

**10 COMMUTER RAIL BENEFITS**

**Introduction:** This chapter develops a preliminary assessment of Ohio Hub’s benefits to possible commuter rail networks for Cleveland, Columbus and Cincinnati. These benefits are, of course, contingent upon a decision to proceed with implementation of commuter rail in each of these three Ohio cities. A common problem for all three cities is that, to increase their productivity, railroads have tended to concentrate freight traffic on fewer main lines. This has created an opportunity for low-cost conversion of some branch lines to commuter or Light-Rail Transit (LRT) use, but there is very heavy rail freight traffic on the main lines through each center city area. This has increased the difficulty of gaining access to the urban core, for providing rail service to an effective downtown passenger station. Consideration needs to be given in each case to providing effective bypasses to the rail freight system.

In terms of defining what commuter rail is, it is important to note that recent development of diesel-powered LRT<sup>80</sup> has blurred the distinction between LRT and commuter rail. The key technical difference is that LRT requires dedicated tracks and can run on city streets, whereas commuter rail shares tracks with freight and intercity passenger rail systems<sup>81</sup>. As shown in Exhibit 10.1, we are defining commuter rail based on usage of FRA-compliant vehicles that share tracks and stations with Ohio Hub intercity trains. A key requirement for commuter rail, therefore, is the need for gaining access to downtown rail tracks for reaching a downtown station. In contrast, LRT systems can run on city streets inside the downtown area, so LRT’s don’t need a major downtown rail terminal.

Exhibit 10.1: FRA Compliant vs. Non-Compliant Rail Vehicles

Colorado Railcar Commuter Rail –Compliant



Diesel LRT –Non-Compliant



The benefits quantification focuses mainly on identification of shared capital costs that occur when commuter and intercity rail are developed concurrently. The main shared cost would be for development of rail access to a downtown passenger station along with the cost of the downtown station itself. The capacity added by Ohio Hub should be sufficient to

<sup>80</sup> NJ Transit’s Camden to Trenton diesel LRT, see: [http://www.lightrailnow.org/news/n\\_nj002.htm](http://www.lightrailnow.org/news/n_nj002.htm); Ottawa’s O-Train, see: [http://www.octranspo.com/train\\_menuue.htm](http://www.octranspo.com/train_menuue.htm); or San Jose’s Sprinter, see: <http://www.gonctd.com/oerail/oerail.html>

<sup>81</sup> See: Appendix C for a discussion of additional differences between LRT and Commuter Rail systems.

accommodate at least peak-hour commuter service<sup>82</sup> in addition to all-day intercity service. This infrastructure “base” provided by Ohio Hub would result in substantial cost savings for adding commuter service.

A key to developing passenger rail in Ohio will be the provision of adequate capacity for freight movement through cities, preferably on separated, dedicated freight lines that bypass the downtown areas if possible. Freight bypasses would protect the capacity needs of the freight railroads, while allowing passenger access to the urban core. Upgraded passenger routes could add substantial capacity particularly for more intermodal trains at night, but the dedicated freight bypasses would protect railroads’ needs for unfettered movement of existing long-haul traffic during the day. If Ohio chooses to proceed with planning for commuter rail additions, it is recommended that the synergies between Ohio Hub and commuter rail projects be examined in more detail in the Programmatic Environmental Impact Statement and the project development process.

This document is organized as follows: first is a detailed analysis of Cleveland’s NeoRail proposal. Next follows a discussion of commuter rail plans for Columbus and Cincinnati, particularly those that could be jointly developed with the proposed Ohio Hub system. After this will come a quantification of the potential commuter rail benefits in each city. Finally, a short conclusion summarizes the key findings of the analysis.

**Potential Ohio Commuter Rail Systems:** Cleveland is the only Ohio city that has a rail transit system today. Cleveland’s system is based on a combination of heavy and light rail transit, but lacks a regional commuter rail component. In 2001, the NeoRail study proposed a Cleveland commuter rail network. This study was conducted at a feasibility level, allowing detailed identification of areas where Ohio Hub’s infrastructure needs overlap those of NeoRail. Capital plans for the two systems were compared, and found substantial synergy between the two networks.

Commuter rail options have been suggested for Columbus and Cincinnati, but the main focus of transit planning in those cities has been on LRT development. Because of this, commuter rail planning in Columbus and Cincinnati has not developed beyond the concept level. As a result, it is not possible to identify specific investment needs that overlap with those of the Ohio Hub. A probable benefit estimate has been developed for Columbus and Cincinnati, based on the results from Cleveland’s NeoRail comparison.

**Cleveland Commuter Rail:** Exhibit 10.2 shows the 2001 Neorail proposal for a Cleveland commuter rail system that consists of six corridors, with two options for the proposed Akron/Canton line. The Lake West (#1 to Lorain) and East (#6 to Mantua) lines were the two recommended for early implementation. They are both branch line corridors. However, Neorail’s need to develop the least expensive routes first created several quandaries –

- A system that focuses only on branch lines leaves major gaps in area coverage. Radial service along mainlines is also needed to complete the system.<sup>83</sup> Equitable service to all areas may be needed to build a regional political consensus for investing in commuter rail.

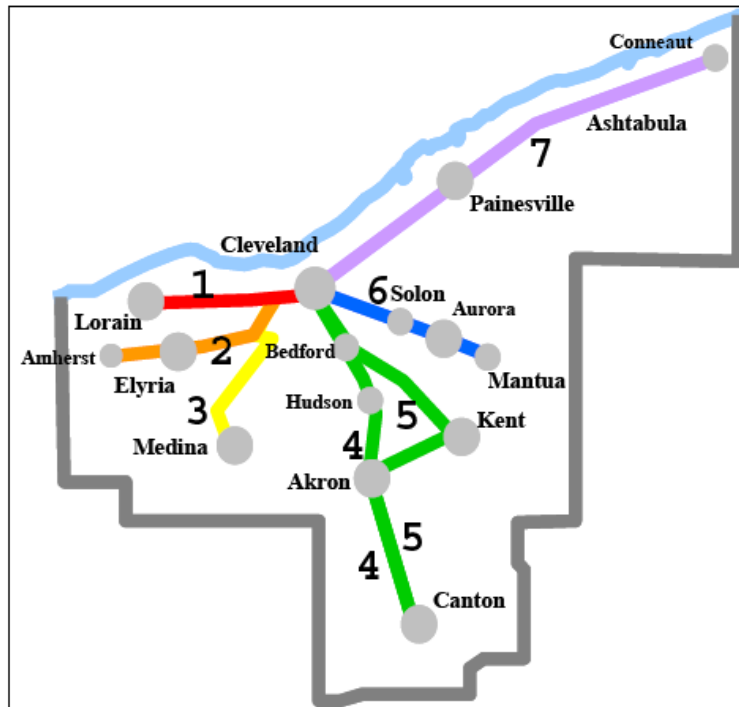
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<sup>82</sup> Three or four commuter trains a day in each direction on each route. Because of the impact it may have on freight operations, an all-day commuter service may require additional capacity mitigation even beyond what the Ohio Hub has envisioned.

<sup>83</sup> For example, some Chicago Metra commuter lines follow lightly used freight corridors – the Heritage Corridor to Joliet, but others, such as BNSF to Aurora and UP to Elburn, follow heavily-used mainlines. Even so, mainline commuter services are among the most heavily used of all of Metra’s routes, so the Metra system would be much less effective without them.

- Even branch line services need access to downtown, which still requires use of some sections of heavily utilized freight track. It is impossible for commuter rail to avoid the costs for downtown station development.
- The reason those two corridors were ranked high is not because their ridership was any better than the others, but was mainly driven by perceived lower cost. Development of the Lake West corridor was opposed by local communities in 2001; alternative main line routes were apparently viewed as too expensive to develop, so the entire NeoRail proposal stalled.<sup>84</sup>

Exhibit 10.2: NeoRail proposal for Cleveland Commuter Rail



While NeoRail initially recommended development of branch lines, Ohio Hub suggests an entirely different strategy. Ohio Hub would develop the high density freight mainlines through Cleveland that cannot avoid the need for capacity mitigation. This completely reverses the planned NeoRail sequencing by developing the main line corridors first, instead of the branch lines as shown in Exhibit 10.3.

<sup>84</sup> However, as freight train volumes along the Lake West corridor have declined in recent years and gasoline prices have increased, it appears that a base of actual support for system development may now be developing. See: <http://www.gcbl.org/transportation/passenger-rail/lorain-to-cleveland-commuter-rail/westlake-public-meeting-for-commuter-train>. Coletta Kubik, co-chair, Concerned Citizens of Vermilion said “her citizens group fought the increase in freight trains in Vermilion. We have 97 trains a day.” But, she added “they want these trains because they are commuter trains.”

Exhibit 10.3: Cleveland – Ohio Hub and Commuter Rail Overlap



As shown in Exhibit 10.3, the Lake West and East corridors are the two that follow branch lines and were suggested for early implementation by the NeoRail study. The other four corridors follow main lines and show a strong synergy with the Ohio Hub –

- *Lake West:* This branch line corridor was recommended along with the East corridor as one of the first two NeoRail routes to be implemented. The route was Norfolk Southern’s mainline, and has signals and high-quality track in place, but as a result of an agreement between NS and local communities, NS diverted most freight trains to the parallel ConRail line via Elyria. Population density along the lake is higher than along the inland route via Elyria, but the lakeshore routing bypasses Hopkins Airport. If local communities would like to have intercity as well as commuter rail service, a few Cleveland-Detroit or Cleveland-Chicago intercity trains could be routed this way.

- *East:* This branch line corridor via Aurora is the western remnant of the former Erie mainline from Warren, OH. Since the Erie has been abandoned east of Aurora, the line sees only light local freight traffic. This route could also provide an alternative for the Ohio Hub Pittsburgh corridor. It is recommended to consider this route in a future Ohio Hub alternatives analysis, since this line would offer a more direct route from Cleveland to Warren, and would also avoid the high cost of adding a track to the Cleveland-Ravenna segment of the Alliance line.

- *West Corridor – Cleveland to Amhurst via Elyria – jointly developed with the Detroit Line:* Although NeoRail scored this route low on cost effectiveness criteria, its forecast ridership would be almost as strong as that of the Lake West corridor, and the corridor has strong local political support. If Ohio Hub were to cover most of the infrastructure cost for capacity improvements, the cost effectiveness score would be greatly improved.

- *Southwest Corridor – Cleveland to Medina – jointly developed with the 3-C Corridor:* A different alignment is proposed here than was suggested by the NeoRail study. The NeoRail study assumes the need for a new rail alignment.<sup>85</sup> However, in conjunction with the 3-C corridor development, there is an easier way to reach Medina. This would be to follow the 3-C corridor west to Grafton, OH where the 3-C crosses a former B&O branch line from Sterling to Lorain. Turning south at Grafton it is about 12 miles to Medina (pop 26,000.) A Medina spur off the 3-C would appear to be a much easier way to reach Medina than the expensive route that was proposed by the NeoRail study. A Medina branch line off the 3-C corridor would probably score well on the cost effectiveness criteria.

- *South Corridor - #4 and #5 – two options to Akron/Canton – jointly developed with the Pittsburgh Line.* Two different route options were evaluated by NeoRail between Cleveland and Akron. Option #4 would use the NS Alliance line from Cleveland to Hudson, whereas Option #5 would use the W&LE from Cleveland to Kent. Option 4 is the one that is shown in Exhibit 10.3, since the Ohio Hub Pittsburgh corridor is currently routed via Hudson.<sup>86</sup>

- *Lake East Corridor – to Painesville – jointly developed with the Buffalo Line.* The NeoRail report notes that there is very little commuter ridership east of Painesville. If Ohio Hub trains serve the longer-distance travel market, the commuter corridor could be truncated at Painesville. Ohio Hub has proposed to add a third track to the entire length of this corridor, so it should be possible to also accommodate a few commuter trains out to Painesville.

To develop any kind of an effective Cleveland commuter system requires uncongested rail access to the urban core. Fortunately it appears that the proposed Ohio Hub capacity improvements are sufficient to accomplish this, since Ohio Hub already includes the cost for adding a third and sections of a fourth track from Berea all the way through downtown Cleveland.

For development of capacity for passenger trains on the Lakefront rail line, the NeoRail plan extensively discussed the need for developing a freight bypass. The NeoRail planners clearly considered development of the NS rail bypass, shown in Exhibit 10.4 as prerequisite to the ability to implement a commuter rail system. Issues associated with development of this alternative route to the Lakefront rail line have been extensively documented by the Cleveland Lakefront Freight Rail Bypass study<sup>87</sup>.

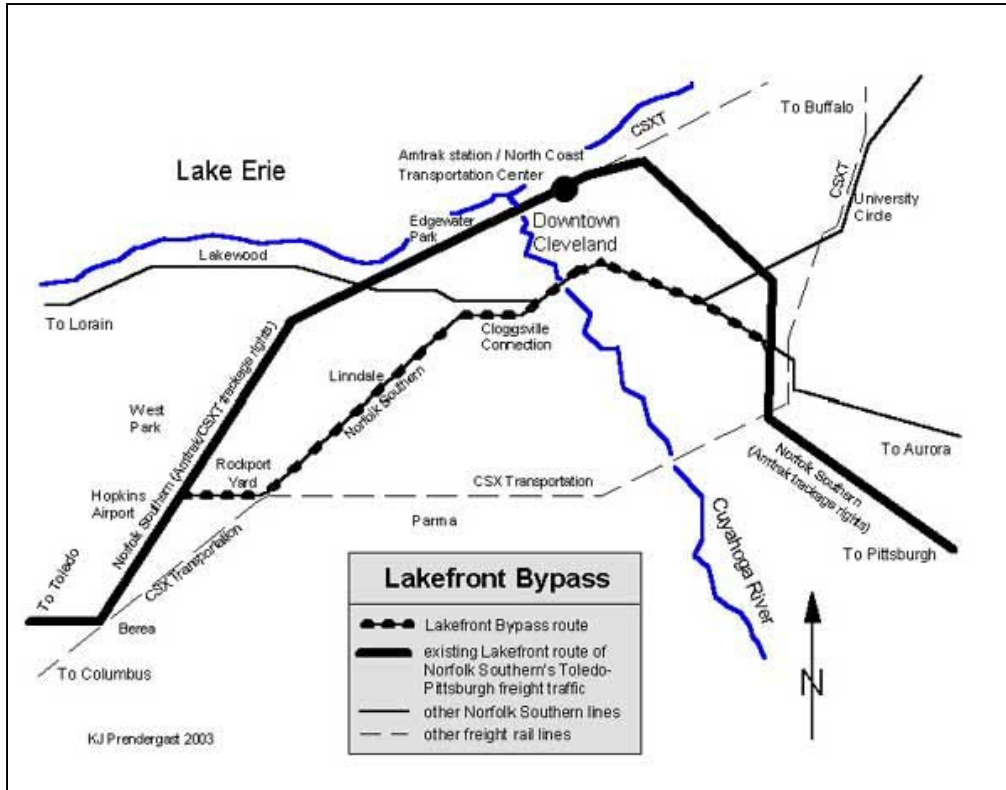
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<sup>85</sup> The former B&O branch line from Sterling to Cleveland does not connect in Cleveland to the Lakefront Transportation Center, so several miles of new track would be built on new right of way to build a connection west of Hopkins Airport.

<sup>86</sup> While the NS is a double tracked line in good condition, it is also very busy with freight and additional capacity would have to be added in order to use it. The W&LE appears to offer a lower cost option from a capacity mitigation point of view, but the tracks would have to be upgraded to permit higher speeds. Interestingly, Ohio Hub does not propose either Option #4 nor #5, but rather a hybrid of the NS and W&LE between Cleveland and Ravenna. The Ohio Hub would use W&LE from Erie Junction to Bedford to bypass the NS Maple Heights intermodal ramp. At Bedford, the Ohio Hub would rejoin the NS Alliance line and add a third track from there to Ravenna. It would seem logical that Neorail and Ohio Hub should use the same route. Another way to add capacity may be to reroute freight via Orrville instead of adding tracks to the Alliance line.

<sup>87</sup> See: [http://www.ecocitycleveland.org/ecologicaldesign/blue/rail\\_bypass\\_study.pdf](http://www.ecocitycleveland.org/ecologicaldesign/blue/rail_bypass_study.pdf).

Exhibit 10.4: Proposed Cleveland Lakefront Bypass



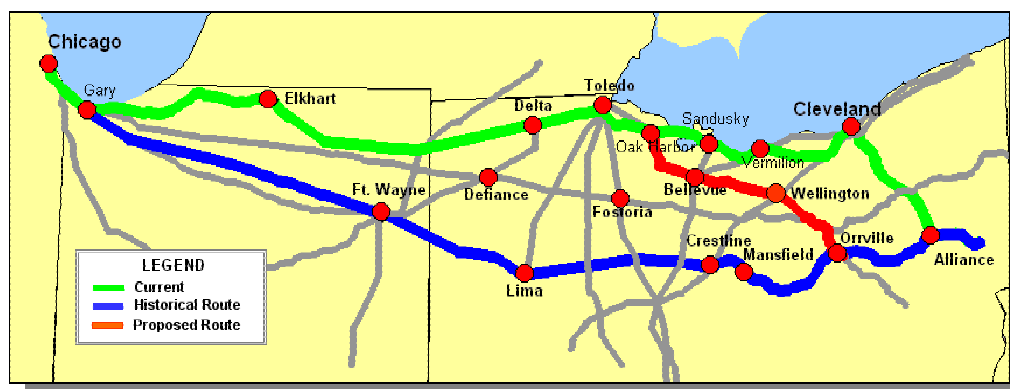
The NeoRail study noted however, that even development of a double-tracked Lakefront bypass may not provide enough capacity to handle all the NS traffic through Cleveland. The reason is that this bypass would have to accommodate all NS traffic from Buffalo *as well as* from Pittsburgh. In addition, NS has already identified the Cleveland to Alliance rail line as a bottleneck<sup>88</sup> even *without* addition of the proposed passenger traffic. The bypass may still not provide enough capacity, necessitating continued use of the lakefront line by NS freights. In addition the single track bottleneck on CSX's Short Line route may necessitate continued use of the lakefront by CSX as well. For this reason the development of additional rail capacity may still be needed.

To meet the long-term capacity need, it is suggested to develop *both* the Lakefront bypass within Cleveland as well as the proposed Orrville reroute, shown in Exhibit 10.5, which could keep many NS through freights completely out of the Cleveland area. Development of *both* bypasses will probably be needed to accommodate both Ohio Hub and commuter trains as well as to handle increasing freight traffic volumes. It is likely that cost of *both* bypasses could be covered simply by reprogramming the capital now planned for adding a third track to the Cleveland to Ravenna segment. The cost for adding capacity to Cleveland to Ravenna *alone* was estimated as \$236 million, which substantially exceeds the \$100 million cost<sup>89</sup> that was projected for the Orrville reroute.

<sup>88</sup> Ohio Freight Bottleneck Study, Cambridge Systematics, 2006.

<sup>89</sup> Quoted from page 16 of the Lakefront Freight Study: "During the debates in the late 1990s surrounding the Conrail acquisition, there were some suggestions that NS traffic through Cleveland could instead use a regional railroad as a bypass. Under this suggestion, NS freight traffic would use the Ft. Wayne Line west of Alliance to Orrville, OH in Wayne County. There, some NS traffic

Exhibit 10.5: Proposed Orrville Bypass to Cleveland



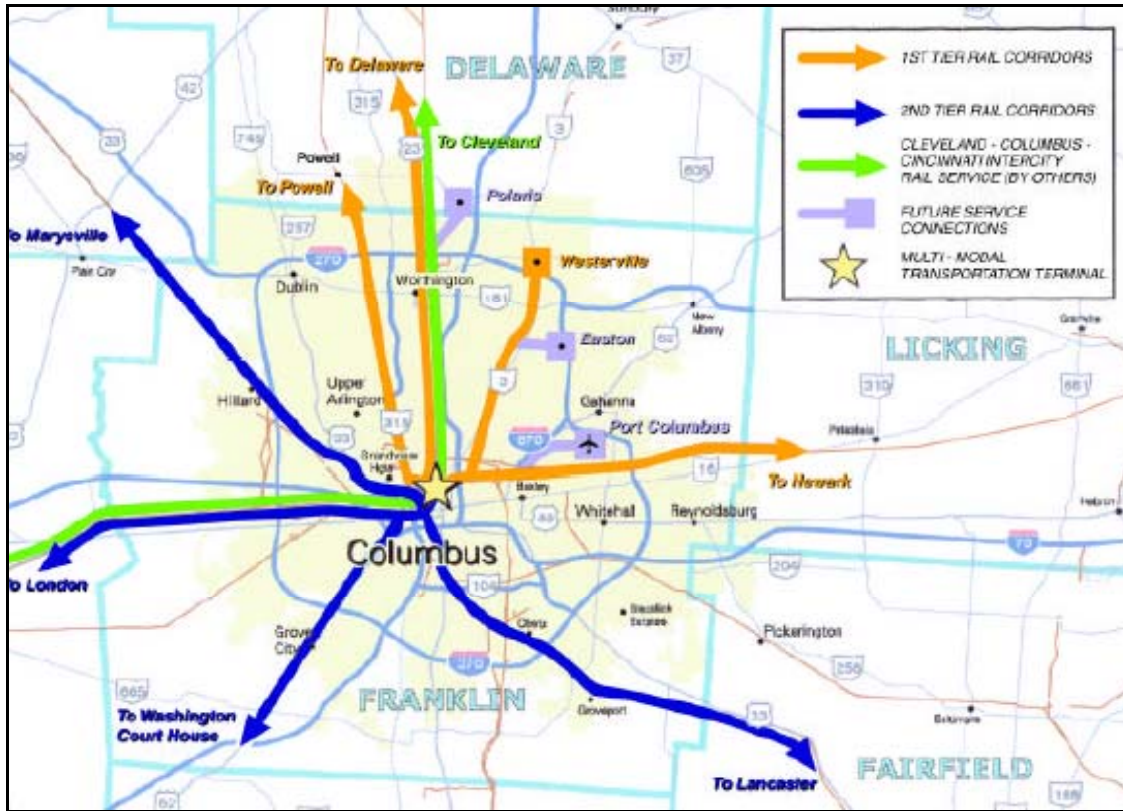
An important byproduct of implementing these two reroutes for NS freights would be to release capacity on the lakefront rail line, both for passenger trains and also for overflow CSX freights. There are two single-tracked tunnels on the CSX Short Line, which will be very expensive to expand. It is because of these tunnels that the Short Line cannot accommodate additional NS freight trains. CSX still relies on trackage rights on the lakefront line to provide surge capacity for the Short Line. It appears that it will be much less expensive to expand the capacity of the two NS alternative routes than it would be to address the tunnel issue on the CSX Short Line. Clearly, the objective is not to completely displace freight trains from the Lakefront rail line, but simply to free up enough capacity to permit both intercity and commuter passenger use during the day while permitting continued freight use at night.

**Columbus Commuter Rail:** Exhibit 10.6 shows the COTA Vision 2020 Rail Corridors from the 2001 Central Ohio Regional Rail Study<sup>90</sup>. A Columbus commuter rail system consisting of up to seven radial rail corridors has been envisioned. As shown in Exhibit 10.7, commuter rail to London/ Springfield; and to Delaware/Marion, OH could be implemented jointly with 3-C corridor development. As well, commuter services to Marysville and to Newark or Zanesville may be implemented in conjunction with the proposed incremental corridors. Finally, three branch line corridors to Washington Court House, Lancaster and to Westerville could share the downtown station that would be developed by Ohio Hub.

could switch over to a regional railroad called the Wheeling & Lake Erie (W&LE) for 70 miles between Orrville and NS's major junction in Bellevue. But this was rejected due to the expense involved in rebuilding the W&LE to mainline standards. Current estimates show that upwards of \$100 million would be needed to rebuild the W&LE and upgrade its Orrville connection with NS.

<sup>90</sup> Central Ohio Regional Rail Study. Final Report. Burgess & Nipple Ltd., DMJM+Harris, Robert L Banks Associates, Raul Bravo Associates. 2001. <http://transportation.morpc.org/freight/RailStudyFinalReport.pdf>

Exhibit 10.6: COTA Vision 2020 Rail Corridors



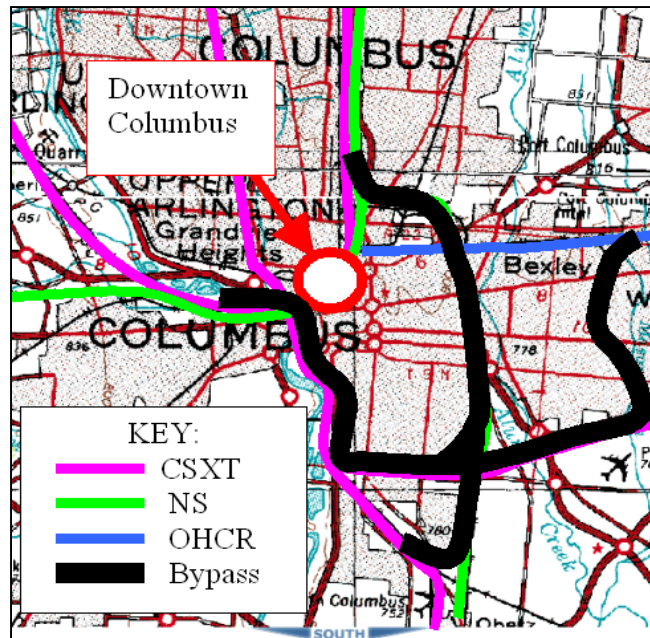
The COTA study did not produce demand forecasts for any of these lines since the primary focus of the 2001 Central Ohio Regional Rail Study was on freeing the North corridor right of way for development of an LRT option. This LRT proposal may actually have become an impediment to the ability to develop the 3-C corridor for intercity passenger rail purposes. However, the proposed Ohio Hub intercity and commuter rail technologies are compatible with one another since they can share the same tracks and stations, and do not need the development of dedicated or separated rights of way.

There is a need to develop an alternative route for providing east-west freight connectivity through Columbus, while eliminating clearance and gradient problems associated with the current route through CP 138. Exhibit 10.8 shows a proposed Columbus freight rail bypass that could be implemented by converting part of the NS West Virginia line into a southern "Belt Line" for freight around downtown Columbus. Another option to break the bottleneck of the east-west Panhandle line crossing the north-south CSX mainline at CP Scioto, CSX freights could be rerouted to use the parallel NS line from Columbus to Marion. The NS corridor swings well to the east of the Columbus CBD and already has a grade-separated crossing over the Panhandle. Doing this would eliminate the need for flyover connections in downtown Columbus, but may require adding considerable capacity to the NS freight line.

Exhibit 10.7: Columbus – Ohio Hub and Commuter Rail Overlap

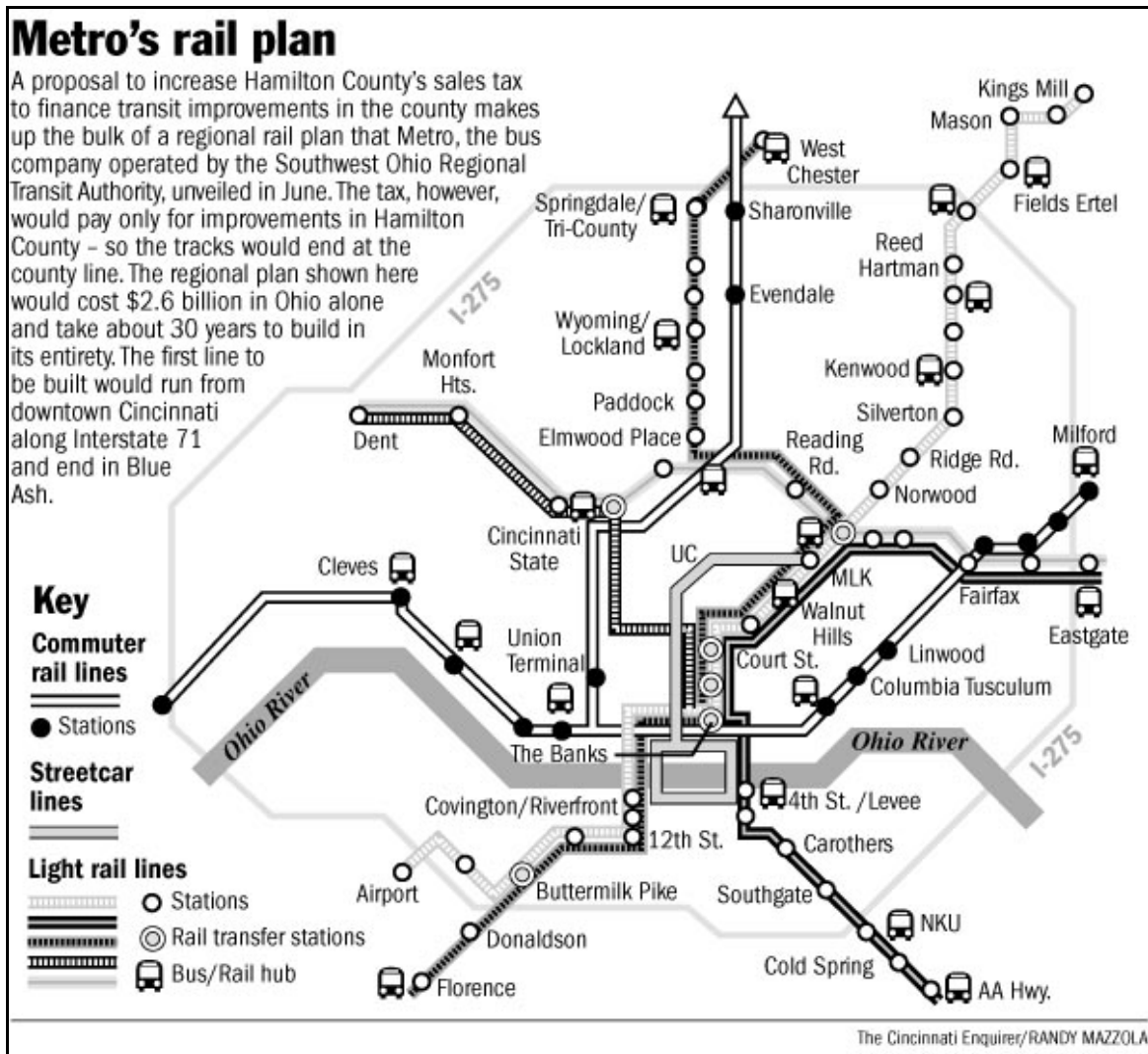


Exhibit 10.8: Proposed Columbus Freight Bypass



**Cincinnati Commuter Rail:** Exhibit 10.9 shows a rail proposal that has been developed for Cincinnati.<sup>91</sup> Many of these lines were proposed to be built using Light Rail technology that may even be capable of operating in Cincinnati’s abandoned downtown tunnels. However, three of the lines to Lawrenceburg, Dayton, and Milford have been suggested as commuter rail routes.<sup>92</sup>

Exhibit 10.9: Proposed Cincinnati Rail System



A Cincinnati to Dayton commuter line would have the most synergy with Ohio Hub. As shown in Exhibit 10.10 this corridor, as currently-proposed, would follow the NS tracks via Sharonville, although the CSX route via Hamilton provides a possible alternative. It appears that a Dayton commuter service could be added for a low cost, since one of the main costs for starting a service would be development of an adequate downtown Cincinnati rail

<sup>91</sup> See: <http://www.cincinnati-transit.net/commuterrail.html>

<sup>92</sup> Planning for Cincinnati’s Eastern Corridor project has been ambiguous since the rail technology to be used was never clearly specified and it did not specifically rule out commuter rail technology, but seemed to be leaning towards an LRT approach.

station. The need for a downtown station is even more critical for short-distance commuters, since access/egress times comprise a greater portion of their trip than for intercity travelers. An effective downtown Cincinnati station location for both commuter and intercity rail would be within walking distance ( $\frac{1}{4}$  mile) of key trip generators –

- Philadelphia built a four-track commuter rail tunnel through its Center City in order to offer a choice of downtown rail stations and provide effective coverage of the entire CBD.
- New York is building a rail line from Long Island directly into Grand Central Terminal to bring Long Island commuters to the heart of the Grand Central district, and avoid the need for using the subway or taxi from Penn Station.
- Even though San Francisco's current CalTrain terminus is linked to the center city by both MUNI light rail and BART heavy rail lines, the situation is still viewed as suboptimal to the extent that the city is advancing a \$1.5 billion project to extend CalTrain directly into a new Transbay terminal<sup>93</sup> downtown station.

Exhibit 10.10: Cincinnati - Ohio Hub and Commuter Rail Overlap

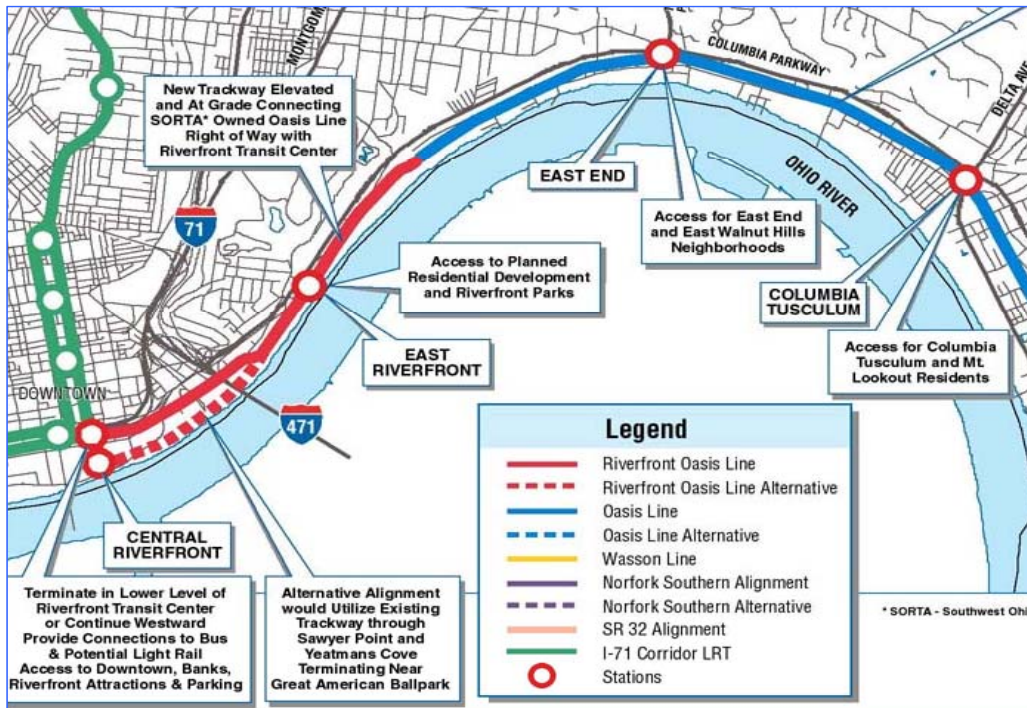


<sup>93</sup> See: <http://sfcityscape.com/transit/transbay.html>

The experience of these major cities shows the critical importance of developing large, attractive, centrally located downtown rail stations if proposed intercity and commuter rail services are to succeed. If stations are located too far away from the major trip generating areas or if they rely on an inconvenient, slow, expensive or infrequent access, potential riders still have the option to simply drive their own cars directly to their destination.

A second route, the proposed “Eastern” corridor to Milford, is shown as a commuter line in Exhibit 10.11. However, the characteristics of the proposed service suggest that an LRT is more likely envisioned than commuter for development of the corridor. If commuter rail technologies are used, then a key challenge for the Eastern corridor will be gaining access to a downtown rail station. Exhibits 10.12-10.13 show two alternatives that are currently under consideration. It has been suggested to terminate the Eastern corridor in the Cincinnati Transit Center, but if LRT were selected, the existing track in the Central Riverfront Park might be used.

Exhibit 10.11: Cincinnati Rail Eastern Corridor – Access to Downtown Station



The downtown Cincinnati NS “Oasis” freight rail line, shown in Exhibit 10.11, was recently closed through the riverfront park. This shows an extreme example of the environmental conflict that freight rail operations can pose in urban areas. Ohio Hub has not proposed to reopen this line for either freight or passenger service, but identified either the nearby Crossett or Transit Center sites (see Exhibit 10.12) as the preferred locations for its downtown Cincinnati passenger rail station. These are the station locations that would produce the highest Ohio Hub ridership and the greatest economic benefit to Cincinnati. Freight trains would not operate into the Transit Center site under the Ohio Hub proposal.

If the Eastern corridor were developed using LRT, it could not share tracks with intercity passenger trains. However, if the corridor were developed using FRA-compliant technology, such as the Colorado Railcar DMU (see Exhibit 10.1) – then Ohio Hub could share the tracks as well as stations with the proposed commuter service.

A Lawrenceburg commuter service could be developed in conjunction with the proposed MWRRS Cincinnati route via Shelbyville. This line however, may prove difficult to implement because of the light population density along the corridor, as well as the need for interstate cooperation to develop it.

Exhibit 10.12: Downtown Cincinnati Riverfront Rail Line that has been closed

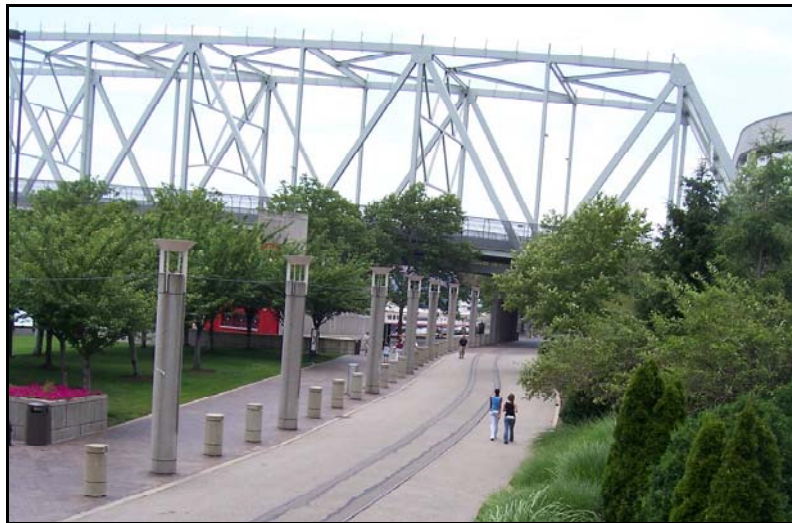


Exhibit 10.13: Cincinnati Downtown Transit Center Site



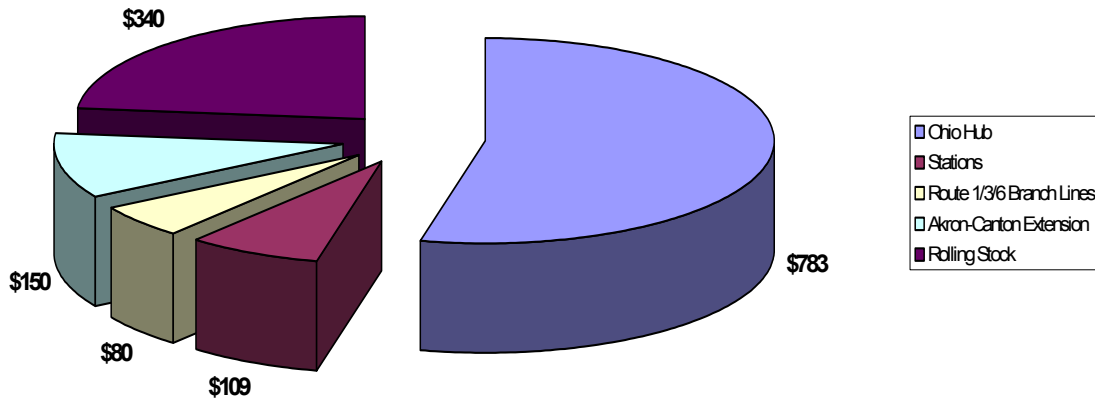
**Cost Savings for Commuter Rail Development:** The Ohio Hub system would provide main line capacity mitigation and downtown station development, that would also support implementation of new commuter services. As Cleveland’s NeoRail study showed, commuter rail corridors are easiest to develop on lightly-used freight branch lines, but developing *only* the branch lines would leave substantial gaps in the area coverage of the rail commuter networks. However, with the Ohio Hub, comprehensive commuter rail networks can be developed for both Cleveland and Columbus, and a Dayton to Cincinnati service can also be implemented.

It is important to note that the local match for the Ohio Hub investment would be provided using State dollars rather than local funds. This would make the development of commuter rail much more affordable to the local entities, who would be responsible only for commuter train stations, rolling stock, and branch line extensions.

A detailed assessment of the common capital costs for the Cleveland NeoRail system will be developed. Then additional benefits will be inferred for Columbus and Cincinnati based on the results for the Cleveland lines.

**Cleveland Savings – NeoRail with Ohio Hub:** To see the potential extent of the synergy between the proposed State and Local investments, Exhibit 10.14 develops a breakdown of costs for a fully built-out six-route Cleveland commuter system. The NeoRail study cited a capital cost in the range of \$1.4 billion. However, as shown in Exhibit 10.14, Ohio Hub would cover \$783 million, 71% of NeoRail’s infrastructure cost or 53% of the total cost, by providing urban access, track capacity improvements, grade crossing and signal improvements. The cost of the NeoRail system would be cut by more than half, from \$1.4 billion down to \$679 million.

Exhibit 10.14: Breakdown of Cleveland’s NeoRail vs Ohio Hub Shared Costs



Since the local match for Ohio Hub would be provided by Ohio, the intercity rail investment would dramatically reduce the cost burden on local taxpayers for developing a commuter rail system. NeoRail would need only to fund the cost of commuter stations, its own trains, plus the cost of branch line extensions, as follows –

- Commuter station costs, \$109 million;
- The Akron to Canton extension, \$150 million, since the most expensive part of developing the Cleveland to Akron route would be funded by the Ohio Hub;
- Route 1 the Lorain line west of Alcott Connection, Route 3 spur from Grafton to Medina, and Route 6 the Aurora line east of Erie Crossing, \$80 million;
- Equipment cost, \$340 million.

**Additional Cost Savings – Columbus and Cincinnati:** The cost synergies for Columbus and Cincinnati were conservatively estimated at \$100 million per corridor.

- *For Columbus*, Ohio Hub investment would provide a downtown rail station and track capacity upgrades for two out of the seven suggested commuter routes. An additional two commuter routes would be brought on line by the Ohio Hub incremental corridors, while the remaining three commuter lines would use light density branch lines. 3-C development would support both Springfield-Columbus and Delaware-Columbus commuter service, reducing the cost by \$200 million.

- *For Cincinnati*, the value of the track, capacity and signal upgrades that would be shared by a Dayton-Cincinnati service amount to at least another \$100 million.

**Cost Savings by Ohio Hub Corridor:** This section identifies synergies as they relate to development of specific Ohio Hub corridors. As shown in Exhibit 10.15, a total of \$1.083 billion of estimated commuter rail cost sharing opportunities are associated with the Ohio Hub system.

- Overall, it can be seen that Toledo line capacity mitigation adds the most value, \$448 million, because of the high cost for adding capacity all the way from Elyria through Berea to downtown Cleveland.<sup>94</sup>

- The 3-C corridor comes next with \$392 million in shared cost because it contributes to development of commuter rail in three cities.<sup>95</sup>

- The Pittsburgh line would add a third track to the NS corridor via Ravenna that could be shared with the proposed Akron/Canton commuter service. The savings is approximately \$132 million.<sup>96</sup>

- Finally, System and Buffalo line infrastructure would add \$67 million for a downtown station, and \$44 million for adding commuter service to Painesville.

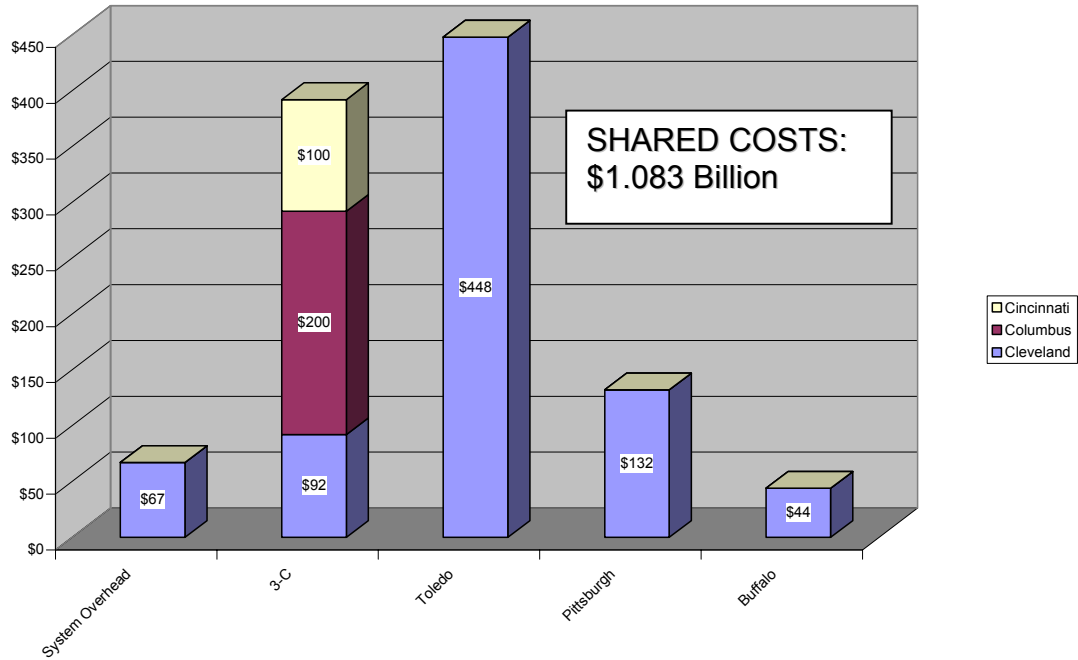
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<sup>94</sup> The cost of Berea to downtown Cleveland is shown as part of the Detroit line in this chart. Some of these funds may be reprogrammed towards the cost of the downtown Cleveland freight bypass.

<sup>95</sup> Costs saving on the NeoRail Medina service would be about \$92 million. This assumes that Medina service would use the 3-C as far as Grafton, where it could turn south to Medina on the CSX Lorain branch line. There are \$200 million in savings for the two Columbus commuter lines that would operate on the 3-C corridor, and \$100 million for Dayton-Cincinnati commuter service.

<sup>96</sup> Based on avoiding Neorail's proposed capacity investment in this corridor. The Ohio Hub plan is substantially more expensive than NeoRail's. Because the Alliance line from Cleveland to Ravenna was never triple-tracked before, adding a third track would require extensive grading and bridgework. Some parts of this expense might be avoided or reduced by using the parallel W&LE alignment instead. However, staying on the W&LE from Bedford to Earlville might be less expensive than adding a third track to the Alliance line between these points. The Orrville freight reroute might eliminate the need for this triple tracking project.

Exhibit 10.15: Commuter Rail Cost Sharing by Corridor



**Ohio Corridors Performance:** The 2001 NeoRail study did not present a clear finding, but it has been said that “commuter rail was deemed marginal, and that the Lorain-Cleveland and Aurora-Cleveland routes were deemed the best of the marginal routes.”<sup>97</sup> Cost benefit ratios have not been published for NeoRail or other Ohio commuter rail systems. However, given the high cost of freight capacity improvements and the aforementioned statement, these ratios are probably “marginally positive” somewhere between 1.0 and 1.5. While this would be just high enough to justify investment, realistically it is not strong enough in the highly competitive Federal transit funding process to have much of a chance for attracting Federal new-starts capital.

However, much of Ohio’s added cost for freight capacity mitigation is because of long-distance freight traffic that is simply passing through Ohio on its way from Chicago to the east coast. As a result of its key location on the national rail network, Ohio’s ability to fully develop its own transit systems has been reduced. Future studies should recognize the national significance and benefits associated with developing new freight routes through and around Ohio’s urban areas. Therefore, a strong case exists that the added costs for freight capacity mitigation should be considered as a national investment rather than as an Ohio investment.

As shown below, the “marginality” of NeoRail is not because Ohio transit markets are any weaker than those in other cities. Table 4.2.2 from the NeoRail report (See Exhibit 10.16) shows that performance of the Cleveland routes would be comparable with those of other cities that already have commuter rail service.

<sup>97</sup> Quote from Howard Maier, Executive Director, Northeast Ohio Areawide Coordinating Agency at the July 19, 2006 meeting, see: <http://www.gcbl.org/transportation/passenger-rail/lorain-to-cleveland-commuter-rail/westlake-public-meeting-for-commuter-train>

Exhibit 10.16: Comparative Daily Ridership – NeoRail vs Other Systems

City/Region	Route	Route Miles	Stations	Daily Trains	Daily Trips	Riders/Mile
NEORail	Route 1 – Lorain	27	7	24	3,620	134
NEORail	Route 2 – Elyria	32	7	24	3,070	96
NEORail	Route 3 – Medina	33	7	24	2,540	77
NEORail	Route 4 – Canton-Akron-Cleve.	62	18	24	5,600	90
NEORail	Route 5 – Canton-Akron-Cleve.	70	18	24	5,120	73
NEORail	Route 6 – Solon-Aurora	31	9	24	4,020	130
NEORail	Route 7 – Painesville	67	13	24	3,260	49
Dallas-Ft.Worth, TX	Trinity Railway Express	14	4	54	4,900*	350
Miami-Palm Bch., FL	Tri-Rail	71	18	28	9,300	131
New Haven, CT	Shore Line East	33	9	16	1,200	36
Washington, DC	VRE-Manassas	35	10	18	4,700	134
Washington, DC	VRE-Fredericksburg	53	12	12	5,600	106
Washington, DC	MARC Camden (Baltimore)	37	12	11	3,200	86
Washington, DC	MARC Brunswick	73	17	16	5,000	68
San Diego, CA	Coaster: S.D.-Oceanside	42	8	22	4,500	107
Los Angeles, CA	MetroLink-Ventura	66	11	30	3,700	56
Los Angeles, CA	MetroLink-Antelope Valley	77	9	22	5,000	65
Los Angeles, C	MetroLink-San Bernardino	56	13	28	9,700	173
Los Angeles, CA	MetroLink-Riverside	59	6	12	4,600	78
Los Angeles, CA	MetroLink-Orange County	87	19	19	6,000	69
Los Angeles, CA	MetroLink-Inland Empire	71	9	15	2,900	41
San Jose, CA	Altamont Commuter Express	86	9	6	4,400	51
Seattle, WA	Souder	40	7	4	1,800*	45

As a result, it can be seen that the problem in Ohio is not with demand, rather, it is that heavy freight traffic increases the cost of freight capacity mitigation for commuter rail. A recent LRT study for Cincinnati developed strong Cost Benefit ratios of 2.0 and ranked LRT as the best-performing option (see Exhibit 10.17).<sup>98</sup> Again, this shows the need for improved transit for Ohio cities. As many previous studies have shown, Ohioans will ride modern and comfortable trains. The challenge for commuter rail, as well as for the Ohio Hub, is simply the need to provide enough rail capacity mitigation so that Ohio can continue in its current role as an east-west bridge in the national freight rail network.

**Economic Impact Assessment:** If current Ohio commuter rail proposals are at least *marginally* viable, then these systems would become *strongly* viable if developed with the Ohio Hub. Based on a very conservative assumption that Cleveland’s NeoRail would have a 1.0 Cost/Benefit ratio as a \$1.4 billion system, then as a \$679 million system (developed along with Ohio Hub) its Cost/Benefit ratio would be better than 2.0. Ohio Hub would provide most of the capital needed to implement four out of the six planned Cleveland commuter routes, and it would contribute the downtown station and rail access needed for the remaining two routes.

The economic assessment for developing Cleveland commuter service assumes that Ohio Hub would cover slightly more than half the cost for developing a six-route commuter rail system in Cleveland. Two of the NeoRail routes, to Elyria and Painesville, would basically be provided by Ohio Hub; the other four routes would require additional branch line construction to complete. The Cost and Benefit estimate for Cleveland assumes that the entire NeoRail program goes forward in conjunction with the Ohio Hub investment.

<sup>98</sup> See: <http://www.oki.org/pdf/nsappendixi.pdf>

Exhibit 10.17: Cincinnati North/South Corridor Cost-Benefits

	<b>Total Economic Cost</b> (In millions of \$2003)	<b>Total Economic Benefits</b> (In millions of \$2003)	<b>Net Economic Benefits</b> (Benefits minus costs, in millions of \$2003)	<b>RANK</b> (Rank order of contribution to regional economic welfare)
<b>Alternative 1 -</b> Four-Lane Continuity	\$616.7	\$699.9	\$83.2	4
<b>Alternative 2 -</b> Four-Lane Continuity plus HOV	\$605.6	\$439.2	(167.3)*	5
<b>Alternative 3 -</b> Light Rail Transit (LRT)	\$1,087.9	\$1,999.4	\$911.4	1
<b>Alternative 4 -</b> Peak Period Truck Restriction	\$65.0	\$385.5	\$320.5	3
<b>Alternative 5 -</b> Combined Four-Lane Continuity and Light Rail Transit (LRT)	\$1,704.6	\$2,428.3	\$723.6	2

\*Note: Parentheses denote negative numbers

Similarly, in Columbus, the Ohio Hub system would provide most of the capital needed for two commuter lines and Ohio Hub would contribute the downtown station and rail access needed for the remaining routes<sup>99</sup>. In Cincinnati, Ohio Hub would provide most of the rail facilities needed to launch a commuter rail service from Dayton.

The economic assessment for Columbus and Cincinnati assumes that Ohio Hub will cover about 2/3 of the cost for developing the two Columbus routes along the 3-C corridors, as well as Cincinnati to Dayton service. Commuter routes along the Ohio Hub corridors would be extremely cost-effective, given provision of nearly all the basic rail facilities by Ohio Hub. The economic benefit of adding Columbus and Cincinnati commuter rail to the 3-C corridor has been estimated at approximately \$233 million per route<sup>100</sup>. These estimates of both cost and benefits for commuter rail are very preliminary and need to be refined in future studies. Overall, the economic value of commuter rail development in conjunction with Ohio Hub can be expected to lie within +/- 50% of the estimates shown in Exhibit 10.18.

<sup>99</sup> The proposed Ohio Hub "Incremental Corridors" would add two more lines to Newark and Marysville, leaving only three branch lines to be developed locally. The Cost Benefit ratio in Exhibit 10.18, however, is based only on the two commuter lines that could be co-developed along with the 3-C corridor.

<sup>100</sup> This is consistent with the average cost of the NeoRail routes based on a very conservative assumption that NeoRail's Cost Benefit ratios are close to 1.0.

Exhibit 10.18: Ohio Commuter Rail Cost-Benefits in Conjunction with Ohio Hub

City	Incremental Benefit* (\$ ml)	Incremental Cost** (\$ ml)	Incremental Cost Benefit Ratio
Cleveland	\$1,400	\$679	2.06
Columbus	\$466	\$100	4.66
Cincinnati	\$233	\$50	4.66
<b>TOTAL</b>	<b>\$2,099</b>	<b>\$829</b>	<b>2.53</b>

\* Benefits estimate of \$2.1 billion is based on a Cost Benefit ratio of 1.0 for the original NeoRail proposal. It would be \$3.2 Billion if the Cost Benefit were 1.5.

\*\* This is the true cost for building Commuter Rail, excluding freight rail capacity mitigation costs that would be covered by Ohio Hub.

The direct capital cost savings to Commuter Rail has been conservatively estimated as \$1.083 billion. This assessment is conservative because it probably underestimates the value of the 3-C corridor improvements to both Columbus and Cincinnati. Ohio Hub’s contribution may make the difference as to whether these commuter rail investments are deemed affordable or not. However, once the Ohio Hub has been built, the incremental investment needed to add a commuter rail component clearly returns a strong positive cost benefit ratio.

The overall public benefit associated with Cleveland’s NeoRail commuter system plus the 3-C commuter lines in Columbus and Cincinnati has been estimated between \$2 and \$3 billion, corresponding to a Cost Benefit ratio (for standalone commuter systems) lying in the probable range of 1.0 to 1.5. Since Ohio Hub would contribute between half and 2/3 of the capital requirement for constructing the commuter rail systems, the economic value of Ohio Hub’s contribution to commuter rail would fall in the range of \$1 to \$2 billion.

**Conclusions and Recommendations:** The transit ridership work that has been previously performed in both Cleveland and Cincinnati has shown that commuter and light rail routes in Ohio cities can perform at least as well as similar routes in other states. If any problems for implementing commuter rail have been suggested, they have related to main line track capacity concerns, which the Ohio Hub investment would largely mitigate. Therefore, there is a definite opportunity to advance commuter rail initiatives in Cleveland, Columbus and Cincinnati once Ohio makes the commitment to proceed with implementation of a statewide commuter rail system.

There is definite synergy not only from a cost perspective but also a ridership perspective for joint development of intercity and commuter rail. Experience in other cities suggest that if the two systems are developed together, ridership of both will be increased, not only because of direct connecting ridership but also because of the overall higher public visibility of the rail transit mode. A person who is accustomed to taking a train to work on a daily basis is more likely to consider rail also as an intercity travel option.

For progressing commuter rail initiatives in Ohio, it should be noted that the Ohio Hub itself can accommodate some commuter travel on certain of its trains and routes, just as Amtrak today accommodates commuters and offers multi-ride ticket plans on many of its routes. We suggest that this could be an excellent place to start since, for example, commuter

riders from Dayton to Cincinnati, Elyria to Cleveland, and Youngstown to Cleveland are all accommodated within the basic Ohio Hub system. The proposed incremental corridors would add even more options, for example adding service on the Panhandle from Newark to Columbus, which could even be extended east as an intercity service to Zanesville as well.

It is recommended that the Ohio Hub intercity corridors be progressed first, since all the Ohio Hub corridors at 110-mph are able to cover their own direct operating costs and make a contribution towards capital, and the economic business case that supports making the Ohio Hub investment is better defined than for the commuter lines. Ohio could directly implement some of the commuter corridors using the FRA rather than the FTA funding process. Afterwards, the incremental costs for adding those lines that remain would be drastically reduced by the prior Ohio Hub investment, which would increase the odds for obtaining a favorable FTA funding recommendation.