



Questions Regarding Northwest Rail and the Proposed Hybrid Option

March 20, 2012

Question	Question	Answer
1	My understanding is that the staff recommended option includes DMU for the entire rail segment. Is there a capital cost savings, including capitalized operating cost, between the two? If so, what is it?	The Northwest Electrified Segment (NWES) from DUS to 72 nd /Lowell will begin revenue service in 2016. RTD will not have the infrastructure in place to maintain DMUs before 2022. For this reason, the electrification is still anticipated 2016-2022 for operation, and the savings from deleting electrification are minimal.
2	What is the revised overall capital cost estimate for the FasTracks plan if the staff recommended option is adopted?	The revised overall capital cost of the FasTracks plan with the staff recommendation is \$7.4 billion through 2022 opening day.
3	Assuming the BRT is built AND the CRT is eventually extended to Longmont, does this not represent an investment greater than the original FasTracks plan contemplated? How much more?	<p>In terms of what would be funded under a new sales and use tax, the staff recommendation for this corridor is approximately \$400 M (YOE) less than Option 1 (which assumes no BRT and the Northwest Rail Line being completed to Longmont by 2024).</p> <p>Funding for the Northwest Rail Line from Church Ranch to Longmont will be provided from the original 0.4% sales and use tax. Funding is anticipated to be available to initiate construction and begin revenue service during the period of 2028–2034.</p> <p>The combined cost of BRT and the Northwest Rail Line to Longmont would increase the long-term investment in this corridor by approximately \$700 million in base year dollars as compared to Option 1. Total cost in YOE will depend on timing of construction. Building BRT provides an immediate relief to the corridor and could provide long term benefit to taxpayers in the Northwest Corridor.</p>
4	<i>If there is a successful 2012 FasTracks tax increase, what is the schedule for completing an EIS that will determine the design for the proposed BRT system?</i>	Our schedule assumes that the environmental clearance process would begin in the 1 st quarter of 2013 and be complete by the 2 nd quarter of 2016.

5	<p><i>If there is a successful 2012 FasTracks tax increase, what long-term commitments are planned for the BRT system and is it expected that this system will spur Transit Oriented Development (TOD)?</i></p>	<p>A fundamental BRT planning principle is that all proposed BRT stations would be permanent and have rail station-like characteristics.</p> <p>There are a number of factors that will influence the success of transit oriented development around BRT (see Attachment #1).</p> <p><u>Non-transit Factors (factors that must be present regardless of transit) include:</u></p> <ul style="list-style-type: none"> • Real estate fundamentals must be present– the location where the station is must be conducive to real estate development with or without any kind of transit. Simply putting in a transit station will not create a market for TOD. • Status of the real estate market – the local and regional market conditions will play a big role in the timing of TOD development and type of TOD development (Commercial or Residential). • Local jurisdiction support for TOD – the implementation of TOD will be driven by local jurisdictions support through TOD adopted plans and zoning and incentives for TOD development [Tax Increment Financing (TIF), accelerated development approvals and other mechanisms]. <p><u>Transit factors (Factors that will influence the success of TOD around BRT and commuter rail) include:</u></p> <ul style="list-style-type: none"> • Permanency of Facilities (for BRT) – Developers will be more likely to develop around BRT stations that are have significant investment/amenities and are along a dedicated guideway. • Frequency/quality of transit service – TOD Developers and their tenants will be more responsive to BRT if the service is frequent (15 min frequency or greater) and reliable so that it takes minimal effort to use it. • Pedestrian Friendly Design – encouraging pedestrian friendly districts and stations will serve to increase ridership and the success of development around BRT stations.
6	<p><i>If there is a successful 2012 FasTracks tax increase, what is the incremental cost of commuter rail service between Westminster and Boulder on the Burlington-Northern line?</i></p>	<p>The BNSF has expressed a willingness to work with RTD to explore potential segmenting options for NWR. Currently, RTD is holding discussions with BNSF to determine potential costs for an extension to Church Ranch. Once RTD has an understanding of the affordability of preliminary costs from the BNSF for the Church Ranch extension, RTD will have the opportunity to request additional evaluation and modeling by the BNSF for subsequent segments of Northwest Rail. The timing and costs of additional segments, if any, short of full build out of the corridor, would be dependent on when funding for additional segments is available.</p>

7	<i>In the absence of a future FasTracks sales tax increase, what is the fallback investment plan for the FasTracks system?</i>	In this event, the current FasTracks plan, established in the 2004 vote and refined per planning, environmental, and engineering work since, would remain in place. Last year's APE projected a completion date of 2042, RTD staff is reanalyzing the projected date based on this year's APE cost and revenue projections.
8	<i>In the absence of a future FasTracks sales tax increase, what are the plans for securing the additional resources that are necessary to complete the HOV lanes between Interlocken and Table Mesa?</i>	<p>RTD's remaining FasTracks funding commitment to the US 36 BRT Phase II would remain in place, however the timing of the availability of funds would be subject to the current fiscal constraints of the FasTracks program, would not likely be available in the near term, and would be subject to future Board decisions regarding the allocation of FasTracks funds.</p> <p>On February 21st, the Colorado High Performance Transportation Enterprise (HPTE) released a Request for Qualifications (RFQ) for the US36 Phase 2 Managed Lanes Project to solicit bids to complete the lanes to Table Mesa. The successful bidder is expected to design, build and finance Phase 2 of US 36 and operate and maintain the managed lanes in the complete US 36 corridor and I-25 Express Lanes. The Design, Build, Finance, Operate and Maintain (DBFOM) agreement will be structured as a toll concession and is expected to have a term of 50 years. The successful bidder may also have the option to design, build, finance, operate and maintain an extension of approximately 6 miles of managed lanes in the I-25 Corridor.</p>
9	<i>In the absence of a future FasTracks sales tax increase, what service commitments will RTD make to BRT service between Boulder and Denver (including bus route frequency, pre-payment systems, real-time information and other rail-like amenities) and on what time-frame?</i>	The US 36 Environmental Impact Statement (EIS) sets out the planned service levels and other BRT features. Service levels would be subject to funding availability and service standards. Regarding other amenities, note that RTD's remaining FasTracks funding commitment to the US 36 BRT Phase II would remain in place, however the timing of the availability of funds for such amenities would be subject to the current fiscal constraints of the FasTracks program, would not likely be available in the near term, and would be subject to future Board decisions regarding the allocation of FasTracks funds.
10	What is the comparison between the price that Burlington-Northern is charging for RTD's use of its railroad ROW and the price that other similarly situated transit agencies have paid other railroads for this same type of ROW access (i.e. specific time slots)?	The cost that the BNSF provided to RTD is similar to that for Sound Transit in Seattle. Martin Young, operations manager for Sounder Commuter Rail, provided details of these costs where a slot (one-way train) was \$50 million.

11	What comparisons are available for the infrastructure costs that Burlington-Northern is requiring RTD to bear and the infrastructure investment costs that other similarly situated transit agencies have paid for ROW access on railroad-owned tracks?	Please see answer above.
12	Why did it take so long to get estimate from BSNF?	RTD began negotiations with BNSF in 2005 following the 2004 FasTracks election. BNSF cooperated with RTD in developing relocation plans and evaluating and pricing right of way transfers for the Gold, Northwest Electrified Segment, part of the West Corridor, and the environmental evaluation for the entire Northwest Corridor. In 2009 and 2010 efforts focused largely on corridors that were proceeding immediately with construction. RTD began negotiations in earnest with the BNSF for the Northwest Rail with the signing of the Planning Support Agreement in February 2011. The BNSF was able to respond to RTD with a proposed cost for the remainder of the Northwest Rail in October 2011, a very quick turnaround considering the production of 30% design drawings, rail simulation modeling, and financial analyses needed for the estimate.
13	Why didn't we ask BNSF about segmentation?	RTD had always committed to completing the entire Northwest Rail corridor and had focused on phasing levels of operations. When it became apparent that all levels of operations would likely require significant capital improvements to the corridor, RTD along with stakeholders began discussions about phasing portions of the construction as well as operating implementation. However, absent significant FasTracks cash flow challenges, RTD would have preferred to build the project outright rather than in phases.
14	What is the cost differential to go to DRCOG with multiple plans?	RTD generally commits \$125,000 per year to DRCOG for review of RTD's capital cost estimates and financial plan. Given that much of the financial information will be consistent across multiple plans (e.g., sales and use tax forecasts, annual escalation assumptions, etc.) staff assumes that it would cost significantly less than \$125,000 to review an additional plan. However, based on feedback from Steve Rudy of the DRCOG during the most recent Metro Mayors Task Force meeting, it became apparent that proceeding with multiple options as part of the SB-208 process would only allow a two-week delay in our decision-making process if we are to maintain our June deadline for SB-208 approval. Additionally, RTD Staff is concerned about the perceived lack of decisiveness on the part of the agency in submitting two different plans to DRCOG. We feel that we would be sending two different messages to both DRCOG and the region.

15	What is the difference between voting for BRT with no EIS and voting for rail with EIS as we did in 2004?	In the 2004 FasTracks election RTD had not completed environmental analyses for any of the FasTracks corridors. If an election is held in 2012, RTD would be required to perform some type of environmental analysis – likely an Environmental Impact Statement (EIS) to determine the exact nature of the BRT improvements. This is very similar to the situation RTD faced in 2004 for the rest of the FasTracks program.
16	What is ridership in the reverse commute?	At this time, we do not have a refined, calibrated, and validated model that would provide ridership estimates in the reverse commute direction. We do know in Denver and nationally that an increasing proportion of PM peak period trips are <i>non-commute</i> trips, and this points toward the reverse commute direction being increasingly significant over time. Anecdotally, it is apparent from field observation that a significant number of travelers are headed <i>toward</i> Denver from all directions in the PM peak hour.
17	It is my understanding the NEW tax will not be used to fund the NW Rail beyond Church Ranch, that segment will be funded from the old 0.4%.	Correct
18	The NW Rail segment from 72nd to Church Ranch AND the NEW BRT will be funded by the NEW tax?	Correct
19	How are the extensions (southwest and southeast), I-225, DUS and the North Metro Corridor affected? Are they funded from the old or the new tax?	Under the staff recommendation, capital funding for DUS, West, East, Gold, segment one of NW Rail, and the “\$305 million”/“first segment” projects on US 36, North Metro and I-225 are being funded from the old/existing FasTracks tax, so their funding is not affected.
20	It appears every rail line benefits from the new AND old tax; except the NW Rail north of Church Ranch which only gets "old" tax money after the other projects are complete (or perhaps better stated, after the other projects funding is complete)	The intent of the new tax going specifically to the partially funded corridors, NW BRT and the Church Ranch segment of NW Rail under the staff recommendation is to clearly establish the scope of the new 0.4% sales tax and to establish a fiscally responsible approach that achieves mobility goals and provides an effective, less expensive (than Option 1) use for the new tax. Leaving the remainder of the NW Rail to be funded, as suggested in the staff recommendation, when it becomes affordable, from the original 0.4% shows fiscal prudence and fits within the original intent and direction approved by the voters, allowing the NW Rail corridor to be finished under the resources originally approved.
21	What is the reasoning for excluding the segment of the NW Rail north of Church Ranch from the NEW 0.4%?	Please see the response to the previous question.

22	Does the \$895 million ONLY fund the NEW BRT?	Yes. In addition to the \$82 million (YOE) remaining for the US 36 Corridor BRT project, \$894.6 million (YOE) would be provided to expand the BRT system in the Northwest Corridor area by 2020. This financial cap (including prior expenditures) was based on last year's Annual Program Evaluation (APE) and was chosen to reflect the level of capital funding available to complete the FasTracks program by 2020 with a new sales tax.
23	<u>Timetable for Implementation of Rail:</u> While the proposal calls for phased construction of commuter rail beyond the Church Ranch station, there are no estimates of the timeline for future phases, or what segments would be considered stand-alone phases. We believe voters in many of our communities will need to know when funding will be available to further extend rail service and whether there are any opportunities to purchase the operating lease from the BNSF to secure the costs of future service in the corridor.	The actual timetable for implementation would be subject to approval by the RTD Board of Directors in the future based on available revenues. RTD anticipates purchasing a permanent operating easement from the BNSF. Based on preliminary financial projections of costs for necessary corridor improvements and for operating windows, escalated over time, it appears that RTD would have the financial capacity to complete the full Northwest Rail Line to Longmont during the period of 2028-2034.
24	<u>Appropriate Measures of Cost-Effectiveness:</u> The report by staff to the board states "Completing Northwest Rail Line incrementally from Church Ranch to Longmont as rail becomes more cost effective and funding become available from the original 0.4% FasTracks sales tax." It is important that the costs and benefits of Northwest Rail be evaluated using the appropriate metrics and comparisons. Appropriate measures, such as cost/vehicle mile traveled reduced and measures reflecting the importance of rail service to the future economic vitality, health and sustainability of our communities should be incorporated into the evaluation of cost effectiveness, and that comparison to comparable commuter rail systems across the country be utilized. In addition, the same cost effectiveness measures should be used for Bus Rapid Transit.	The Northwest Rail Line will be completed incrementally or in its entirety from Church Ranch to Longmont as funding becomes available from the original 0.4% sales and use tax. Funding is anticipated to be available to initiate construction and begin revenue service during the period of 2028–2034. This timeframe is based on taking the remaining cost for Northwest Rail, inflating the cost to year-of-expenditure (YOE) dollars, and testing the financial model to determine when RTD has the financial capacity to expend the funds needed to complete the rail line.

25	<p><u>More Specific Definition of BRT Service Levels:</u> Some information on proposed service levels and frequency for U.S. 36 has been presented for some of the corridor proposed for BRT service. Information presented to date indicates that during peak period, service frequencies for the BV/BX family of service, depending on direction, will see either no increase or an increase in frequency from the current headways of 7.5 minutes to 6 minutes. Off-peak service would increase from every 20 minutes to every 12 minutes. The H family of service would see increases in eastbound service from the current every 15 minutes during peak periods to every 10 minutes, and initiation of westbound service in the morning peak. No information is provided on changes in service frequency for the BOLT, L, JUMP, 76 or DASH routes, or any of the feeder services proposed for Interlocken or ConocoPhillips/Louisville which would use or connect to the corridors identified for BRT improvements. Ridership on these routes combined exceeds total ridership in the U.S. 36 corridor and deserves comparable attention. It is critical that the difference in the current level of bus service and the additional service that would be added to our regional and local routes, along with any new service, be very clear.</p>	<p>Attachment #2 provides a narrative summary of BRT service types and standards planned for NW BRT. It describes two primary categories of service: RTD Metro BRT and Urban BRT. It also includes minimum frequency targets for each BRT service class.</p> <p>Attachment #3 lists the primary BRT routes, and includes a description of the route, type of BRT service, and peak hour service headway.</p> <p>Attachment #4 provides a graphic depiction of the proposed BRT routes, and includes commentary regarding service frequencies for existing and proposed routes.</p>
26	<p><u>Commitment to Long Term BRT Operating Support:</u> Since successful BRT relies on stellar operations and service frequency, we believe there must be assurances of a long term commitment to funding BRT service at a high level. The RTD staff recommendation commits to specified levels of Bus Rapid Transit service for 5 years after completion of the BRT system after which time service levels may be reduced should</p>	<p>RTD is committed to working with its partners to make a concerted effort to market the BRT services to assure strong ridership and success. All of RTD's services are subject to service standards. In contrast to standard policy, RTD is committing to operating the proposed NW BRT service for a minimum of five years before evaluating the service against service standards that will be adopted. All other services in the region must meet service standards from Day 1 of revenue service or be subject to possible service cuts. The G Line, a light rail line in metro south, is a perfect example of an underperforming corridor that was eventually cut (after less than two years) in order to provide more useful services to the region. Many factors will influence the</p>

	<p>they not meet currently undefined service standards. Should this occur, the funding committed to the corridor could well be redirected to other improvements outside of the Northwest Corridor. In order to assure our voters and taxpayers they will receive benefits of their investment over the long term (longer than 5 years), we believe there must be a meaningful and enforceable commitment to a specified funding level or proportional allocation of regional revenue from the 0.4% tax increase to the corridor for a much longer time period than 5 years, a commitment to support creative and innovative pass programs, and that, should service levels be reduced on a specific route due to lower than expected ridership, those savings will be reinvested in service elsewhere in the corridor. There should be an agreed process, incorporating the communities along the corridor, for evaluating service changes.</p>	<p>potential ridership, such as land use, accessibility, frequencies, convenience, and reliability. RTD's investments in the NW BRT proposal are intended to ensure reliability of travel times, provide accessibility to surrounding activity centers and residential areas, and establish regular service that will attract the highest ridership possible along each route. A five-year time frame for attracting ridership is more than sufficient to establish dedicated users who will continue to support the service for a long period of time. At these levels of service, RTD is optimistic that we will see significant patronage in this corridor. If not, RTD will have to follow prudent business practices in determining if a service should be maintained if it is not performing up to adopted service standards. We will not allow empty buses to run in this or any corridor as that would not be fiscally responsible.</p>
27	<p><u>Long term future of BRT along the Diagonal corridor:</u> The FasTracks plan has always envisioned both BRT along US 36 and the NW rail, since these serve somewhat different travel sheds. However, from Boulder to Longmont the proposed BRT service and the rail line parallel each other. What is the vision in the long term for this corridor? Under what circumstances would RTD extend rail along this corridor if a successful BRT system is in place? Would a dual system of BRT and commuter rail continue? If not, what would happen to the investment in BRT infrastructure?</p>	<p>As part of the environmental analysis for this corridor, RTD would work with our stakeholders to identify an appropriate balance between immediate relief BRT improvements and long-term rail improvements in this area. This analysis will help to determine the most reasonable approach to providing frequent, reliable and well-integrated transit service in the corridor (both bus and rail). Also, RTD will have to consider the amount of time the BRT improvements are projected to be in place before rail is completed.</p>

28	<p><u>More Specific Definition of BRT Capital Improvements:</u> Implementation of exclusive bus lanes/managed lanes is indicated for U.S. 36 and along the SH119 from Boulder to Longmont, as well as stations at Louisville, Boulder, Gunbarrel and Longmont, as well as at Lafayette along SH287. We remain very concerned about the need to provide bi-directional use of the I-25 Express Lanes and see the current lack of bi-directional travel as an impediment to the reliability of the BRT system. There is a strong likelihood that the major capital improvements to U.S. 36 will be funded through other sources, including CDOT, RTD, U.S. DOT, and tolls paid by corridor residents, commuters and visitors. CDOT is currently implementing a significant project along SH7 from Cherryvale to 75th, which can also accommodate BRT type service. The nature of proposed BRT related improvements along SH287, SH7 from 75th to SH287, South Boulder Road, 96th Street, and SH42 have not been described in any detail. As a result, it is difficult to gauge whether the proposed funding level of \$894 million is sufficient to implement the proposed capital improvements or if funding will be sufficient to expand BRT or rail in the corridor beyond that currently proposed. We believe our voters will require a specific list of the capital investments and the years those investments will be made, if they are to support an increase in revenue for FasTracks. The capital improvements should include (but not be limited to) the necessary infrastructure to promote ridership and mobility, such as additional station locations, transportation facilities, structured parking, bicycle and pedestrian amenities and station enhancements.</p>	<p>Attachment #5 provides a graphic summary of the planned capital improvements. This map shows the stations, BRT/HOV lanes, transit priority treatments, and managed lanes assumed for the BRT capital investment.</p> <p>Attachment #6 provides the scope and cost estimate to construct these improvements.</p>
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29	<p><u>Modeling of BRT benefits:</u> We believe that, based upon the capital improvements and service plans, it will be important to model the travel time, and the projected ridership, on the BRT system so that it's costs and benefits can be evaluated.</p>	<p>While much more detailed work would be completed should the proposed BRT investment move forward, RTD has completed preliminary travel time and projected ridership calculations for the proposed BRT system, based on the alignments and BRT improvements identified in Attachment #5.</p> <p>BRT travel time estimates include the following:</p> <ul style="list-style-type: none"> • Longmont to Denver 55 minutes • Longmont to Boulder 20 minutes • Boulder to Denver 45 minutes • Louisville to Denver 25 minutes <p>Recent travel demand model runs forecast 27,500 to 33,800 year 2035 BRT trips per day for the proposed hybrid option system (combined US 36 and NW BRT services).</p>
30	<p><u>Evaluation of TOD and economic development impacts:</u> We believe that it is important to understand the economic development impacts of the proposed hybrid option. We believe that this would require an analysis at each station location of the economic development impacts both of BRT and of commuter rail.</p>	<p>RTD through its consultants conducted a review of prominent BRT systems around the US and Canada to help to define the impact of BRT on TOD opportunities (see Attachment #1). A number of transit and non-transit related factors will influence the success of TOD around BRT:</p> <p><u>Non-transit Factors (factors that must be present regardless of transit):</u></p> <ul style="list-style-type: none"> • Real estate fundamentals must be present– the location where the station is must be conducive to real estate development with or without any kind of transit. Simply putting a transit station will not create a market for TOD. • Status of the real estate market – the local and regional market conditions will play a big role in the timing of TOD development and type of TOD development (Commercial or Residential). • Local jurisdiction support for TOD – the implementation of TOD will be driven by local jurisdictions support through TOD adopted plans and zoning, incentives for TOD development (TIF, accelerated development approvals and other mechanisms). <p><u>Transit factors (Factors that will influence the success of TOD around BRT and commuter rail):</u></p> <ul style="list-style-type: none"> • Permanency of Facilities (for BRT) – Developers will be more likely to develop around BRT stations that are have significant investment/amenities and are along a dedicated guideway.

		<ul style="list-style-type: none"> • Frequency/quality of transit service – TOD Developers and their tenants will be more responsive to BRT if the service is frequent (15 min frequency or greater) and reliable so that it takes minimal effort to use it. • Pedestrian Friendly Design – encouraging pedestrian friendly districts and stations will serve to increase ridership and the success of development around BRT stations.
31	<p><u>More Specific Understanding of Northwest Rail to Church Ranch Commuter Rail Cost Estimating Assumptions:</u> It is our understanding that RTD has estimated this extension will cost approximately \$350-\$4250 million based on a “rough estimate.” We understand RTD will not have a cost estimate from BNSF to extend Northwest Rail to Church Ranch for 60-90 days. Understandably, a conservative approach is desired; however, we would appreciate a more specific understanding of the basic, high-level assumptions that have been used to generate this estimate.</p>	<p>RTD has asked the BNSF to model and provide a cost estimate to extend the NWR to Church Ranch on a double track configuration. RTD currently assumes that there would be upgrades to the existing track and a new track built to accommodate the shared operations. The cost estimate was prepared using the 30% plans provided by BNSF for the Westminster to Church Ranch segment and included anticipated improvements that BNSF may require for the shared operations. The number of vehicles and the size of the DMU maintenance facility were also adjusted to reflect the corridor segmentation. Although RTD has a placeholder for the cost of the operating easement in the estimate, RTD cannot accurately predict the cost proposal from the BNSF. Below is the cost estimate for Commuter Rail from 71st to Church Ranch in YOE dollars, assuming completion in 2022. Our cost estimate of \$350-\$425 million includes guideways and track elements, station stops, terminals, support facilities (yards, shops, administration building), sitework and special conditions, systems, ROW, land, exiting improvements, vehicles, professional services and conservative contingencies.</p>
32	<p><u>More Specific Understanding of Funding for Northwest Rail to Church Ranch Commuter Rail:</u> It is our understanding the rail segment from Westminster Station to Church Ranch will be funded by capitalizing the incremental savings in operations and maintenance between BRT and commuter rail for the portion of the Northwest Rail from Westminster to Longmont that is no longer proposed for funding. During the last two months, we have seen different numbers for BRT and Rail O & M (ranging from \$40 million to \$13 million, annually). We would appreciate additional information on how much funding is remaining for the operations of the BRT service as well as the operations and maintenance costs assumed for the proposed extension of commuter rail to Church Ranch.</p>	<p>O&M costs for both the BRT and rail segments to Church Ranch are included in the financial plan for the hybrid option. The incremental savings between the O&M costs for this option and the full rail line to Longmont are minimal.</p>

33	<p><u>Opportunity for Further Segmenting Northwest Rail</u>. This new hybrid approach suggests segmenting is possible. With this possibility, the corridor would like to understand other segmenting options, such as to Louisville or to Boulder, timing and cost. We understand the cost analysis for each segment could vary based upon existing infrastructure or needed infrastructure, distance of tracks, etc.</p>	<p>The BNSF has expressed a willingness to work with RTD to explore potential segmenting options for NWR. Currently, RTD is holding discussions with BNSF to determine potential costs for an extension to Church Ranch. Once RTD has an understanding of the affordability of preliminary costs from the BNSF for the Church Ranch extension, RTD will have the opportunity to request additional evaluation and modeling by the BNSF for subsequent segments of Northwest Rail. The timing and costs of additional segments, if any, short of full build out of the corridor, would be dependent on when funding for additional segments is available.</p>
34	<p><u>More Specific Definition of Corridor Funding Commitment</u>: It is unclear from previous presentations whether the Northwest/US36 Corridor is being allocated a maximum funding amount (\$894 million plus an unspecified amount to extend commuter rail to Church Ranch) or a specific project, as are other corridors in the FasTracks system. In the March 5 staff presentation and board report, RTD states that funding to expand BRT in the Northwest Corridor area will be <u>capped</u> at \$894.6 million through 2020, including prior capital expenditures (but not including the remaining funding from the 2004 commitment to U.S. 36 BRT). What are the prior capital expenditures that are assumed? Based on environmental review outcomes, is there a scenario where BRT will cost less than \$894 million, and if so, can those funds be allocated to other capital improvements to expand BRT (such as bi-directional service along I-25) or to extend the commuter rail to the next segment in the corridor)?</p>	<p>The prior capital expenditures assumed in the \$894.6 million commitment to the Northwest BRT include \$12.5 million for environmental work and preliminary engineering and the \$17 million commitment to the Longmont Station.</p> <p>If the total cost of BRT improvements to the Northwest Rail travel shed, including the prior commitments described above, were to be less than \$894.6 million, the RTD Board of Directors would decide how to allocate any remaining funds within the approved FasTracks program. The RTD Staff recommendation would be to dedicate any amounts that came in below the \$894 million toward accelerating the Northwest Rail components.</p>

35	Will RTD agree to developing an enforceable document with stakeholders to provide assurances that the remaining partially funded corridors will be constructed?	RTD is willing to work with the stakeholders throughout the District to identify specific language that will be reflected in an amendment to the FasTracks plan. This amended plan will then be referenced specifically in the ballot language (should the RTD Board of Directors decide to move forward with an election). The RTD Staff position, as conveyed to some Northwest Corridor stakeholders, is to first discern what can be included in a FasTracks Plan amendment, then if need be, converse with regard to what may be left to clarify.
36	Won't it be even more expensive to build the NW Rail in the future? Shouldn't we just build it now and bite the bullet?	Rail could become more expensive in the future. RTD's greatest challenge in providing funds for the FasTracks projects has been affordability, in terms of cash flow. The combination of declining revenues and concurrent rising capital costs makes it very difficult to afford the project at this moment in time. However, as with anything, things could become more affordable with time and better sales and use tax growth.
37	Have you looked into building your own track rather than relying on BNSF? How much would that cost?	Building RTD's own rail corridor would require substantial numbers of private property acquisitions to establish enough exclusive right-of-way to operate the service. In addition, the project would incur tremendous environmental impacts and encounter substantial geographic/physical challenges. With the proposed rail project in the BNSF right-of-way, there are significantly fewer impacts to private properties along the corridor. Also, RTD would use one existing track and build one new track instead of building two new tracks, and there is already an established route through the City of Boulder. The costs to provide commuter rail on a corridor outside of an existing railroad right-of-way are projected to be significantly higher than partnering with an established Class 1 railroad.
38	The number of lanes on US-36, I-25, SH-119 and US-287 will force BRT vehicles to compete with other traffic. How will the BRT plan be any faster than driving myself?	BRT vehicles on US-36 and SH-119 will travel in "managed" lanes – in other words, lanes designated for BRT, express buses, carpools, vanpools, and/or tolled vehicles only. Excluding single-occupant (non-tolled) vehicles and trucks from these managed lanes will minimize delay for BRT patrons. This will result in BRT travel times less than driving alone.

39	Why doesn't RTD build rail on US 36?	Rail on US 36 would result in significant levels of right-of-way acquisition, tremendous environmental mitigations, and substantial geographic/physical challenges. With the proposed rail project in the BNSF right-of-way, there are significantly fewer impacts to private properties along the corridor. In addition, RTD would use one existing track and build one new track instead of building two new tracks. Unlike US 36, the grades along the existing rail corridor are navigable for commuter trains, and there is already an established route through the City of Boulder. Furthermore, RTD is already in the process of implementing high frequency BRT service along US 36.												
40	BRT vehicles operating on roads will have the same delays due to weather as other commuting options. Rail can operate in all kinds of weather. How many days per year will this affect our commute time?	There is no accurate way to forecast the exact number of days per year that weather would impact commute times for RTD patrons. However, according to the Colorado State University's Colorado Climate Center, in the Denver area there are approximately 30-40 totally overcast days per year. Of these 30-40 days, only a fraction would likely result in weather that would impact the operation of BRT vehicles.												
41	You promised rail between Denver, Boulder and Longmont with stations in between. Why is RTD talking about changing FasTracks?	Given the updated information concerning the overall increased cost of the Northwest Rail Line, RTD felt a moral obligation to our stakeholders and patrons to have open and transparent discussions about our current challenges and to propose multiple options for consideration.												
42	Trains are so much cleaner than fuel hog buses! Isn't the point of FasTracks to get people out of their cars and reduce greenhouse gas emission?	<p>Both solutions on the NW Corridor will use diesel-powered vehicles. Commuter Rail is designed with Diesel Multiple Unit (DMU) Trains while RTD plans to deliver BRT service with diesel buses.</p> <p>Here are the energy usage and emissions characteristics of diesel buses and DMU trains:</p> <table><tr><th>Mode</th><th>Energy Usage (BTU/Vehicle Mile)</th><th>Emissions (Tons CO²/ Million BTU)</th><th>Seats</th></tr><tr><td>Diesel Bus</td><td>41,655</td><td>.079</td><td>55</td></tr><tr><td>DMU</td><td>95,000</td><td>.079</td><td>86</td></tr></table>	Mode	Energy Usage (BTU/Vehicle Mile)	Emissions (Tons CO ² / Million BTU)	Seats	Diesel Bus	41,655	.079	55	DMU	95,000	.079	86
Mode	Energy Usage (BTU/Vehicle Mile)	Emissions (Tons CO ² / Million BTU)	Seats											
Diesel Bus	41,655	.079	55											
DMU	95,000	.079	86											

		<p>Based on these factors, the diesel buses are both more fuel efficient and cleaner per seat mile.</p> <table border="1"> <tr> <th>Mode</th><th>Energy Usage (BTU/Seat-Mile)</th><th>Emissions (Tons CO₂/Million Seat-Miles)</th></tr> <tr> <td>Diesel Bus</td><td>757.4</td><td>59.8</td></tr> <tr> <td>DMU</td><td>1,104.7</td><td>87.3</td></tr> </table>	Mode	Energy Usage (BTU/Seat-Mile)	Emissions (Tons CO ₂ /Million Seat-Miles)	Diesel Bus	757.4	59.8	DMU	1,104.7	87.3
Mode	Energy Usage (BTU/Seat-Mile)	Emissions (Tons CO ₂ /Million Seat-Miles)									
Diesel Bus	757.4	59.8									
DMU	1,104.7	87.3									
43	We purchased a house along the corridor because the train would eventually be built. How will BRT change my property values? Can I expect the same development to occur along a bus line?	We will not know until we get further definition of the BRT project including the alignment, type of facility (separate guideway, arterial running, etc, and station locations). The biggest positive influence on property values will be your accessibility to a station, rail or BRT (better access typically means property values go up). The negative influence on property values will be associated with noise impacts, but these will be present without BRT since all BRT alignments being considered are along existing roadways.									
44	You plan to use BRT to expand service to the Northwest Corridor. Considering the limited funds, wouldn't it be better to concentrate on delivering exceptional service on the original 41-mile corridor?	As identified in the original FasTracks plan, RTD would not own the rights-of-way for the segment of Northwest Rail from South Westminster to Longmont. Because Burlington-Northern Santa-Fe (BNSF) would retain ownership of this part of the rail line, RTD would be limited in terms of operation (30 minute frequencies, during the peak, 60 minutes during the off-peak) and in terms of future expansion.									
45	A big change like this should be brought to the voters! BRT could be the better solution but everyone should have a say. Will you put this on the ballot?	<p>If the RTD Board of Directors moves forward with an option that involves implementing BRT service in the northwest area, this change in the FasTracks plan would have to be approved by voters of the Denver metro area. Utilizing funds to provide bus rapid transit in the northwest would be included in the ballot language as part of the measure that would go before voters if the RTD Board decides to pursue an additional sales tax election.</p> <p>If the Board chooses not to pursue a sales tax election or if the ballot initiative fails, the current FasTracks plan, established in the 2004 vote and refined per planning, environmental, and engineering work since, would remain in place. Last year's APE projected a completion date of 2042, RTD staff is reanalyzing the projected date based on this year's APE cost and revenue projections.</p>									

46	Aren't there other sources of funds? RTD did a great job with innovative financing to build the line out to DIA. Can't we go for a federal grant or bring in private partners?	As you noted, RTD staff is always looking for new funding sources, grants, and partnerships. The Northwest Rail Line ridership projections are not adequate to qualify for most federal grants. Based on current ridership projections, the Northwest Rail Line does not meet the criteria for the federal New Starts grant program that is funding the line to DIA, but it may qualify for smaller grant options for stations at some point. RTD staff will actively pursue all grant opportunities for this project. Additionally, new U.S. Senate Transportation Bill language may allow for BRT New Starts funding in the future.
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BRT + Land Use \Rightarrow Value?

Case Studies: A Review of BRT's Role
in Creating Livable Communities.

Overview

The jury is still out on BRT's impact on TOD

A little like LRT in the 1980's

- Systems focusing on delivery
- TOD has not been getting much attention

No US examples of a large scale BRT & TOD Strategy

- El Paso may be the most ambitious
- Ottawa Canada has integrated BRT & development



Silver Line BRT Boston



Overview continued

Best US example is Cleveland:

BRT integrated with development

- BRT helped shape urban form
- BRT did not stimulate development
- Result is very impressive:
\$4.3B in development

Number of station specific TOD examples

- University of Oregon
- North Hollywood & Warner Center



Cleveland BRT



Mathew Knight Arena
& BRT Guideway
Eugene, OR



Overview continued

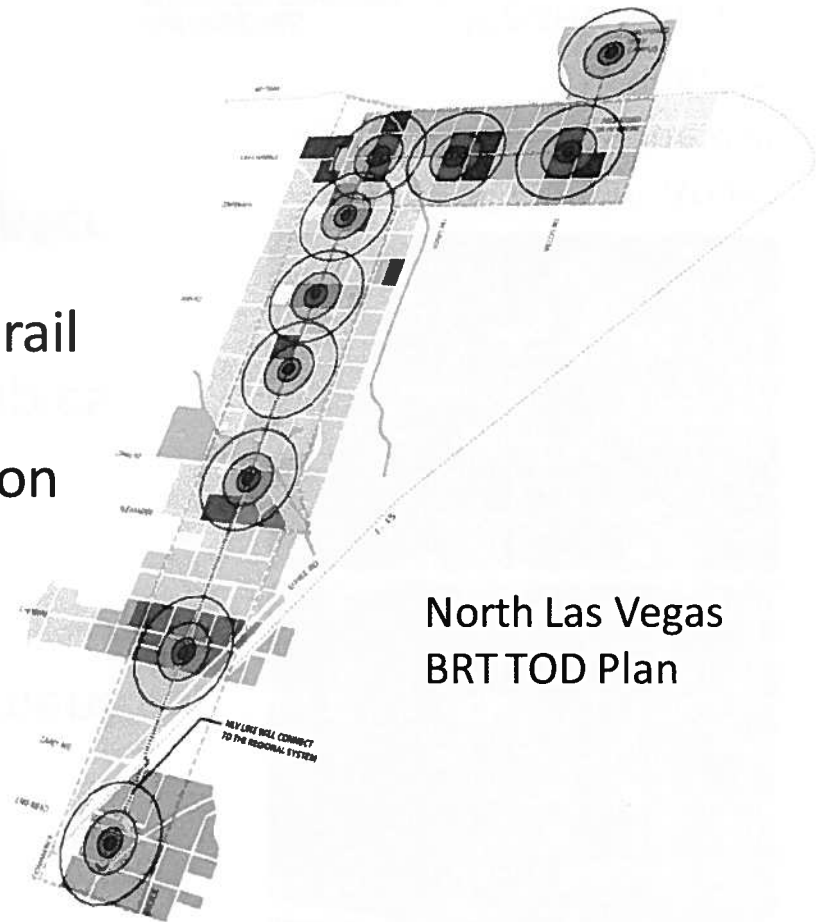
BRT impacts tend to be smaller than rail

TOD & BRT now getting more attention

- FTA New Starts guidance
- Communities raising the bar on subsequent lines
- Eugene & Kansas City

TOD won't happen without supportive plans

- Leadership from cities critical



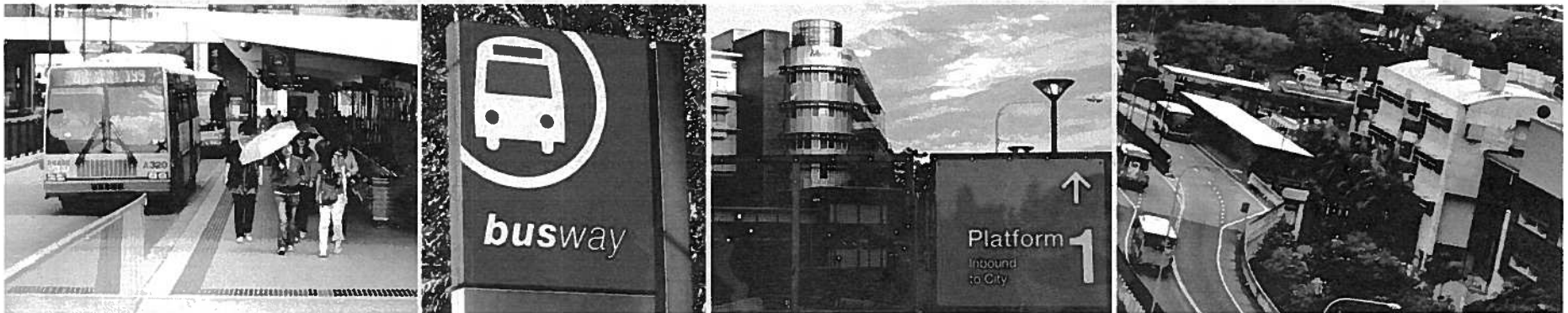
North Las Vegas
BRT TOD Plan



Overview continued

Barriers to TOD are higher for BRT than rail

- Limited body of experience
- Developer concern on permanence
- Bus bias to overcome
- Lower density corridors not as conducive to TOD



Brisbane Australia BRT is an international success story



Case Studies

Cleveland, Ohio

Bus Rapid Transit

Eugene, Oregon

Bus Rapid Transit

Kansas City, Missouri

Bus Rapid Transit

Orlando, Florida

Bus Rapid Transit

Pittsburgh, Pennsylvania

Bus Rapid Transit

Los Angeles, California

Bus Rapid Transit

El Paso, Texas

Bus Rapid Transit

Ottawa, Canada

Bus Rapid Transit



Description: Euclid Corridor/Healthline
Length: 6.8 miles
Capital Cost: \$200 million (\$29 million/mile)
Opening Year: 2008
Ridership (Weekday): 16,000
Economic Investment: \$4.3 billion (independent of BRT)
Regulatory Changes: Yes, city recently implemented transit-oriented zoning for Mid-Town, specifically to promote Euclid BRT. 2020 Citywide plan seeks to increase the TOD, plan targets high density development in proximity to transit stations and major bus stops.

Impetus for the Project:

Need for improved downtown distribution for rail riders; improved access to clinic.

Key Factors in Modal Decision:

Could not afford desired subway system, couldn't make LRT configuration work physically.

Public Interest in Mode: Yes, rail.





Eugene, Oregon

Description:	EmX Franklin BRT
Length:	4 miles (2.4 miles of exclusive lanes)
Capital Cost:	\$24 million (\$6 million/mile)
Opening Year:	2007
Ridership (Weekday):	7,000
Economic Investment:	Not Available
Regulatory Changes:	Yes, to establish Mixed Use Centers with higher density, walkable areas served by transit.

Impetus for Project:

To attract choice riders by providing connectivity to downtown Eugene and transit centers to downtown Springfield, University of Oregon, Lane and Community College. BRT considered as replacement to existing bus system to alleviating traffic congestion that is environmentally responsive and without making costly highway improvements.

Public Interest in Mode: Yes, because they realize that this was the most cost-effective solution compared to LRT.

Bus Rapid Transit





Eugene, Oregon

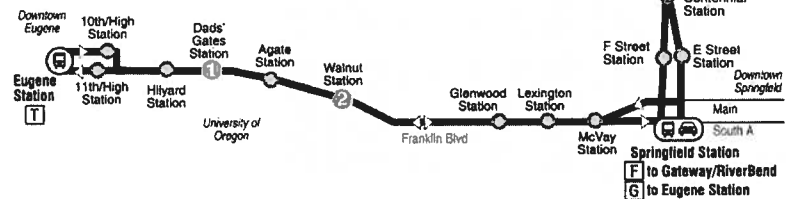
Bus Rapid Transit

Development Pattern:

Too early to tell, BRT described as supporting added “jobs and economic opportunities by concentrating development, increasing property values, creating livable places”. Transit centers at each end of the line include modest retail to spur TOD and generate additional revenue. University has added new campus buildings, Knight arena, and is collaborating with the City to develop additional properties along the EmX. Additional EmX routes are being considered , the ultimate system is envisioned contain a 61 mile BRT network.

Development Community Interest in Mode:

Average interest, LRT better known and “heard off” by the investment community and BRT & Streetcar in an early stage at that time for them to compare mode. Chamber supported BRT and continues to do so.



**PARSONS
BRINCKERHOFF**

| PlaceMaking



Kansas City, Missouri

Description:	Kansas City MAX
Length:	6 miles (3.75 miles of exclusive lanes)
Capital Cost:	\$21 million (\$3.5 million/mile)
Opening Year:	2005
Ridership (Weekday):	6,000
Economic Investment:	Not Available
Regulatory Changes:	No

Impetus for Project:

Faster, more convenient connection along Main Street corridor between River Market and Country Club Plaza. Connects 150,000 jobs and convention visitors to success led to second line along Troost Avenue.

Key Factors in Modal Decision:

New form of transit service with unique buses, exclusive transit lanes in peak hours, traffic signal priority, easily-identifiable passenger shelters with real-time bus arrival information.

Public Interest in Mode: Yes. MAX is expanding to Troost Avenue.

Bus Rapid Transit





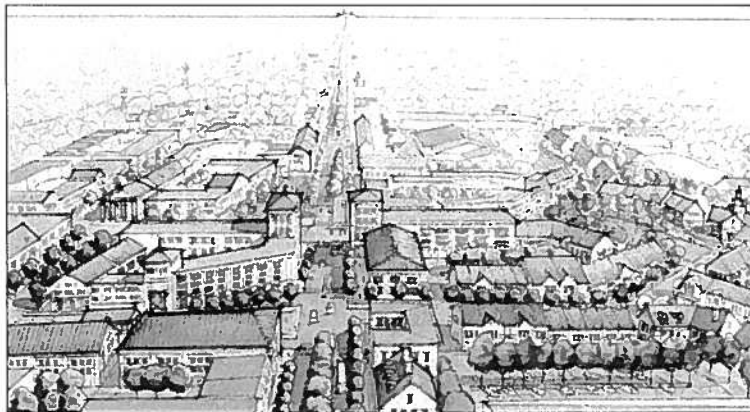
Kansas City, Missouri

Development Pattern:

Power and Light entertainment district has occurred adjacent to MAX line on Main. University has included several MAX stations as part of campus expansion.

Development Community Interest in Mode:

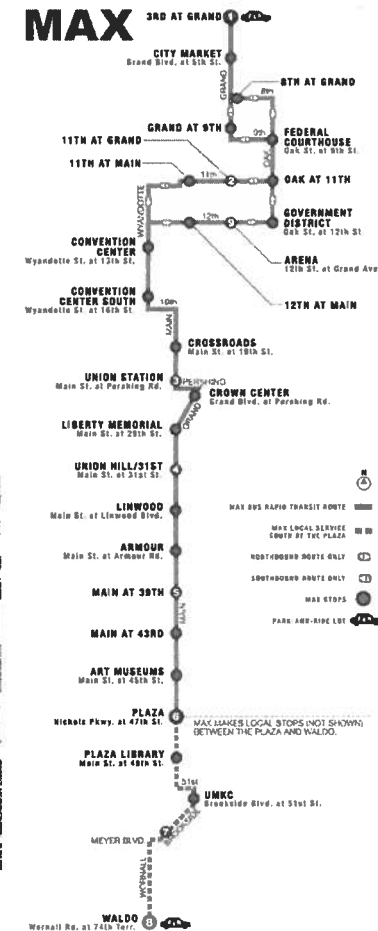
Although the primary project goal was improved mobility, most of the development interest has been from the University. Subsequent lines are undertaking TOD planning



Fishers Station station area plan



Bus Rapid Transit





Orlando, Florida

Description: Lymmo
Limited stop bus circulator operating
in exclusive at-grade transitway
through downtown Orlando

Length: 2.4 mile loop

Capital Cost: \$21 million (\$9 million/mile)

Opening Year: 1997

Ridership (Weekday): 5,000

Economic Investment: Not Available

Regulatory Changes:

Conversion of Magnolia St. and Livingston St. to local streets with exclusive transitway. Original streetcar (OSCAR) plan converted to BRT. Full block of land acquired at Central Station for TOD (BRT + SunRail).

Impetus for Project: Stimulus for downtown development

Public Interest in Mode: High, used for local circulation, special event access downtown

Bus Rapid Transit





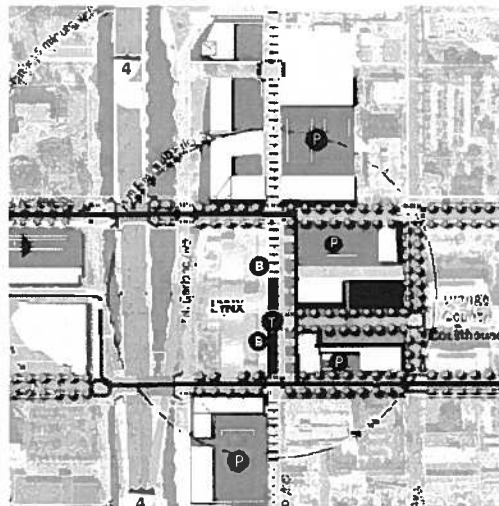
Orlando, Florida

Development Pattern:

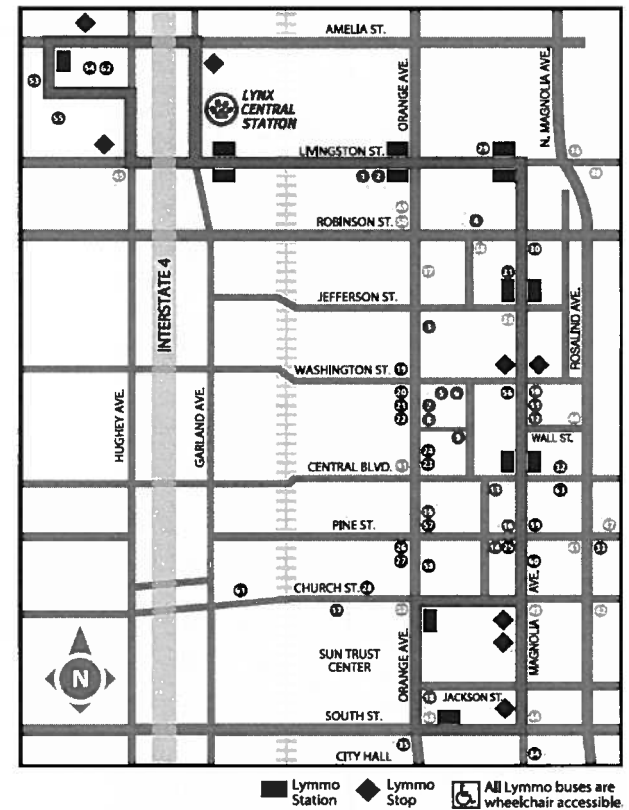
Some new high-rise residential development along corridor; other development put on hold with slow economy

Development Community Interest in Mode:

High – Planned extension of system with four new corridors – East/West, Parramore, North and South. Will provide multiple interface points with the new SunRail commuter rail system.



Bus Rapid Transit





Pittsburgh, Pennsylvania

Description: MLK Jr. East Busway
Two Lane Road Exclusive Busway

Length: 9 miles

Capital Cost: \$175 million (1983 - \$115M, 2003 - \$60M)
(\$19.4 million/mile)

Opening Year: 1983, 2003

Ridership (Weekday): 30,000

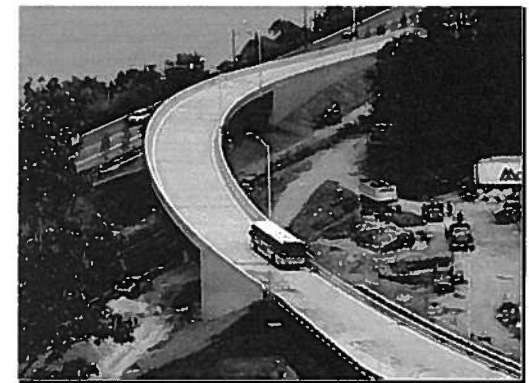
Economic Investment: \$400+ million

Regulatory Changes: No, but there are no specific incentive programs for corridor based development in Pittsburgh, but the passage of the Transit Revitalization Investment District (TRID) Act laid the foundation for TODs to be implemented. The legislation has no specific qualifier that would exclude BRT or LRT.

Impetus for Project:

Traffic congestion, travel time savings, connectivity.

Bus Rapid Transit





Pittsburgh, Pennsylvania

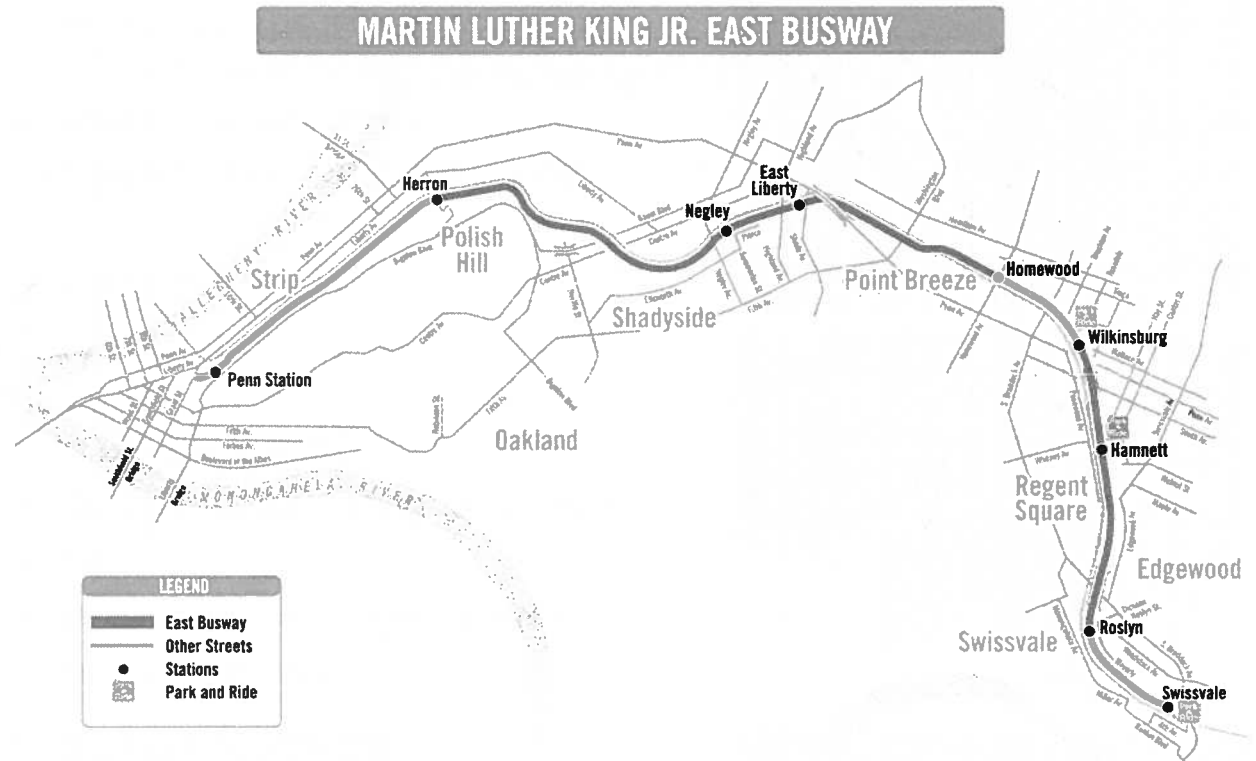
Development Pattern:

Urban and suburban connecting to major CBD employment and Oakland area (center for health care, Universities).

Development Community Interest in Mode:

Seen as an attractive cost-effective and efficient mode producing significant travel time savings.

Bus Rapid Transit





Description: Route runs along a former Southern Pacific railway right-of-way. Lane Exclusive on designated routes.

Length: 14 miles

Capital Cost: \$330 million (\$25 million/mile)

Opening Year: 2005

Ridership (Weekday): 26,000 - 30,000

Economic Investment: \$32 billion in economic output over the next 30 years.

Regulatory Changes: Yes, broad scale corridor enhancements through station development and TOD-based construction incentive has been focused on, but not limited to, BRT.

Impetus for Project:

Improving mobility for Valley residents; minimizing travel times; connecting the Warner Center to the North Hollywood subway station, thereby providing a high-capacity rapid transit route from the Valley into downtown L.A.; relieving congestion on US 101 and local streets; and promoting transit-oriented development (TOD) along corridors targeted by the city's long-term planning policies .





Development Pattern:

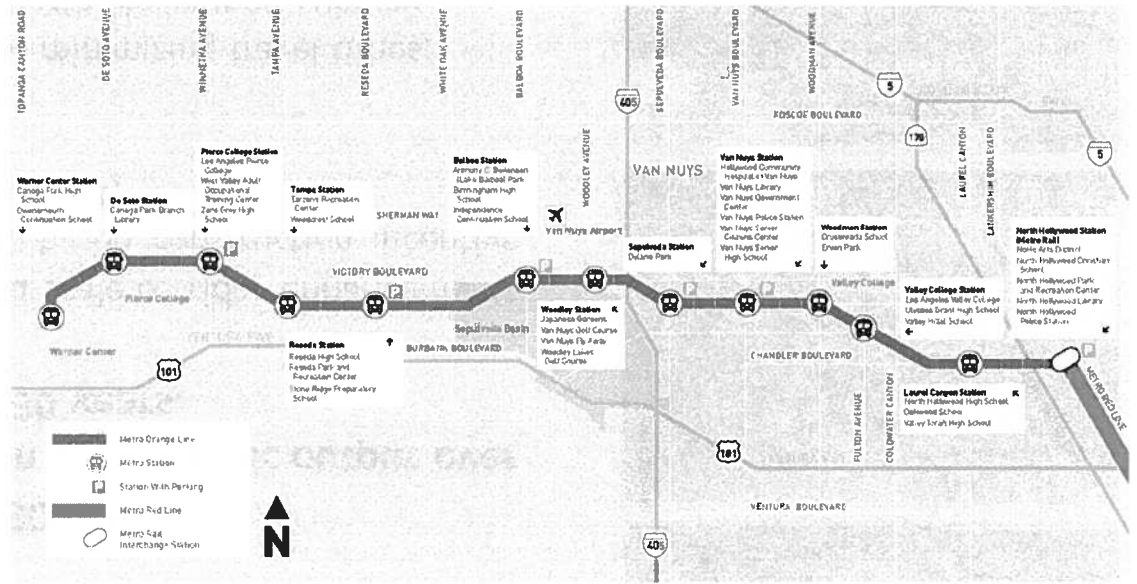
Orange line links major destinations. Expansion of the Orange Line is one of the priority transit projects slated for funding with the passage of Sales Tax Measure R in the November 2008 elections.

Transit-oriented development is beginning to sprout up at some stations along the BRT line.

The majority of new development has occurred at Warner Center and the North Hollywood station, where rail and BRT stations are located. Incentives are available to developers.

Development Community Interest in Mode:

Yes, has been well received, development response is spotty, new development is occurring at some station locations.



Community Relations Construction Impact Team
Community Relations Construction Impact Team Contact: Devon Brown, 213 922 4444
Community Relations Manager: San Fernando Valley, Maria Maestas-Mack, 818 701 2840



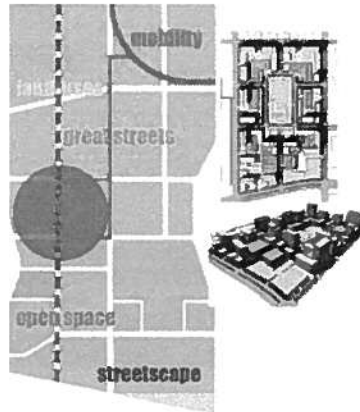
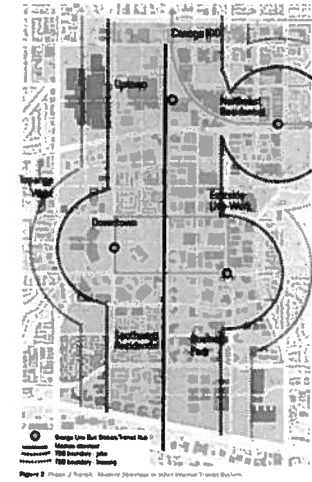
Los Angeles, California

Bus Rapid Transit

Warner Specific Plan:

Plan is in review and waiting council approval. Promotes and supports Transit Oriented Development.

The goal of the specific plan is to provide transit access through Warner Center, so that most or all of Warner Center can support TOD. Study done to look at Orange line expansion.





Los Angeles, California

North Hollywood:

Noho Commons: Three-phase mixed-use project consisting of residential, retail, office, and entertainment.

Noho Art Wave: The plan approved the largest "transit-oriented" development in L.A. County history, consisting of a \$1.3-billion apartment, retail and high-rise office tower complex totaling more than 1,700,000 square feet (158,000 m²) of development on 15.6 acres.

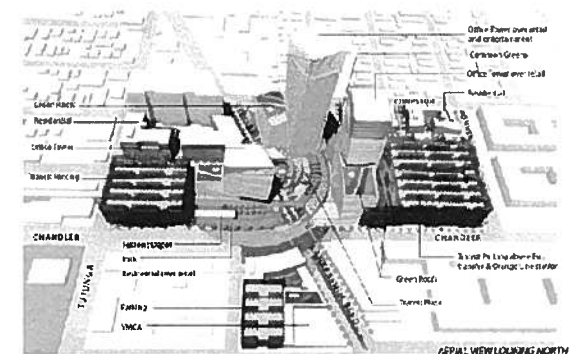
Subway + BRT:

North Hollywood is served by the Red Line subway and serves as the terminus of the Orange Line BRT

Bus Rapid Transit



Noho Commons



Noho Art Wave



El Paso, Texas

Description: Sun Metro
4 BRT routes proposed

Length: 54 miles

Capital Cost: \$160 to \$330 million
(Alternatives Analysis)

Opening Year: Between 2013 and 2016 for different phases.

Ridership (Weekday): Project in study phase

Economic Investment:

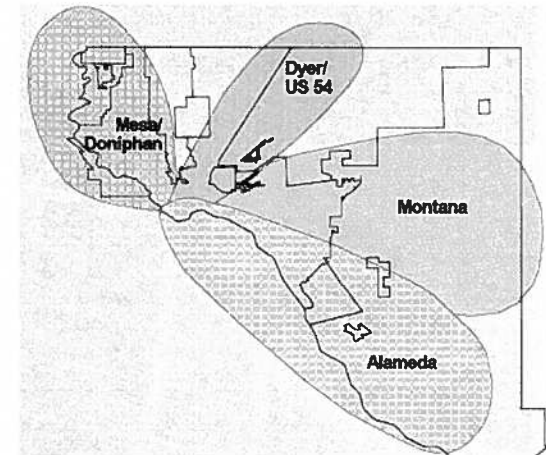
Regulatory Changes:

“Connecting El Paso” is a plan to implement TOD along the four BRT lines. It analyzes how to change the existing development character to support transit. TOD plans are responsive to local neighborhood characteristics – one TOD plan doesn’t fit all. Part of an overall Comprehensive Plan amendment

Impetus for Project:

Beginning in 2006, the city determined it should take a more sustainable planning approach. An important focus has been on linking transportation and land use.

Bus Rapid Transit





El Paso, Texas

Bus Rapid Transit

TOD Principles:

- Restore Great Neighborhoods
- Revive Transit-Oriented Neighborhood Building
- Complete the Streets
- Create Great Public Spaces
- Expand the City's Commitment to Transit

Station Area Planning

Define planning areas by 5 or 10-minute walking distance.
Focus on urban design and livability.

Change city policies to promote infill and redevelopment.
Identify key recommended actions.
Include implementation strategy.

INVEST FIRST IN DOWNTOWN DOWNTOWN CENTRAL CITY

The Illustrative Plan for the Downtown illustrates the implementation of the Downtown 2015 plan, filling in vacant lots and unifying the downtown with pedestrian passages and a new green space to provide large open spaces for community events.

General Recommendations

- ① New infill around the Downtown Transfer Center provides services for transit riders.
- ② Street-oriented buildings and a parking structure replace City Hall's parking lot.
- ③ A new green connects Arts Festival Plaza to Cleveland Square Park and the El Paso Museum of History while providing more open space in the Downtown to hold community events and concerts.
- ④ Enhancements are made to San Jacinto Square to provide play space and water fountains for children while providing large community spaces.
- ⑤ Street-oriented buildings replace vacant and under-utilized lots throughout the downtown.
- ⑥ New residential buildings increase the opportunities for living Downtown.
- ⑦ New community squares add to the Downtown's appeal for new residents.





Ottawa, Canada

Description: OC Transpo
Radial “Transitway” system of routes serving 28 stations in the metro area.

Length: 37 miles total –
17 miles exclusive BRT lanes

Capital Cost: C\$435 million (estimate)

Opening Year: 1983 (5-station line, additional segments between 1984 and 2007)

Ridership (Weekday): 220,000

Economic Investment: Over C\$1 billion within 5-minute walk

Regulatory Changes:

Land use policies direct higher density/mixed-use to transit corridors
Reduced free parking and overall parking inventory in downtown.

Impetus for Project:

Need for transit identified in 1974
Desire to provide broad transit coverage from the “outside-in” with significant system investment surrounding the central city.

Bus Rapid Transit





Ottawa, Canada

Bus Rapid Transit

Development Pattern: Regional plan requires shopping centers with more than 375,000 sq ft, employment centers with more than 5,000 employees, and centers employing 2,000 or more jobs must be located within a 5-minute walk to transit.

Transit supportive projects

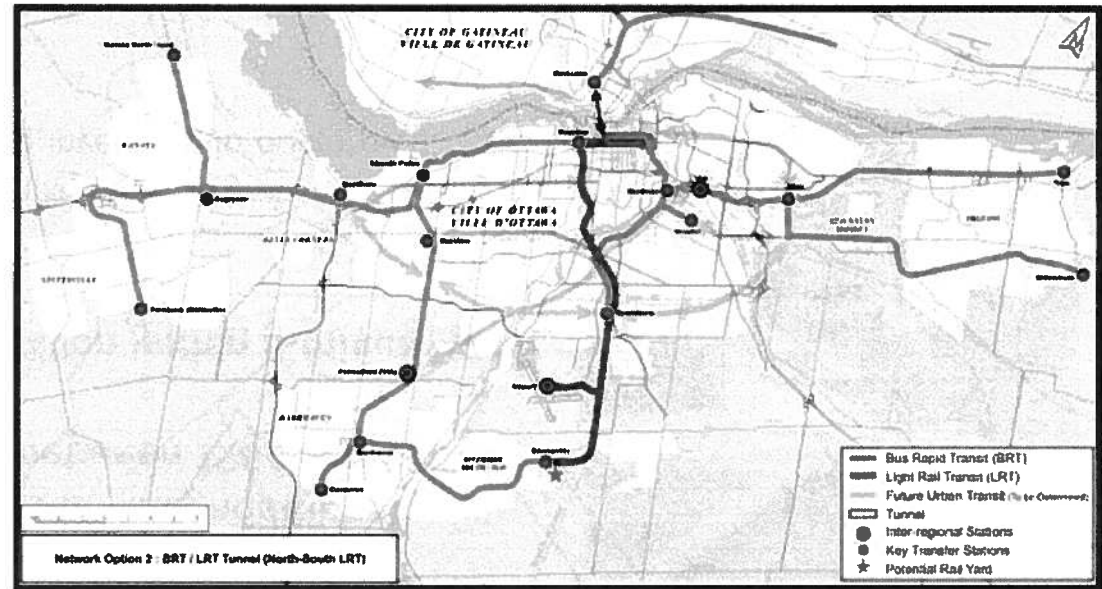
Tunney's Pasture Station : Federal Complex, large mixed-use project built with residential tower and ground floor retail.

Blair Station: Transit-Oriented office and commercial.

St. Laurent Station: Connected to shopping center.

Riverside Station: Linked to a medical facility.

Rideau Center systems most successful TOD. 60% of the shoppers arrive via transit.



Development Community Interest in Mode:

Yes, the amount of mixed-use and residential living near transit increased. Some of the BRT station areas have room for improvement as TODs by becoming more walkable with a greater degree of mixed use.

BRT Service Types and Standards Planned for Northwest BRT

Three types of BRT routes would be included in the Northwest BRT project. These route types are defined below. The routes that operate along freeways would be categorized as Metro BRT while arterial routes would be categorized as Urban BRT. Characteristics of each category of RTD BRT have previously been defined in the RTD Bus Rapid Transit White Paper, April 2011.

- **Metro BRT**
 - All-Stop Freeway – routes similar to the BV which would stop at all BRT stations.
 - Express Freeway – routes similar to the BX which only stop at select stations providing faster travel times between key origin-destination pairs.
- **Urban BRT**
 - Arterial – routes that connect destinations on arterial roads with fewer stops and faster travel times than local routes.

These BRT routes would be served by buses that are uniquely branded so they would be easily distinguishable from any other bus routes operating along the BRT alignment.

RTD is in the process of defining the following service standards for these three types of BRT routes:

- Minimum Service Frequency (peak, off-peak, mid-day, early/late, weekend)
- Minimum Ridership Performance
- Maximum Load Standard
- Parameters for Demand Based Service Frequencies above the Minimum

RTD has determined that since BRT will be a new category of service, the service standards will include a minimum amount of time that the service will operate with the planned opening day service levels before it could be subject to possible reductions, if it did not meet the new BRT service standards.

RTD has made progress towards defining Minimum Service Frequency Targets for BRT as shown below:

	Metro BRT		Urban
	All-Stop	Express	
Peak Period (6 - 9 am, 3 - 6 pm)	15 min	15 min	15 min
Weekday Midday	15 min	---	15 min
Evenings & Weekends	30 min	---	30 min

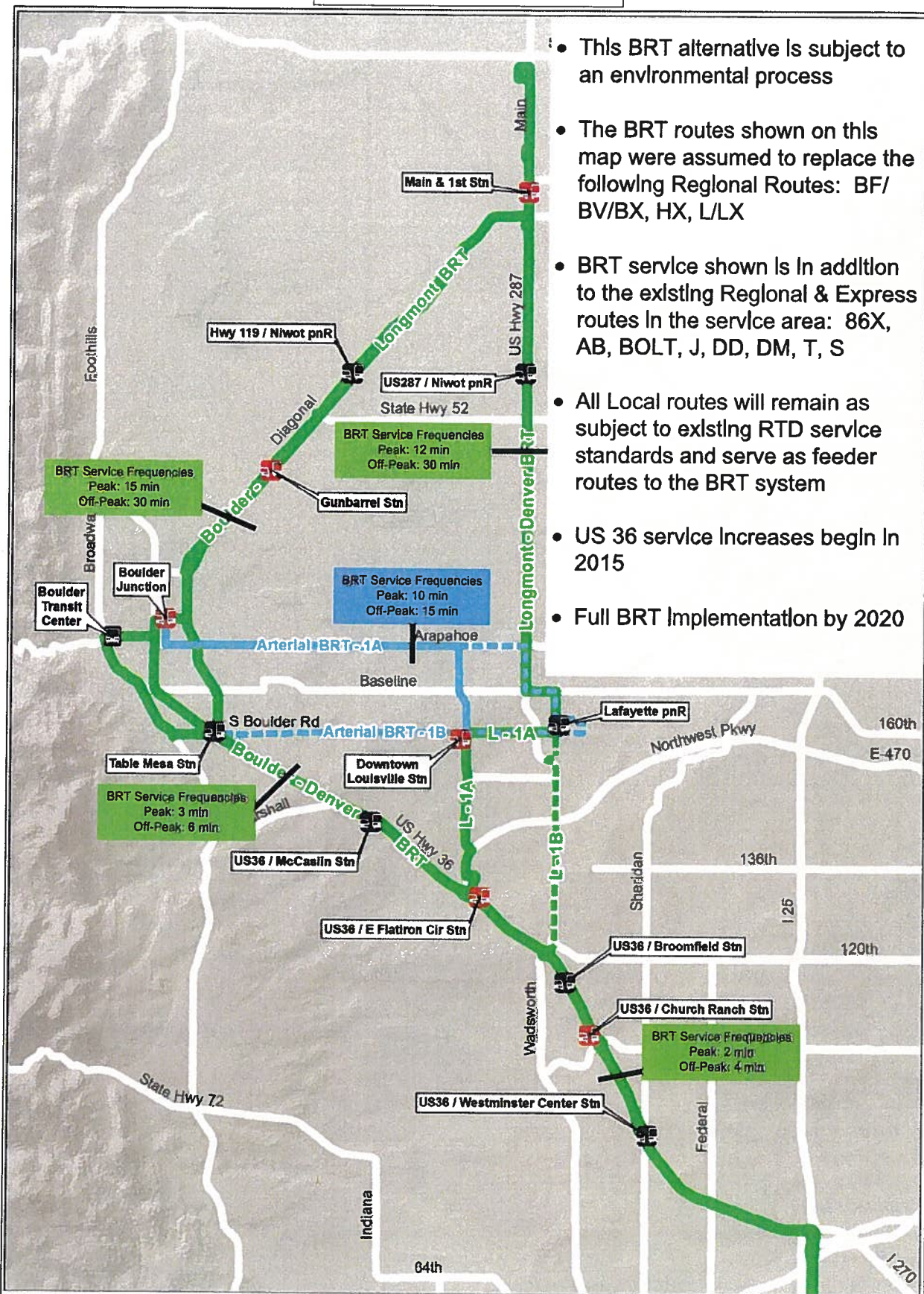
Attachment #3

Primary BRT Routes



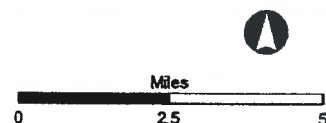
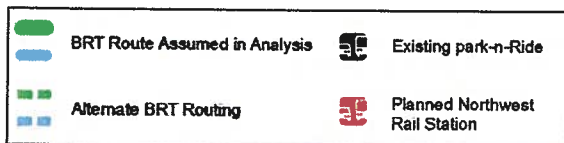
Route	Description	Type of BRT	Peak Hour Service
BV	Denver Union Station - Boulder Transit Center via US 36 and Broadway in Boulder	All-Stop	30 min
BV-Long	Denver Union Station - Longmont (1st & Main) via US 36, Broadway & SH 119	All-Stop	30 min
BX	Denver Union Station - Boulder Transit Center via US 36 and Broadway in Boulder	Express	10 min
HV	Denver Civic Center Station - Boulder Junction via US 36 and 28th St in Boulder	All-Stop	15 min
HV-Long	Denver Civic Center Station - Longmont (1st & Main) via US 36, Foothills Pkwy & SH 119	All-Stop	30 min
HX	Denver Civic Center Station - Boulder Junction via US 36 and 28th St in Boulder	Express	10 min
L	Denver Union Station - Longmont (1st & Main) via US 36, SH 42/96th St, S Boulder Rd, SH 287	All-Stop	30 min
LX	Denver Union Station - Longmont (1st & Main) via US 36, SH 42/96th St, S Boulder Rd, SH 287	Express	20 min
LoX	Denver Union Station - Louisville via US 36, SH 42/96th St	Express	20 min
LBX	Louisville - Boulder Junction via Arapahoe Rd or S Boulder Rd	Arterial Limited Stop	10 min

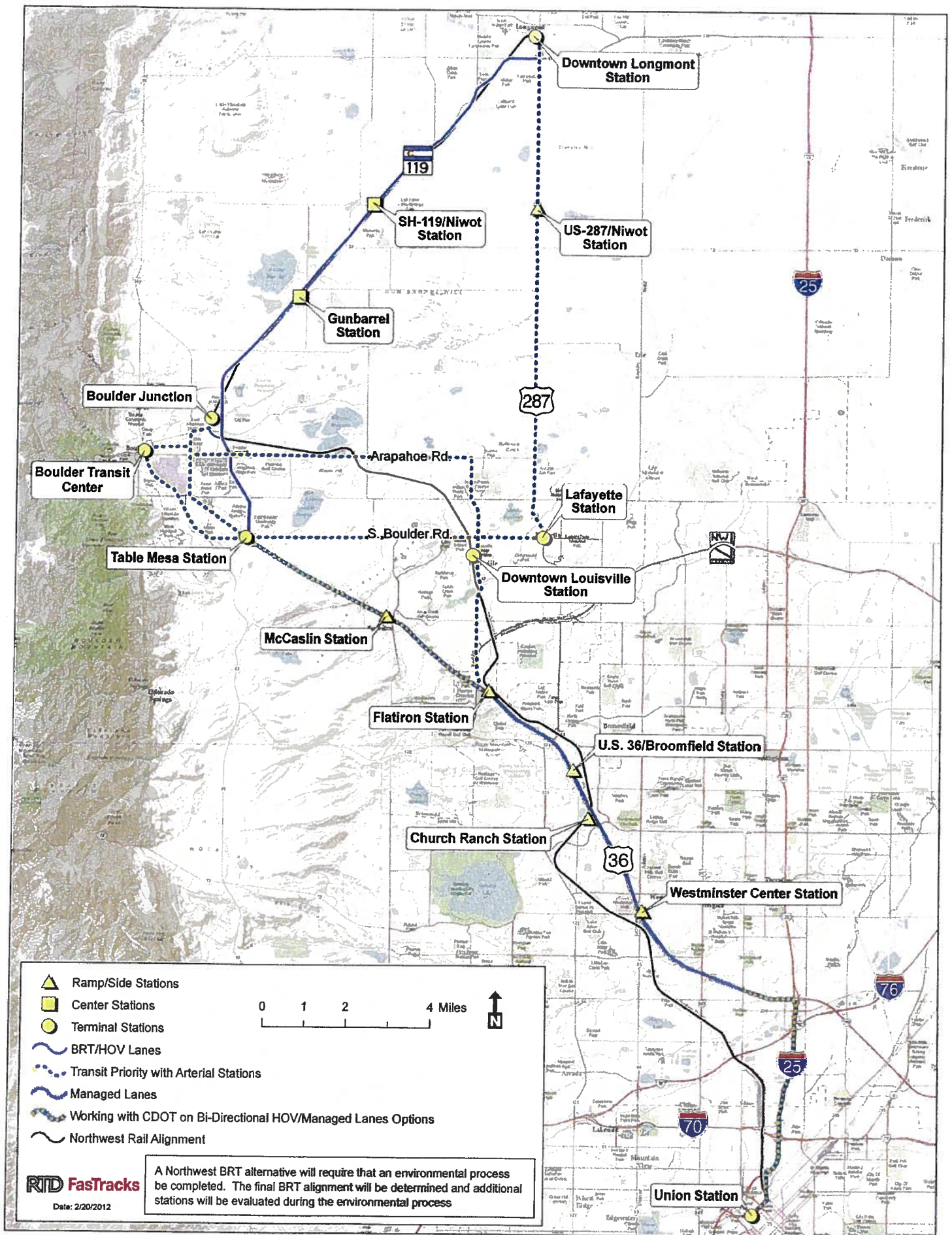
15-Mar-12



- This BRT alternative is subject to an environmental process
- The BRT routes shown on this map were assumed to replace the following Regional Routes: BF/BV/BX, HX, L/LX
- BRT service shown is in addition to the existing Regional & Express routes in the service area: 86X, AB, BOLT, J, DD, DM, T, S
- All Local routes will remain as subject to existing RTD service standards and serve as feeder routes to the BRT system
- US 36 service increases begin in 2015
- Full BRT Implementation by 2020

Northwest BRT





Attachment #6

NW BRT Option Proposed Scope

The following scope assumptions have been included within the \$894M Northwest Rail Bus Rapid Transit estimate:

1. Running Way

- a. Dedicated Bi-directional BRT/HOV lanes on the following roadways with painted buffer (17.2 miles total):
 - i. SH 157
 1. Table Mesa to SH 119 -4.9 miles
 - ii. SH 119
 1. Iris Avenue to Hover Road - 10.1 miles
 2. Hover Road to Longmont Station at 1st and Main Street - 2.2 miles
- b. Transit Signal Priority and Queue Jump/BRT bypass lanes on the following roadways (41.3 miles total):
 - i. SH42 (US 36 to SH 7) – 5.7 miles
 - 6 Queue jumps
 - 9 Transit Signal Priority intersections
 - ii. SH7 (SH 42 to SH 93/Boulder Transit Center) – 8.1 miles
 - 20 Queue jumps
 - 20 Transit Signal Priority intersections
 - iii. South Boulder Road (US 287 to US 36/Table Mesa PnR) – 7.3 miles
 - 15 Queue jumps
 - 15 Transit Signal Priority intersections
 - iv. SH 93/Broadway (Boulder Transit Center to US 36 via Table Mesa Drive) – 3.6 miles
 - 19 Queue jumps
 - 19 Transit Signal Priority intersections
 - v. US 287 (Longmont Station to South Boulder Road) – 12.1 miles
 - 10 Queue jumps
 - 10 Transit Signal Priority intersections
 - vi. US 36/28th Street (Table Mesa PnR to SH 119) – 4.5 miles
 - 4 Queue jumps
 - 9 Transit Signal Priority intersections
- c. Utilize existing BRT/HOV lanes on the following roadways (24.3 miles total):
 - i. I-25
 1. DUS to US36 (peak direction only)- 6 miles
 - ii. US36
 1. I-25 to Pecos (peak direction only)- 1.3 miles
 2. Pecos to 88th Street (dedicated bi-directional BRT/HOV lanes) -11 miles
 3. 88th Street to Table Mesa Drive (dedicated bi-directional BRT/HOV lanes)-6 miles*

*Assumes that US36 Managed Lanes from 88th Street to Table Mesa Drive will be completed by CDOT without additional RTD funding.

- d. Financial contribution to the following projects:
 - i. SH 119 & SH 52 Interchange - \$10M (\$25M total project cost)

2. Stations

- a. New BRT stations with park-n-Ride lots at the following locations:
 - i. Downtown Louisville
 - ii. Gunbarrel
 - iii. Longmont
 - iv. Lafayette (relocated from existing location to South Boulder Road and US 287)
- b. New BRT stations without park-n-Ride lots at the following locations (potential shared parking, if applicable):
 - i. Baseline Road & SH157
 - ii. SH7 & SH157
 - iii. SH52 & SH 119
 - iv. Twin Peaks
 - v. SH287 Stations TBD (2 locations)
 - vi. SH42 & SH7
 - vii. SH42 & Conoco Philips
 - viii. SH7 & 63rd Street
- c. Modifications/improvements to the following existing stations:
 - i. Westminster Center
 - ii. Church Ranch
 - iii. US36/Broomfield
 - iv. Flatiron
 - v. McCaslin
 - vi. Table Mesa
 - vii. Boulder Junction
 - viii. Boulder Transit Center
 - ix. Niwot & SH 119
 - x. Niwot & US 287

3. Vehicles (Total of 117 BRT vehicles)

- a. New BRT specific vehicles will be procured for the corridor (both 40 ft and 60 ft models) based on projected ridership needs.
- b. A new BRT maintenance facility will be constructed along the corridor to maintain the BRT fleet.

4. Fare Collection

- a. Ticket Vending Machines, Smart Card readers, and Ticket Validators installed at all BRT stations with paid fare zones

5. Intelligent Transportation Systems (ITS)

- a. Fiber optic cabling and conduit will be installed the full length of corridor (along running way).
- b. Programmable Information Display System (PIDS) screens will be installed at each BRT station.
- c. Safety & security equipment installed at BRT stations.
- d. Implement next bus/real time technology

Cost Detail – NW Bus Rapid Transit Option (SCC Coding Summary – YOE)

Our cost estimate of \$894.6 million includes guideway elements, station stops, terminals, support facilities (yards, shops, administration building), sitework and special conditions, systems, ROW, land, exiting improvements, vehicles, professional services and conservative contingencies.