	Guideway and Track Elements				
	Track Construction (mainline)	\$200	TF	35,679	\$7,135,800
	Track Construction (sidings)	\$220	TF	4,581	\$1,007,820
	Track Construction (embedded)	\$300	TF		\$0
	Special Trackwork (turnouts, crossovers)	\$120,000	EA	5	\$600,000
			CU		
	Embankment	\$4	YD		\$0
	New Bridges	\$2,000,000	EA	1	\$2,000,000
	Refurbished Bridges	\$500,000	EA	4	\$2,000,000
			SQ		
	Retaining Walls	\$120	FT	15,000	\$1,800,000
	Grade Crossings	\$220,000	EA	6	\$1,320,000
	Subtotal				\$15,863,620
	Contingency	20%	LS	1	\$3,172,724
	Category 10 Subtotal				\$19,036,344
20	Stations, Stops, Terminals, Intermodal				



Oasis Rail Corridor - Segment 2B

SCC CAT		UNIT		LINE	TEM COST
SCC CAT.	ITEM	COST	UNIT	QTY	TOTAL
	Parking & Assoc. Site Imp	\$2,000,000	EA	1	\$2,000,000
	Platform & Portals	\$1,500,000	EA	1	\$1,500,000
	RTC Upgrades	\$2,000,000	LS		\$0
	Subtotal				\$3,500,000
	Contingency	25%	LS		\$875,000
	Category 20 Subtotal				\$4,375,000
30	Support Facilities				
	Track Construction (yard tracks)	\$200	TF		\$0
	Turnouts	\$120,000	EA		\$0
	Admin & Maintenance Bldgs.	\$15,000,000	EA		\$0
	Subtotal				\$0
	Contingency	20%	LS		\$0
	Category 30 Subtotal				Ş0
40	Sitework and Special Conditions	20/			¢207 272
		2%	LS	1	\$387,272
	Drainage / Erosion Control	4%	LS	1	\$774,545
		2%		1	\$387,272
	Landscaping	1%		1	\$193,636
	Fencing	1%	LS	1	\$193,636
	Subtotal	20%	15	1	\$1,930,302
	Cotogory 40 Subtotal	20%	LS	1	\$307,272
50	Category 40 Subtotal				<i>Ş2,323,034</i>
50	Train Control and Signaling	\$523.000	Milo	6.8	\$3 556 400
	Traffic Signaling	\$143,000	FΔ	0.0	\$0,555,550,400 \$0
	Crossing Protection	\$300,000	FΔ	6	
		\$29,000	Mile	68	\$197 200
	Safety and Security	\$29,000	Mile	6.8	\$197,200
	Fare Collections System and Eq	\$57.000	EA	1	\$57.000
	Subtotal	+ /			\$5.807.800
	Contingency	20%	LS	1	\$1.161.560
	Category 50 Subtotal				\$6,969,360
60	Right of Way, Land, Existing Improvements	\$4,000,000	Mile	0	\$0
	Category 60 Subtotal				\$0
70	Vehicles				
	DMU	\$7,000,000	EA		\$0
	Subtotal				\$0
	Contingency	10%	LS	1	\$0
	Category 70 Subtotal				\$0
80	Professional Services				
	Preliminary Engineering	3.0%	LS		\$0
	Final Design	6.0%	LS		\$0
	Project Management	3.5%	LS		\$0
	Construction Admin & Mgmt	3.5%	LS		\$0
	Insurance	2.0%	LS		\$0
	Legal	1.0%	LS		\$0
	Surveys, Testing & Inspection	0.4%	LS		\$0



Oasis Rail Corridor - Segment 2B

CCC CAT		UNIT		LINE ITEM	
SCC CAT.	ITEM	COST	UNIT	QTY	TOTAL
	Mobilization / Force Account	0.7%	LS		\$0
	Start up	1.0%	LS		\$0
	Category 80 Subtotal				\$0
90	Unallocated Contingency	10.0%	LS	1	\$0
	Category 90 Subtotal				\$0
100	Finance Charges				
	Finance Charges	0.5%	LS	1	\$0
	Subtotal				\$0
	Contingency	20%	LS	1	\$0
	Category 100 Subtotal				\$0
	TOTAL ESTIMATED COST				\$32,704,338

Oasis Rail Corridor - Segment 3A

				-	
SCC CAT		UNIT		LINE	ITEM COST
SCC CAT.	ITEM	COST	UNIT	QTY	TOTAL
10	Guideway and Track Elements				
	Track Construction (mainline)	\$180	TF	29,738	\$5,352,840
	Track Construction (sidings)	\$240	TF	9,835	\$2,360,400
	Track Construction (embedded)	\$250	TF		\$0
	Special Trackwork (turnouts, crossovers)	\$120,000	EA	7	\$840,000
			CU		
	Embankment	\$6	YD		\$0
	New Bridges	\$2,000,000	EA		\$0
	Refurbished Bridges	\$700,000	EA	4	\$2,800,000
			SQ		
	Retaining Walls	\$120	FT		\$0
	Grade Crossings	\$50,000	EA	3	\$150,000
	Subtotal				\$11,503,240
	Contingency	20%	LS	1	\$2,300,648
	Category 10 Subtotal				\$13,803,888
20	Stations, Stops, Terminals, Intermodal				
	Parking & Assoc. Site Imp	\$2,000,000	EA	2	\$4,000,000
	Platform & Portals	\$1,500,000	EA	2	\$3,000,000
	RTC Upgrades	\$2,000,000	LS		\$0
	Subtotal				\$7,000,000
	Contingency	25%	LS		\$1,750,000
	Category 20 Subtotal				\$8,750,000
30	Support Facilities				
	Track Construction (yard tracks)	\$200	TF		\$0
	Turnouts	\$120,000	EA		\$0
	Admin & Maintenance Bldgs.	\$15,000,000	EA		\$0
	Subtotal				\$0
	Contingency	20%	LS	1	\$0
	Category 30 Subtotal				\$0
40	Sitework and Special Conditions				
	Utility Relocations	1%	LS	1	\$185,032



Oasis Rail Corridor - Segment 3A

SCC CAT		UNIT		LINE	ITEM COST
SCC CAT.	ITEM	COST	UNIT	QTY	TOTAL
	Drainage / Erosion Control	1%	LS	1	\$185,032
	Environmental Mitigation	1%	LS	1	\$185,032
	Landscaping	1%	LS	1	\$185,032
	Fencing	1%	LS	1	\$185,032
	Subtotal				\$925,162
	Contingency	20%	LS	1	\$185,032
	Category 40 Subtotal				\$1,110,194
50	Systems				
	Train Control and Signaling	\$523,000	Mile	5.6	\$2,928,800
	Traffic Signaling	\$143,000	EA		\$0
	Crossing Protection	\$300,000	EA	3	\$900,000
	Communication Systems	\$30,000	Mile	5.6	\$168,000
	Safety and Security	\$30,000	Mile	5.6	\$168,000
	Fare Collections System and Eq	\$57,000	EA	2	\$114,000
	Subtotal				\$4,278,800
	Contingency	20%	LS	1	\$855,760
	Category 50 Subtotal				\$5,134,560
60	Right of Way, Land, Existing Improvements	\$4,000,000	Mile	5	\$20,000,000
	Category 60 Subtotal				\$20,000,000
70	Vehicles	Á= 000 000			40
	DMU	\$7,000,000	EA		\$0 \$0
	Subtotal	1.00/	1.6		\$0
	Contingency	10%	LS		\$0 \$0
20	Category 70 Subtotal				ŞU
80	Projessional Services	2.0%	15		έŋ
	Final Design	5.0%			30 \$0
	Project Management	2.5%			ېن د م
	Construction Admin & Mamt	3.5%	15		50 \$0
		2.0%	15		50 \$0
		1.0%	15		50 \$0
	Surveys Testing & Inspection	0.4%	15		\$0 \$0
	Mobilization / Force Account	0.7%	15		\$0
	Start up	1.0%	15		\$0 \$0
	Category 80 Subtotal	1.070	23		\$0 \$0
90	Unallocated Contingency	10.0%	LS	1	\$0
	Category 90 Subtotal	101070			\$0
100	Finance Charges				
	Finance Charges	0.5%	LS	1	\$0
	Subtotal				\$0
	Contingency	20%	LS	1	\$0
	Category 100 Subtotal				\$0
	TOTAL ESTIMATED COST				\$48,798,642



Oasis Rail Corridor - Segment 3B

SCC CAT		UNIT		LINE	ITEM COST
SCC CAT.	ITEM	COST	UNIT	QTY	TOTAL
10	Guideway and Track Elements				
	Track Construction (mainline)	\$240	TF	29,746	\$7,139,040
	Track Construction (sidings)	\$240	TF	9,835	\$2,360,400
	Track Construction (embedded)	\$250	TF		\$0
	Special Trackwork (turnouts, crossovers)	\$120,000	EA	7	\$840,000
			CU		
	Embankment	\$6	YD	20,000	\$120,000
	New Bridges	\$2,000,000	EA	5	\$10,000,000
	Refurbished Bridges	\$500,000	EA		\$0
		¢120	SQ	40.000	¢4,000,000
		\$120		40,000	\$4,800,000
	Grade Crossings	\$220,000	EA	3	\$660,000
	Subtotal	20%	1.6	1	\$25,919,440
	Contingency	20%	LS	1	\$5,183,888
20	Category 10 Subtotal				\$31,103,328
20	Darking & Assoc Site Imp	¢2,000,000	E۸	2	¢4,000,000
	Parking & Assoc. Site imp	\$2,000,000		2	\$4,000,000
	Plation & Portais	\$1,500,000		2	\$3,000,000 \$0
	KTC Opgrades	\$2,000,000	LS		
	Subtotul	250/	15		\$7,000,000
	Category 20 Subtotal	23%	LS		\$1,750,000
20	Category 20 Subtotal				38,730,000
30	Track Construction (vard tracks)	\$200	TE		ŚŊ
	Turnouts	\$200	FΔ		\$0 \$0
	Admin & Maintenance Bldgs	\$120,000	FΔ		\$0 \$0
	Subtotal	\$13,000,000	273		\$0 \$0
	Contingency	20%	LS	1	\$0
	Category 30 Subtotal				\$0
40	Sitework and Special Conditions				֥
	Utility Relocations	4%	LS	1	\$1.316.778
	Drainage / Erosion Control	4%	LS	1	\$1,316,778
	Environmental Mitigation	4%	LS	1	\$1,316,778
	Landscaping	1%	LS	1	\$329,194
	Fencing	1%	LS	1	\$329,194
	Subtotal				\$4,608,722
	Contingency	20%	LS	1	\$921,744
	Category 40 Subtotal				\$5,530,466
50	Systems				
	Train Control and Signaling	\$523,000	Mile	5.6	\$2,928,800
	Traffic Signaling	\$143,000	EA		\$0
	Crossing Protection	\$300,000	EA	3	\$900,000
	Communication Systems	\$29,000	Mile	5.6	\$162,400
	Safety and Security	\$29,000	Mile	5.6	\$162,400
	Fare Collections System and Eq	\$57,000	EA	2	\$114,000
	Subtotal				\$4,267,600
	Contingency	20%	LS	1	\$853,520



Oasis Rail Corridor - Segment 3B

CCC CAT		UNIT		LINE	ITEM COST
SCC CAT.	ITEM	COST	UNIT	QTY	TOTAL
	Category 50 Subtotal				\$5,121,120
60	Right of Way, Land, Existing Improvements	\$4,000,000	Mile	5	\$20,000,000
	Category 60 Subtotal				\$20,000,000
70	Vehicles				
	DMU	\$7,000,000	EA		\$0
	Subtotal				\$0
	Contingency	10%	LS		\$0
	Category 70 Subtotal				\$0
80	Professional Services				
	Preliminary Engineering	3.0%	LS		\$0
	Final Design	6.0%	LS		\$0
	Project Management	3.5%	LS		\$0
	Construction Admin & Mgmt	3.5%	LS		\$0
	Insurance	2.0%	LS		\$0
	Legal	1.0%	LS		\$0
	Surveys, Testing & Inspection	0.4%	LS		\$0
	Mobilization / Force Account	0.7%	LS		\$0
	Start up	1.0%	LS		\$0
	Category 80 Subtotal				\$0
90	Unallocated Contingency	10.0%	LS	1	\$0
	Category 90 Subtotal				\$0
100	Finance Charges				
	Finance Charges	0.5%	LS	1	\$0
	Subtotal				\$0
	Contingency	20%	LS	1	\$0
	Category 100 Subtotal				\$0
	TOTAL ESTIMATED COST				\$70,504,914

Oasis Rail Corridor - Segment 4A

CCC CAT		UNIT		LINE	ITEM COST
SCC CAT.	ITEM	COST	UNIT	QTY	TOTAL
10	Guideway and Track Elements				
	Track Construction (mainline)	\$180	TF	18,382	\$3,308,760
	Track Construction (sidings)	\$240	TF	1,000	\$240,000
	Track Construction (embedded)	\$300	TF		\$0
	Special Trackwork (turnouts, crossovers)	\$120,000	EA	2	\$240,000
			CU		
	Embankment	\$4	YD		\$0
	New Bridges	\$2,000,000	EA		\$0
	Refurbished Bridges	\$500,000	EA	1	\$500,000
			SQ		
	Retaining Walls	\$75	FT		\$0
	Grade Crossings	\$220,000	EA	7	\$1,540,000
	Subtotal				\$5,828,7 <mark>6</mark> 0
	Contingency	20%	LS	1	\$1,165,752
	Category 10 Subtotal				\$6,994,512



Oasis Rail Corridor - Segment 4A

SCC CAT		UNIT		LINE	ITEM COST
SCC CAT.	ITEM	COST	UNIT	QTY	TOTAL
20	Stations, Stops, Terminals, Intermodal				
	Parking & Assoc. Site Imp	\$2,000,000	EA	1	\$2,000,000
	Platform & Portals	\$1,500,000	EA	1	\$1,500,000
	RTC Upgrades	\$2,000,000	LS		\$0
	Subtotal				\$3,500,000
	Contingency	25%	LS		\$875,000
	Category 20 Subtotal				\$4,375,000
30	Support Facilities				
	Track Construction (yard tracks)	\$200	TF	4,200	\$840,000
	Turnouts	\$120,000	EA	8	\$960,000
	Admin & Maintenance Bldgs.	\$15,000,000	EA	1	\$15,000,000
	Subtotal				\$16,800,000
	Contingency	20%	LS	1	\$3,360,000
	Category 30 Subtotal				\$20,160,000
40	Sitework and Special Conditions				
	Utility Relocations	2%	LS	1	\$522,575
	Drainage / Erosion Control	4%	LS	1	\$1,045,150
	Environmental Mitigation	2%	LS	1	\$522,575
	Landscaping	1%	LS	1	\$261,288
	Fencing	1%	LS	1	\$261,288
	Subtotal				\$2,612,876
	Contingency	20%	LS	1	\$522,575
	Category 40 Subtotal				\$3,135,451
50	Systems	4500.000			44,000,500
	Train Control and Signaling	\$523,000	Mile	3.5	\$1,830,500
	I rattic Signaling	\$143,000	EA	1	\$143,000
	Crossing Protection	\$300,000	EA	25	\$2,100,000
	Communication Systems	\$29,000	Mile	3.5	\$101,500
	Safety and Security	\$29,000		3.5	\$101,500
	Fare collections system and Eq	\$57,000	LA	1	\$37,000 \$1,222,500
	Contingency	20%	15	1	\$866 700
	Category 50 Subtotal	2070	1.5	-	\$5 200 200
60	Right of Way Land Existing Improvements	\$4,000,000	Mile	35	\$14,000,000
	Category 60 Subtotal	\$4,000,000	IVINC	5.5	\$14,000,000
70	Vehicles				<i>\</i>
	DMU	\$7,000,000	FA		\$0
	Subtotal	<i>+ · / • • • / • • •</i>			\$0
	Contingency	10%	LS	1	\$0
	Category 70 Subtotal				\$0
80	Professional Services				
	Preliminary Engineering	3.0%	LS		\$0
	Final Design	6.0%	LS		\$0
	Project Management	3.5%	LS		\$0
	Construction Admin & Mgmt	3.5%	LS		\$0
	Insurance	2.0%	LS		\$0
	Legal	1.0%	LS		\$0


Oasis Rail Corridor - Segment 4A

500 CAT		UNIT		LINE	ITEM COST
SCC CAT.	ITEM	COST	UNIT	QTY	TOTAL
	Surveys, Testing & Inspection	0.4%	LS		\$0
	Mobilization / Force Account	0.7%	LS		\$0
	Start up	1.0%	LS		\$0
	Subtotal	21.1%			\$0
	Contingency	0%	LS		\$0
	Category 80 Subtotal				\$0
90	Unallocated Contingency	10.0%	LS	1	\$0
	Category 90 Subtotal				\$0
100	Finance Charges				
	Finance Charges	0.5%	LS	1	\$0
	Subtotal				\$0
	Contingency	20%	LS	1	\$0
	Category 100 Subtotal				\$0
	TOTAL ESTIMATED COST				\$53,865,163

Oasis Rail Corridor - Segment 4B

666 6AT		UNIT COST		LINE ITEM COST		
SCC CAT.	ITEM	LOW	UNIT	QTY	TOTAL	
10	Guideway and Track Elements					
	Track Construction (mainline)	\$240	TF	19,382	\$4,651,680	
	Track Construction (sidings)	\$240	TF	1,000	\$240,000	
	Track Construction (embedded)	\$250	TF		\$0	
	Special Trackwork (turnouts, crossovers)	\$100,000	EA	2	\$200,000	
	Embankmont	ćл	CU	140.000	\$560,000	
		54 \$2,000,000		140,000	\$300,000	
	New Bluges	\$2,000,000		1	\$2,000,000	
	Refurbished Bridges	\$500,000	EA		ŞU	
	Retaining Walls	\$120	FT	10,000	\$1,200,000	
	Grade Crossings	\$220,000	EA	7	\$1,540,000	
	Subtotal				\$10,391,680	
	Contingency	20%	LS	1	\$2,078,336	
	Category 10 Subtotal				\$12,470,016	
20	Stations, Stops, Terminals, Intermodal					
	Parking & Assoc. Site Imp	\$2,000,000	EA	1	\$2,000,000	
	Platform & Portals	\$1,500,000	EA	1	\$1,500,000	
	RTC Upgrades	\$2,000,000	LS		\$0	
	Subtotal				\$3,500,000	
	Contingency	25%	LS		\$875,000	
	Category 20 Subtotal				\$4,375,000	
30	Support Facilities					
	Track Construction (yard tracks)	\$200	TF	4,200	\$840,000	
	Turnouts	\$120,000	EA	8	\$960,000	
	Admin & Maintenance Bldgs.	\$15,000,000	EA	1	\$15,000,000	
	Subtotal				\$16,800,000	
	Contingency	20%	LS	1	\$3,360,000	
	Category 30 Subtotal				\$20,160,000	



Oasis Rail Corridor - Segment 4B

SCC CAT		UNIT COST		LINE ITEM COST		
SCC CAT.	ITEM	LOW	UNIT	QTY	TOTAL	
40	Sitework and Special Conditions					
	Utility Relocations	4%	LS	1	\$1,227,667	
	Drainage / Erosion Control	4%	LS	1	\$1,227,667	
	Environmental Mitigation	4%	LS	1	\$1,227,667	
	Landscaping	1%	LS	1	\$306,917	
	Fencing	1%	LS	1	\$306,917	
	Subtotal				\$4,296,835	
	Contingency	20%	LS	1	\$859,367	
	Category 40 Subtotal				\$5,156,202	
50	Systems					
	Train Control and Signaling	\$523,000	Mile	3.5	\$1,830,500	
	Traffic Signaling	\$143,000	EA	1	\$143,000	
	Crossing Protection	\$300,000	EA	7	\$2,100,000	
	Communication Systems	\$29,000	Mile	3.5	\$101,500	
	Safety and Security	\$29,000	Mile	3.5	\$101,500	
	Fare Collections System and Eq	\$57,000	EA	1	\$57,000	
	Subtotal				\$4,333,500	
	Contingency	20%	LS	1	\$866,700	
	Category 50 Subtotal				\$5,200,200	
60	Right of Way, Land, Existing Improvements	\$4,000,000	Mile	3.5	\$14,000,000	
	Category 60 Subtotal				\$14,000,000	
70	Vehicles					
	DMU	\$7,000,000	EA		\$0	
	Subtotal				\$0	
	Contingency	10%	LS	1	\$0	
	Category 70 Subtotal				\$0	
80	Professional Services					
	Preliminary Engineering	3.0%	LS		\$0	
	Final Design	6.0%	LS		\$0	
	Project Management	3.5%	LS		\$0	
	Construction Admin & Mgmt	3.5%	LS		\$0	
	Insurance	2.0%	LS		\$0	
	Legal	1.0%	LS		\$0	
	Surveys, Testing & Inspection	0.4%	LS		\$0	
	Mobilization / Force Account	0.7%	LS		\$0	
	Start up	1.0%	LS		\$0	
	Category 80 Subtotal				\$0	
90	Unallocated Contingency	10.0%	LS	1	\$0	
	Category 90 Subtotal				Ş0	
100	Finance Charges	0.54				
	Finance Charges	0.5%	LS	1	\$0 \$0	
	Subtotal				<i>\$0</i>	
	Contingency	20%	LS	1	\$0	
	Category 100 Subtotal				\$0	
	TOTAL ESTIMATED COST				\$61,361,418	

APPENDIX F Oasis Rail Transit Rail Traffic Controller Model

DRAFT



OASIS Rail Transit Rail Traffic Controller Model Report

HAM/CLE – OASIS Rail Corridor

PID No. 86463

Prepared For: Ohio Department of Transportation District 8 505 S. State Route 741 Lebanon, Ohio 45036

Prepared By:

HDR Engineering, Inc. 9987 Carver Road, Suite 200 Cincinnati, Ohio 45242 513-984-7500

October 24, 2013

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Appendix A	Oasis Map
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1.1 INTRODUCTION

This report describes operations modeling and development of train infrastructure requirements for the Oasis Passenger Rail Project in Cincinnati, Ohio.

The Oasis Rail Corridor runs for approximately 17 miles between downtown Cincinnati, and eastern communities in Hamilton and Clermont counties, with an eastern terminus in the City of Milford. The Oasis line could provide a rail-based transit option to broaden the transportation network within the region. It is an important multi-modal component of the Eastern Corridor Program.

The Eastern Corridor Program was initiated to address mobility and connectivity issues between the City of Cincinnati core and the eastern suburbs. The original Ohio Kentucky Indiana Regional Council of Governments (OKI)-led Major Investment Study (MIS), completed in 2000, identified an area covering approximately 165 square miles, extending from the Cincinnati Central Business District and riverfront redevelopment (The Banks), east to the I-275 Outer-Belt in Clermont County. The MIS resulted in a recommended multi-modal strategy for addressing current and future deficiencies in the area.

In 2002, the Eastern Corridor Land Use Vision Plan (ECLUVP) was completed. This effort evaluated economic development, green space preservation and quality of life issues related to future land use within the Eastern Corridor. The ECLUVP was developed based on extensive input from the communities impacted and resulted in a comprehensive future land use plan complimenting the multimodal transportation vision.

A tiered environmental document approach was undertaken next to address federal requirements. The Tier 1 Final Environmental Impact Statement (FEIS) was completed and a Record of Decision (ROD) issued by the Federal Highway Administration in June 2006. In relation to the Rail Transit component of the Eastern Corridor, the ROD included the following purpose and need elements:

Rail Transit network investments in the Eastern Corridor are needed to:

- Increase accessibility by reaching areas not currently being served by transit;
- Connect people with jobs;
- Provide better service to the transit-dependent (or transportationdisadvantaged);
- Improve overall transportation by coordinating and linking with other travel modes;
- Provide important future capacity and connectivity beyond reasonable limits of the highway system;
- Connect people with major recreational destinations and the regional attractions for non-car travel;
- Provide a visible, high profile link to the Cincinnati Central Business District from outlying areas;
- Improve regional connectivity;
- Link to and support the Eastern Corridor land use vision plan;
- Support and facilitate bus, highway and TSM improvements; and
- Implement regional long range transportation plans specific to rail investments.

The purpose of the rail transit capacity investments in the Eastern Corridor is to implement, in logical segments, effective rail transit service in the Eastern Corridor. This component will provide a new, high-visibility, regional scale transportation alternative to driving, will increase mobility for non-drivers, will provide a high-capacity transit mode to support the expanded bus network, will establish stations at effective locations with links to bus, bike, pedestrian and roadway systems, will connect downtown Cincinnati with outlying areas of population and employment, will support neighborhood development and revitalization consistent with the land use vision plan, and reduce demand for new highway capacity while providing a way to meet the future travel demand.

The potential first phase of Oasis calls for the development of passenger rail service operating between the Riverfront Transit Center (RTC) in downtown Cincinnati and the Village of Fairfax, with an estimated completion date of 2015-2016. This portion of the route is divided into two segments:

- Segment 1: RTC to the Montgomery Inn Boathouse
- Segment 2: Boathouse to U.S. 50 in Fairfax

Segment 1 has two proposed stations (RTC and Boathouse), is a little over one mile in length, and is planned for a maximum 30 mph operation.

Segment 2 has two proposed stations, namely Columbia-Tusculum and Fairfax (Red Bank), and is a little over seven miles in length. The planned maximum operating speeds are predicted as 30 to 45 mph.

The purpose of this analysis is to determine the level of rail infrastructure needed to support the initial level of service planned for Oasis, as well as future service levels required to support the rail corridor's projected passenger growth.

This portion of the study analyzed three different levels of service during peak commuter hours of operation between the RTC and the City of Milford:

- 1. 15 minute headways
- 2. 10 minute headways
- 3. 5 minute headways

(The term "headway" refers to the amount of time between trains heading on the same direction on a single route.)

In order to both maintain equipment balance, as well as maximum utilization of that equipment, headway periods were the same for both east and westbound movements during all peak hour operations.

The sections of this report describe proposed rail operations and infrastructure requirements; the rail operations modeling methodology used to develop probable infrastructure needs and train schedules; and results of modeling the proposed future operation. Rail Traffic Controller Modeling (RTCM) software was used to simulate and analyze proposed train operations on segments 1 and 2 of the Oasis

Commuter Rail corridor. RTCM was also used to validate infrastructure assumptions and compare different schemes for track arrangements and train schedules.

Infrastructure elements that were analyzed include:

• Location and length of passing tracks required in the project area to efficiently facilitate opposing train meets for each modeled service level

The project area and future operational conditions studied in this assessment consisted of:

- Proposed Oasis track infrastructure.
- Utilization of additional right of way to place passing tracks.
- Proposed station locations: RTC, Boathouse, Columbia/Tusculum and Fairfax Red Bank)

Train schedules for the Oasis project were developed using RTCM and operational analysis, based on input and assumptions from the stakeholders. Refer to Appendix A for train schedules and equipment turn plans that are the basis of the operating plan for each service level. All movements are made by signal indication unless otherwise noted. Key characteristics of this plan are:

- The main line is single track with a maximum designed operating speed from 30 to 45 mph. There are double track sections at various locations which will allow for at-speed meets of the eastbound and westbound trains, which will vary in frequency and length by service level.
- Peak service hours are weekdays from 6:00AM to 9:00AM, noon to 1:00PM, and 4:00PM to 7:00PM. Three different schedules and models were constructed to determine infrastructure needs for 15, 10 and 5 minute headways during peak service hours.
- Non-peak service hours are from 9:00AM to noon, 1:00PM to 4:00PM and 7:00PM to 9:00PM on weekdays and from 8:00AM to 10:00PM on weekends.

This high level rail operations capacity modeling study is a conceptual study based upon service assumptions and parameters as provided by the stakeholders, and was done solely to determine rail infrastructure needs for different service scenarios. It should not be construed as a full start-up plan for the operations of the Oasis Commuter Rail corridor.

2.0 OVERVIEW AND DESCRIPTION OF RTCM METHODOLOGY

The RTCM is a software tool in broad use by North American railroads to test rail operational plans and proposed infrastructure arrangements (track and signal) by realistically simulating train operations and capturing the results. The basis of RTCM is two mathematical formula sets.

The first set matches empirically derived characteristics of train performance, for the model user's selected train characteristics, to the track geometry. The model calculates the best possible acceleration, maximum speed, and deceleration characteristics of the modeled train as it travels over the modeled track.

The second set of formulas uses railroad operating rules, user-selected Methods of Operation, and userselected train-prioritization options to dispatch multiple trains over the modeled territory in a manner similar to the decision matrix used by a human train dispatcher. RTCM trains in the network behave in a fashion similar to how trains would actually operate on an actual railroad, making meet/pass, overtake, and station-stop events.

The model has the capability to preplan train movements and to avoid errors, such as advancing two trains toward a siding in which neither will clear. By automating the application of these mathematical formula sets, the RTCM enables the user to more rapidly test the effects on single-train performance of proposed track geometry and Methods of Operation, and to more rapidly test the effects on multiple-train performance of proposed schedules, prioritization plans, and infrastructure arrangements as compared to the pencil-and-paper methods that the RTC model replaced.

The RTCM is not a black box tool that suggests, or optimizes, infrastructure, schedules, or train priorities on its own. Rather, the model is a validation tool that measures the results of user-proposed infrastructure, schedules, and train priorities. The model is also not a perfect mimic of real-world results. The RTCM requires no significant time to create train dispatching plans or to execute dispatching instructions, there is no dwell time for train signaling and communications systems to react, and trains respond immediately to instructions and operate at best possible speed. On actual railroads, train dispatcher efficiency (compared to the model) can be seriously affected by other tasks such as issuance of track bulletins, responses to inquiries and unusual events, and human inability to make multiple contingent mathematical calculations to select among many possible dispatching plans for the best possible outcome. The model is used to compare infrastructure and train planning alternatives within its own set of rules and results, with the results viewed by rail operations experts who test for adequacy against what is likely to happen within real railroads.

2.1 RTCM METHODOLOGY APPLIED TO THE OASIS PROJECT

RTCM for the Oasis Commuter Rail Project consisted of the following steps:

- Creation of the RTCM infrastructure and track configuration.
- Selection of the type of rail equipment to be modeled.
- Development of a "best case" Train Performance Calculation (TPC) that determines the optimal run-time on the proposed network.

- Creation of train files using proposed weekday peak train schedules at three different service frequencies.
- RTCM "runs" to debug the initial infrastructure design.
- RTCM runs to resolve observed conflicts in the proposed train schedules.
- Testing of several proposed infrastructure arrangements for their ability to support the proposed schedule.
- Multiple iterations of schedule refinements and infrastructure refinements to develop a fluid model run.

3.1 EQUIPMENT PLAN

For the purposes of this study, Diesel Multiple Unit (DMU) rail cars were used in the modeling. DMUs are self propelled rail cars capable of operating independently or in multiple unit operations, and are widely used in the United States and throughout the world for commuter operations.

Two different types of DMU's were considered for inclusion into the model:

- Stadler GTW 2/6 DMU: two cars, 134 feet, 80.75 tons, 104 seats per set
- Nippon Sharyo DMU: two cars, 170 feet, 150 tons, 156 seats per set

We were able to obtain data from Stadler that allowed us to build an updated version of their DMU into the model. Nippon Sharyo was unable to provide us with the required data in a format needed for RTCM; therefore only the Stadler DMU was modeled. The use of the Stadler DMU in the model should in no way be interpreted as an endorsement of one type or model of equipment over another.

4.1 INITIAL ASSESSMENT OF OPERATIONS AND INFRASTRUCTURE FOR THE PROPOSED PROJECT

An initial assessment was made of the likely minimum infrastructure necessary to support the proposed project operational elements as proposed by the stakeholders. This assessment resulted in an initial minimum infrastructure plan. The proposed operational elements are:

- Creation of passenger train service eastward from the RTC in downtown Cincinnati to a site in Fairfax near U.S. 50, with stops at Boathouse, Columbia/Tusculum, and Fairfax (Red Bank)
- Daily service will commence at 6:00AM and operate until 9:00PM, with departures from each end of the service area every 30 minutes, with peak service between 6:00AM and 9:00AM, noon and 1:00PM and 4:00PM to 7:00PM. Weekend service will commence at 8:00AM and operate until 10:00PM, with departures from each end of the service area every 30 minutes.
- The initial train consist will be comprised of a Stadler GTW 2/6 DMU, consisting of two cars.

5.0 MODELING AND OPERATIONAL ANALYSIS OF THE THREE SERVICE LEVELS

5.1 OPERATING ASSUMPTIONS AND SCHEDULE DEVELOPMENT

HDR developed an initial outline of train service with the following parameters:

- Peak service hours are weekdays from 6:00AM to 9:00AM, noon to 1:00PM, and 4:00PM to 7:00PM.
- Non-peak service hours (30 minute headways) are from 9:00AM to noon, 1:00PM to 4:00PM and 7:00PM to 9:00PM on weekdays and from 8:00AM to 10:00PM on weekends.
- Since the purpose of this analysis is to determine what main track infrastructure is needed to support the busiest operating period, only morning peak service was modeled.
- No modeling of operations within the RTC or Fairfax station was performed. Additional analysis will be required to determine if the station track arrangement can accommodate various headway scenarios, as well as what type of equipment requirements would be needed for each scenario.

Train schedules were developed from RTC with the following time components:

- Pure Running Time (PRT). PRT is the amount of time a type of rail equipment can operate from point A to point B with no interference or delays related to station boarding, mechanical difficulties, weather conditions or interference from other trains. PRT is determined by using the Train Performance Calculator (TPC) function in the RTC model.
- Station Dwell Time: Dwell time is the amount of time programmed into the schedule to entrain and detrain passengers. 60 seconds was used as dwell time for all intermediate stations.
- Recovery Time: Recovery time is extra time added to a schedule to account for typical delays associated with passenger train operation (examples include heavier than normal passenger boarding, passengers requiring assistance, trains slowing for trespassers, etc.) Typically railroads add 9% of total PRT as recovery time, between the second to last and last station stop. 2 minutes was added to the Oasis schedules as recovery time.

Below is a sample schedule developed for the analysis.

RTC	6:00	6:15	6:30	6:45	7:00	7:15	7:30	7:45	8:00	8:15	8:30	8:45	9:00
Columbia	6:13	6:28	6:43	6:58	7:13	7:28	7:43	7:58	8:13	8:28	8:43	8:58	9:13
Red Bank	6:20	6:35	6:50	7:05	7:20	7:35	7:50	8:05	8:20	8:35	8:50	9:05	9:20

Full peak schedules for all three analyses are attached in Appendix A.

5.2 INFRASTRUCTURE

The key infrastructure challenge for this exercise was determining locations for passing tracks to allow for:

- Seamless passing of the two trains in operation, while of a sufficient length to allow for passes when one or both trains are operating slightly off schedule.
- Minimal extra costs related to double tracking over grade crossings, culverts and/or bridges along the right of way.

5.3 MODELING RESULTS AND RECOMMENDATIONS

5.3.1 15-Minute Peak Headways

The model indicated that the infrastructure as currently designed can accommodate trains operating with 15-minute headways with no modifications. The RTC model for this scenario is illustrated in Appendix B.

5.3.2 10-Minute Peak Headways

The model indicated that additional infrastructure is required to accommodate the increase of train frequency from every 15 minutes to every 10 minutes.

- Boathouse siding extension (from .56 miles to 1.33 miles)
- Columbia siding extension (from .22 miles to 1.02 miles)
- New intermediate siding (.75 miles) between Columbia-Tusculum and Fairfax Stations
- Red Bank siding extension (from .2 miles to .74

miles) The RTCM for this scenario is illustrated in Appendix B

5.3.3 5-Minute Peak Headways

The model indicated that further infrastructure improvements are required to accommodate the increase of train frequency from every 10 minutes to every 5 minutes.

- Boathouse to Columbia double tracking extension (to 4.54 miles)
- Red Bank siding extension (from .74 miles to .88 miles)
- New intermediate siding (.5 miles) between Fairfax and Newtown Stations

The RTCM for this scenario is illustrated in Appendix B

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSIONS

Rail Traffic Controller Modeling of the main track capacity of the Oasis Commuter Rail project resulted in the following conclusions:

- 1. The rail infrastructure as currently planned can accommodate 15 minute peak service.
- 2. To provide sufficient capacity to reliably support 10 minute and 5 minute headways, additional track and signal infrastructure will be needed. A summary and comparison of required infrastructure for each scenario is shown in Appendix A
- 3. Positive Train Control (PTC) implementation may affect train turnaround times at the RTC and Fairfax. Currently, the fastest time posted by a railroad (Metrolink, the major commuter service in Southern California) to change operating ends and re-initialize PTC is approximately 15 minutes. Given the nature of DMU vehicles versus the larger locomotives and separate passenger coaches used for the Metrolink service, this could likely be completed more quickly. However, if it is determined that PTC is required for this operation, further analysis will be required to determine if station capacity, as designed, is sufficient, as well as to determine the amount of equipment needed to support the different service scenarios. Given the current progress of PTC implementation nationwide, it is at this point unknown how long such initialization may eventually take.
- 4. The main purpose of this modeling study was to determine what rail infrastructure is needed to support three different service scenarios, as has been described in this report.
- 5. As part of a more comprehensive Oasis Commuter Rail operating plan, the following issues will require further analysis and will be addressed in the next phase of project development:
 - Riverfront Transportation Center storage and platform capacity the platforms as conceptually designed can accommodate a total of four extended-length trainsets within the RTC.
 - Refinement of RTC modeling as Segment 3 and 4 alignments are better-determined
 - Randomization of service models to model delays as a result of vehicle mechanical breakdowns, etc., and their impact on the ability of the infrastructure to maintain the service schedule for other trains.
 - Review of equipment turns
 - Determination of equipment needs for different service levels

APPENDIX A Oasis Map



APPENDIX B RTC Model Screenshots



10-Minute Headways



5-Minute Headways

