



Passenger Rail Implementation Plan



submitted for

City of Chattanooga

submitted by

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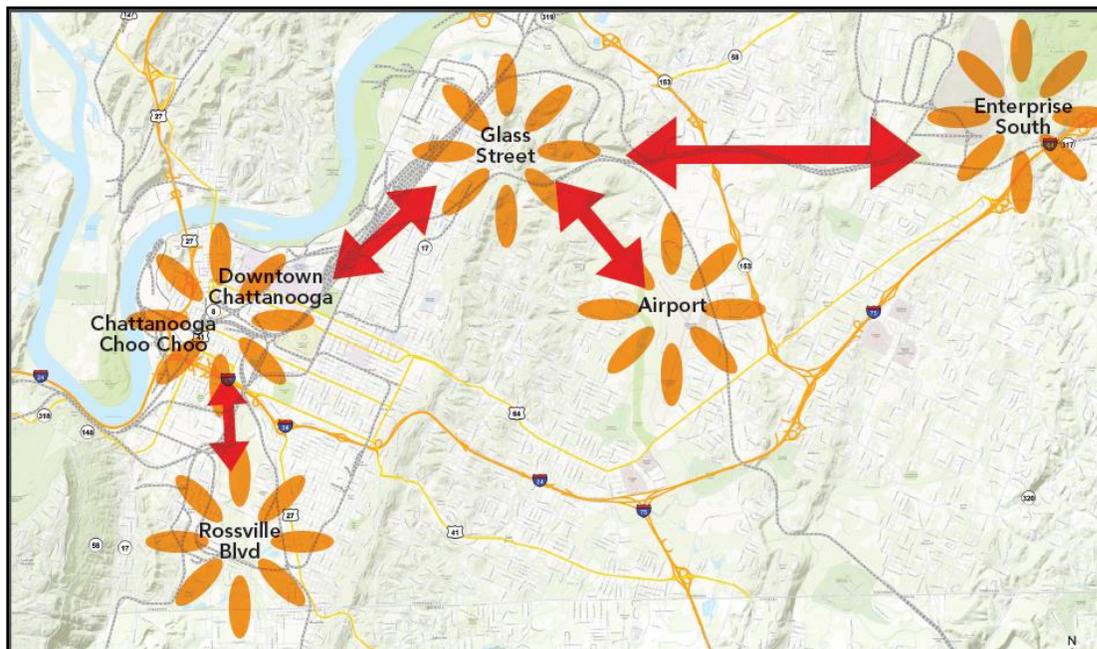
Introduction

To ensure continued mobility and economic opportunity, and continuing a long-history of strategic, multimodal transportation planning and investment, the City of Chattanooga has conducted a feasibility study for reintroducing passenger rail service on 20-plus miles of existing rail corridors that have provided mobility over the past century. These corridors connect major employment and activity centers within the region, as well as historic parts of the city that have suffered from under-investment over past decades.

The study was funded by a Transportation Investments Generating Economic Recovery (TIGER) grant awarded by the Federal Transit Administration to the City to investigate the feasibility of local passenger rail which opens the door to a return to passenger rail as part of the transportation mix that will support a vibrant economic future for Chattanooga.

The figure below presents the passenger rail corridor previously identified during the 2040 RTP and identified in the TIGER grant application to FTA. The rail feasibility study identifying a range of feasible rail transit alternatives to connect the activity centers shown below, addressing potential alignments and transit technology modes. The study area extends from south and west of downtown across the interstate and north into downtown, then following the Tennessee Valley and East Chattanooga Belt railroad rights-of-way to the northeast, past Missionary Ridge to the airport and continuing to the Enterprise South area.

Passenger Rail Study Corridor



The study is documented in a report: **Chattanooga Passenger Rail Feasibility Study**, September 2016, available from the City. This document is provided as a summary focused on implementation actions to be followed to realize passenger rail transit in east Chattanooga over the next decade.

Study Process

The study followed was conducted following ten technical tasks which are roughly reflected in the illustration below.



The project followed a one-year schedule beginning in May of 2015, with a preferred alternative established in April 2016.

Public Input

The project was conducted from the outset in a public forum, focused around three significant public workshop meetings – as represented below.



Around these public meetings, which were attended by 80-110 people each, additional meetings were held with a group of stakeholders that included:

- Neighborhood and business associations
- Foundations and non-profit groups
- Elected officials
- Transportation agencies

Project Goals and Objectives

Four project goals and 14 objectives were identified and prioritized in the open process of the public meeting series, with input provided at the first round of stakeholder and public meetings. They are consistent with prior transportation goals and objectives established in the region, and are listed below:

1. Economic Development and Redevelopment

- **Support regional economic growth** in the short- and long-term by connecting neighborhoods with downtown, the airport, and Enterprise South to facilitate travel for commuters, residents and visitors.
- **Connect and re-envision neighborhood centers** along the alignment and catalyze or support local redevelopment plans with excellent access to stations for non-automobile modes.
- **Promote equitable transportation access and benefits** for all in the study area.

2. Transportation

- **Provide a reliable and attractive transportation alternative** to support mobility in downtown and east Chattanooga that provides access to existing and future jobs and activity centers, reduces reliance on private automobile travel, and attracts new transit riders to the system.
- **Integrate Pedestrian Investments.** Facilitate development of places with high concentrations of pedestrian activity as well as biking, park-n-ride, transit, and carpooling that would benefit from frequent transit service.
- **Improve management of roadway congestion in the core and East Chattanooga areas.** Leverage existing and underutilized transportation assets to increase travel capacity and relieve peak period congestion on existing roadway corridors.
- **Deploy Electric Vehicle Technology**, if appropriate, to leverage local zero-emission electric transit vehicle experience.

3. Land Use

- **Coordinate Land Use and Transportation Investments** at strategic locations to provide the density necessary to support premium transit service.
- **Provide efficient jobs-to-housing connections** and support efficient land use patterns.
- **Ensure consistency with local land use plans.**

4. Environment and Sustainability

- **Minimize adverse impacts** to the natural and built environment.
- **Develop a financially feasible and sustainable mobility solution** that serves the Chattanooga community.

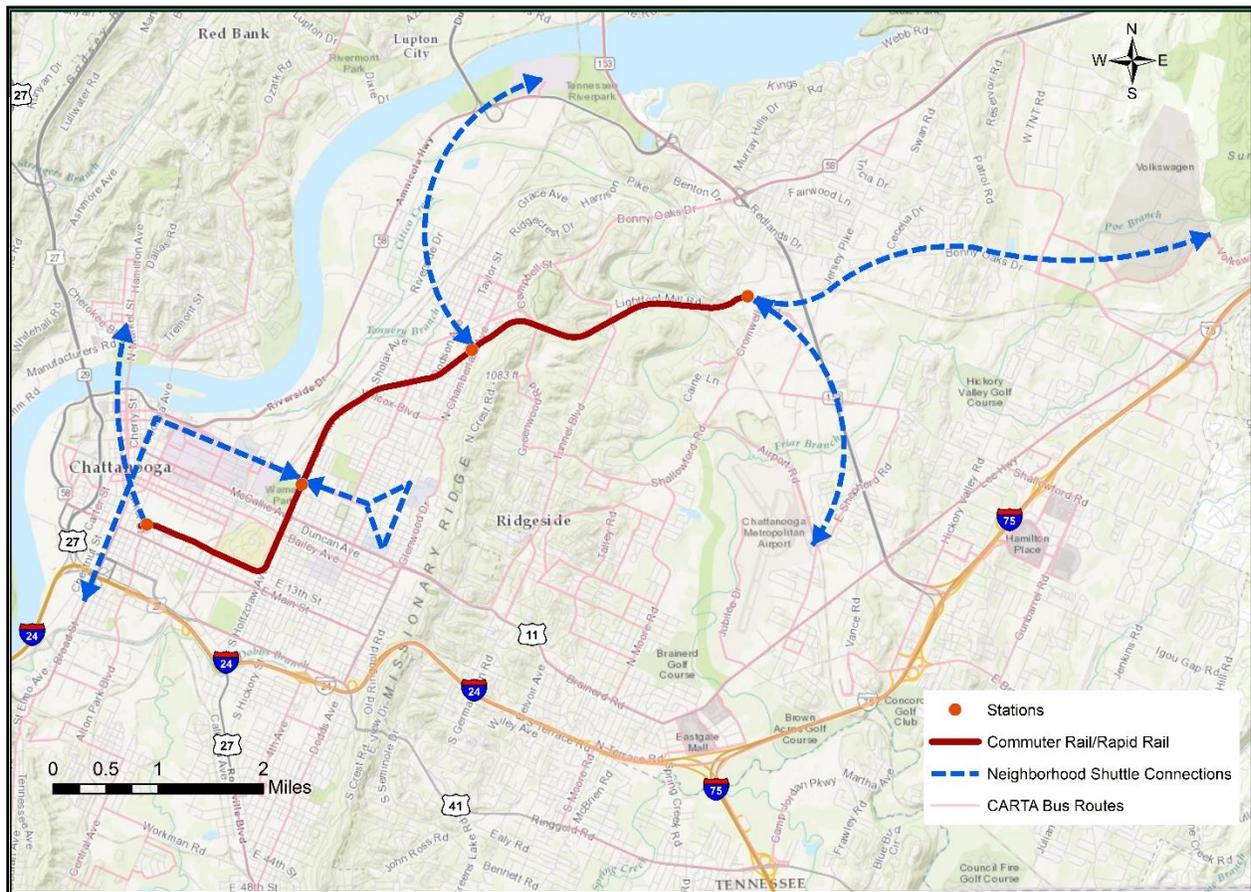
- **Support active healthy lifestyles** by reducing dependence on private automobile travel and encouraging alternative modes.
- **Promote environmental benefits** including improving air quality by reducing future vehicular emissions.

Study Recommendations

During the study, three alternatives were developed to connect activity centers in downtown, East Chattanooga and Enterprise South, and evaluated them against the project goals and objectives using a combination of quantitative and qualitative measures, as documented in the Feasibility Study report.

The evaluation, together with input received from partner agencies, stakeholders and the public resulted in the selection of a preferred alternative which is shown below:

Rail Alignment and Connecting Shuttles



The recommended implementation project is a modification on Alternative 1 that would use diesel-powered heavy-rail technology connect the Chattanooga Choo Choo to the Tennessee Valley Rail Museum via interim stops at the Zoo and Glass Street area. Passenger rail service plan details are presented below.

Service Plan Description

Service Plan			
Vehicle Technology	Diesel multiple unit train (DMU)	Span of Service	12 hours: 7:00 am – 7:00 pm
Trains/day	22	Travel time end-end	28 minutes
Frequency (peak)	30 minutes	Fare (full)	\$2.00
Frequency (off-peak)	120 minutes		

Station Areas

Increased development densities in terms of both employment and residential units are a necessary element of implementation for the rail plan to ensure a market of potential riders that would justify the transit investment and ensure its success in the future. The implementation plan documents the necessary changes to zoning, land uses, development densities and station-area infrastructure changes and enhancements for each station area, which include the following:

- Choo Choo
- Central Avenue/Main Street (interim station before completion of the connection to the Choo Choo)
- Holtzclaw/3rd Street
- Glass Street
- Tennessee Valley Rail Museum

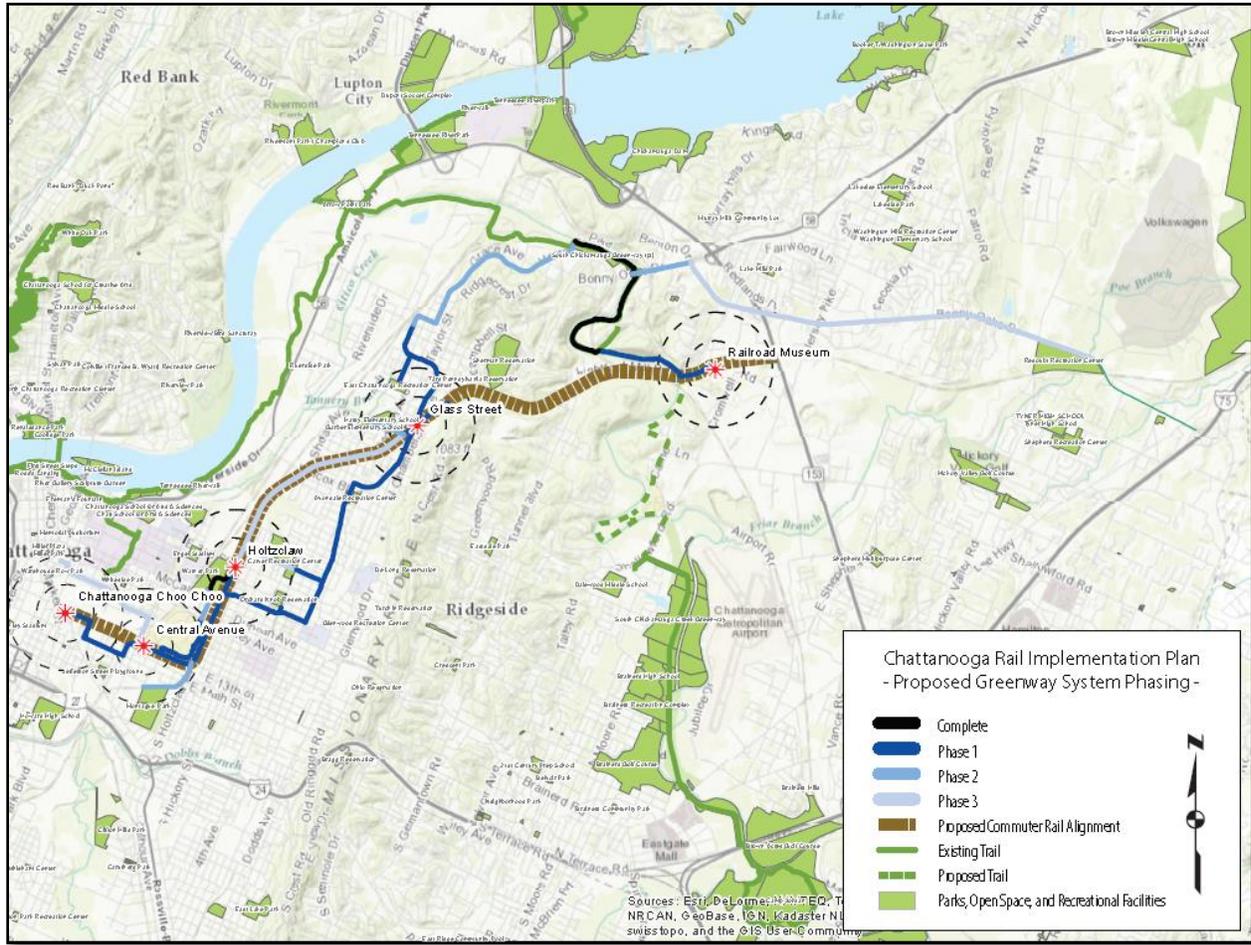
Trails and Non-Motorized Element

The proposed rail alignment creates a continuous, linear right-of-way from beginning to end that can be leveraged to help facilitate last mile connections to and from the rail service by providing a system of connected trails, both off-street trails provided along the railroad as “rail with trail”, “rail-to-trail” and a network of on-street sidewalks connecting the project to the greater transportation system.

The network is shown in the map below.

This valuable transportation asset will provide mobility opportunities not just for rail, but for non-motorized transportation in the form of a parallel system of pedestrian and bicycle paths, sidewalks and transit stops to facilitate transfers.

Multi-Modal Trail and Non-Motorized Element



Implementation Phasing

A series of meetings and workshops with City staff and partner agencies was held to develop a preferred plan for project implementation in the coming years to achieve the project's vision and goals. This resulted in the identification of three primary phases of enhancements:

- 1. Station area planning, rezoning and improvements**
- 2. Trail connections and non-motorized network improvements**
- 3. Rail infrastructure and new passenger service**

Further detail on each of these phases, broken down further into 16 tasks is provided in the table attached in the following section.

An Appendix attached provides an additional level of detail on each of these subtasks which gives direction to implementation agencies and partners for effective implementation of the project.

Implementation Sub-Task Summary Table

The next page provides a summary documenting 16 steps to be pursued by the City and its transportation partners over the next approximately ten years to make the project a reality and result in passenger rail transportation in Chattanooga. The table provides:

- Subtask number and summary name
- Expanded subtask description
- A planning cost estimate for the task
- An estimated duration for the task, provided in months
- Summary roles/responsibility description for the following agency partners:
 - o Chattanooga Mayor's office communications staff
 - o Chattanooga Department of Transportation (CDOT)
 - o Chattanooga-Hamilton County Regional Planning Agency (RPA) and Transportation Planning Organization (TPO)
 - o Chattanooga Area Regional Transportation Authority (CARTA)
 - o Other – includes
 - Trust for Public Lands (TPL)
 - Tennessee Valley Railroad Museum (TVRM)
 - Neighborhoods along the project alignment
 - Hamilton County Railroad Authority (HCRA),
 - Class 1 railroads
 - A number of other local organizations

Passenger Rail Implementation Program Summary

Project	Description	Cost (m)	Months	Communications	CDOT	RPA/TPO	CARTA	Other	
¹	Inter-Local Agreements	Develop Inter-local agreement between CDOT, CARTA, HCRA and TVRM on project development and service operation.	\$0	6		Lead: Develop template agreements	Signatory; Support agency coordination	Signatory	
²	Station Area Plans and Policy and Regulatory Changes	Establish a vision and plan for each station area. Implement policy and regulatory changes to facilitate TOD.	\$0.8	18	Facilitate communication in affected neighborhoods	Address technical details for station, multimodal and greenway planning.	Lead: Develop RFP(s), procure consultants, develop form-based code	Coordinate transit plans including access; minor routing changes for station access.	TVRM: coordinate museum station plan
³	Phase 1 Trail Segments (Design and Construction)	Work with Trust for Public Lands and other trail partners to implement Phase 1 trails – Choo Choo to Central Avenue to Holtzclaw/3rd; rail ROW through Orchard Knob, Chamberlain Ave. to Glass Street; to NPS trail & Boyce Station via rail alignment; E Chatt. Rec. Center; completion of South Chick Greenway to Rail Museum station.	\$4.8	36	Communications with neighborhoods, communities, businesses	Lead: Finalize concepts; complete design; procure contractor	Coordinate multimodal planning, access,	Bus stop access enhancements	TPL: Coordinate on design and construction contracts
⁴	NEPA Document Preparation and Finding of No Significant Impact (FONSI) for Rail	Conduct environmental study according to the National Environmental Policy Act (NEPA). Anticipated class of action in for Environmental Assessment (EA). Receive FONSI from the FTA for the entire rail transit project from TVRM to the Chattanooga Choo Choo.	\$1.0	18	Public outreach per NEPA guidelines. Stakeholders involved through process.	Coordinate through CARTA		Designated as grant recipient and as project sponsor.	FTA: lead Federal agency FRA: cooperating agency
⁵	Preliminary Engineering (Rail Improvements)	Develop 30% design plans for the rail station improvements for both phases of the project. This will define the project limits to be considered as part of the NEPA process.	\$1.0	18	Facilitate communication to public and stakeholders	Manage design consultant and coordinate with stakeholders	Incorporate in plans and TIP	Designated as grant recipient and project sponsor.	Resource agencies Railroads
⁶	Final Design Phase 1 Rail	Prepare final procurement documents for track, station, tunnel and signaling improvements. Prepare vehicle procurement specifications.	\$5.6	12	Public and stakeholders will be kept abreast of design progress.	Manage design consultant and coordinate with stakeholders		Participate as assumed operator; Design feeder bus network.	TVRM: operating plan RR: operating plan
⁷	Phase 2 Trail segments	Continue to implement Phase 2 trails – Alternative alignment through National Cemetery and Warner Park; spur to Montague Park; Glass St. spur to Hardy/Garber Elementary; Boyce Station to South Chick Greenway via Dodson Ave.; connect S. Chick Greenway to Bonny Oaks.	\$1.5	18	Communications outreach, host information meetings	Lead: Finalize concepts; complete design; procure contractor	Coordinate multimodal planning, access, and integrate with TIP	Bus stop access enhancements	TPL: Coordinate on design and construction contracts
⁸	Procure DMU rail vehicles	Includes two service vehicles and one spare. Used vehicles may be considered, at some cost saving. This procurement would be partially funded through the first federal funding request.	\$27.0	24		Coordinate with CARTA		Lead vehicle procurement	TVRM & RR: coordinate vehicle specifications
⁹	Construct Phase 1 Rail	Construction of all the necessary infrastructure elements to enable operation of a rail transit system between the TVRM and Central Avenue. This project would be partially funded through the first federal funding request.	\$36.5	18	Facilitate communication to public and stakeholders	Procure contractor and construction management services.		Coordinate on equipment, station construction and vehicle access	TVRM: maintenance facility upgrade Railroads & HCRA: coordinate
¹⁰	Construct Station Area Capital Improvements	Design and construction of publically-funded capital improvements to support access to rail stations identified in station area plans (cost tbd)	\$0	18	Facilitate communication in affected neighborhoods	Lead: Procure contractor, constr. mgmt. services	Coordinate consistency and access/circulation	Coordinate as operator and on transit route changes, bus access	TVRM – coordinate on museum station
¹¹	Phase 3 Trail segments	Continue work with trail partnerships to implement Phase 3 trails – Central Ave connector to Bessie Smith Center; rail-with-trail from Holtzclaw to Glass St.; Bonny Oaks Drive (with road construction).	\$1.9	18	Communications outreach, host information meetings	Lead: Finalize concepts; complete design; procure contractor	Ensure project is included in Bonny Oaks widening	Bus stop access enhancements	TPL: Coordinate design & construction; TDOT - Bonny Oaks widening
¹²	Delivery of DMU rail vehicles	Take delivery and initiate service testing of vehicles. Includes two service vehicles and one spare. Used vehicles may be considered.	\$1.1	9	Communicate with media/press	Traffic safety management station areas, intersections		Testing and system integration	RR: Coordinate on testing and integration
¹³	Initiate Rail Service Phase 1	Initiate operation of the passenger rail system between TVRM and Central Avenue, includes testing. Op cost \$5.4 m annually	\$0	12	Opening ceremonies			Operator; Realign bus network, add feeder svc	TVRM: potential contract operator
¹⁴	Final Design Phase 2 Rail	Prepare final procurement documents for track, station and underpass/bridges. Extensive coordination with CSX and NS railroads to maintain service during construction.	\$4.2	18	Facilitate communication to public and stakeholders	Manage consultant and coordinate with stakeholders		Refine feeder bus network.	HCRA and RR: coordinate on design
¹⁵	Construct Phase 2 Rail	Bridges under Central Avenue and NS and spur tracks; assumes transition to 10' depth.	\$47.4	18	Keep public informed	Procure contractor and construction management services.		Coordinate as service operator	HCRA and RR: coordinate on construction
¹⁶	Initiate Rail Service Phase 2	Extend rail service to Choo Choo; new track and station; Testing and service expansion Op cost \$5.6 m annually	\$0	12	Keep public informed			Operator; Realign bus network, add feeder svc	TVRM: potential contract operator
	Total		\$132.8						

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APPENDIX: Rail Implementation Plan Subtask Detail

1.0 Inter Local Agreements

Subtask Description	Develop Inter-local agreement between CDOT, CARTA, HCRA and TVRM on project development and service operation.
Task Duration	6 months
Planning Cost Estimate	No budget item
PARTNER AGENCY ROLES	
City Communications Office	Support as necessary
Chattanooga Department of Transportation	Lead: Develop template agreements
Regional Planning Agency	Signatory; Support agency coordination
Transportation Planning Organization	Signatory
CARTA	Signatory
Other	
NOTES	

2.0 Station Area Planning and Policy and Regulatory Changes

Subtask Description	Establish a vision and plan for each station area. Implement policy and regulatory changes to facilitate TOD.
Task Duration	18 months
Planning Cost Est.	\$800,000
PARTNER AGENCY ROLES	
City Communications Office	Facilitate communication in affected neighborhoods. Update the station area illustrative materials needed (provided as Illustrator files allowing for updates throughout the project).
Chattanooga Department of Transportation	Advise: Participate with local communities in multi-modal transportation planning efforts for station areas. Coordinate: address technical details for station planning teams – including access and circulation for vehicles and multimodal users; traffic impacts; safety; cross-easement access opportunities; Ensure greenway planning and design integrates with station area planning.
Regional Planning Agency	Lead: Develop RFP(s) and procure consultant team(s). Coordinate overall planning effort. Lead public outreach. Develop and implement form-based code and other policy and regulatory tools.
Transportation Planning Organization	Coordinate on multi-modal station access planning. Integrate with TIP and RTP as necessary.
CARTA	Coordinate on transit service considerations in station planning including access for buses; implement route changes for trail access.
Other	TVRM: coordinate/lead on development of plan for the Museum station
NOTES	
Subtask Detail	Station area planning and visioning effort to include six main task elements: <ul style="list-style-type: none"> – Market study – Vision, land use and multi-modal transportation plan – Parking study – Value capture study – Affordable housing study – Capital improvements plan
	Policy and regulatory tools include: <ul style="list-style-type: none"> – Form-based code (a direct result of the planning effort) – Value capture tools (e.g. TIF) – Incentives (e.g. Neighborhood Economic Development Tax Rebate program) – Joint development
	The main focus of the effort will be on the Central Avenue, Holtzclaw Avenue/Zoo and Glass Street stations. The Downtown Form-Based Code covers the Chattanooga Choo Choo area; planning efforts will focus on multi-modal connections and other capital improvements. Planning efforts for the Rail Museum station will cover parking requirements and multi-modal connections.

Station Area Economic Development Needs

In parallel with the station area land use planning and policy and regulatory changes addressed in the section above, this section lays out a set of actions that should be pursued by the City to foster the required levels of economic development in the rail station areas included in this project.

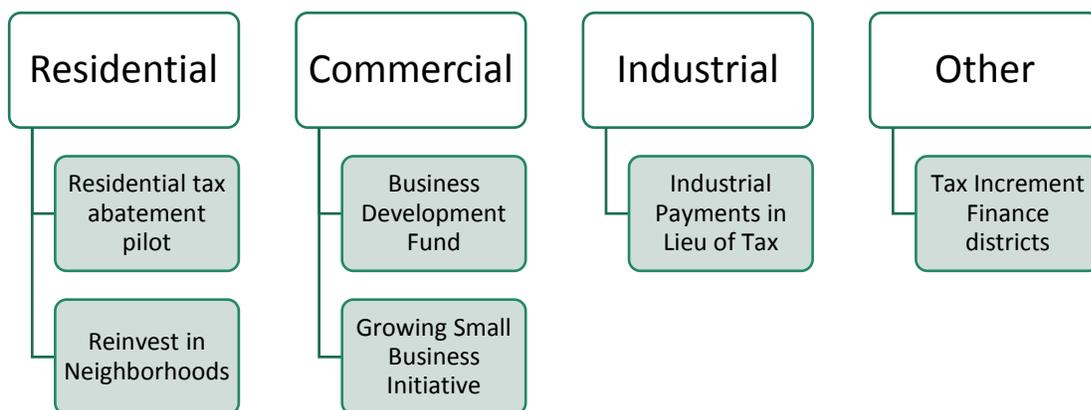
Ridership and financial projections for the rail service plan assumed significantly increased densities of both population (households) and employment (jobs) in the areas surrounding each station – within a half-mile radius – over both existing conditions and the status-quo projections for 2040 growth as provided by the Regional Planning Agency. The targets for NEW housing units and jobs within each station area are shown in the table below.

Station Area	2040 Targets (1/2 mile radius)	
	Added Housing Units	Added Jobs
Downtown (Choo Choo)	1,910	7,300
Holtzclaw	760	300
Glass Street	1,650	1,300
Rail Museum	380	350

The increased housing and employment densities are a requirement to provide sufficient market demand for the rail service from people within a reasonable walking distance of the stations – who would supplement riders that access the system via the CARTA bus system, drop-off or drive to station and cycle or use other modes.

To provide an environment that will help attract private sector investment in residential, commercial and industrial land uses in these locations, the City has already developed and funded a number of incentive programs described below.

City Economic Development Incentive Programs



The City Department of Transportation should coordinate with the Department of Economic and Community Development and the Regional Planning Agency to facilitate alignment of goals for each station area – based on the plans developed in Subtask 2 in this section above – with interested private

sector residential and commercial developers as well as foundations and the public sector within each station area.

Economic Development Action Plan

The City should pursue an Economic Development action plan for the rail corridor study area that should include the following specific tasks:

- i. Perform an economic analysis identifying strengths, assets, challenges and opportunities for each station area.
 - o Perform analysis of the study area by geography to determine employment sector and retail compatibility.
 - o Include a workforce analysis of each station area that identifies available labor types, opportunities for industry building and above average wage earning opportunities and makes recommendations for the City's role in meeting the needs of the evolving workforce.
 - o Identify what types of new and rehabilitated housing are needed along the project alignment and where. Identify barriers to supplying the target number of housing units along the corridor and identify actions to overcome barriers – particularly those that the City of Chattanooga can address.
 - o Identify modifications to incentive policies that may be identified as necessary to support the necessary job creation and private investment levels for companies.
- ii. Include strategies and recommendations that will encourage catalytic economic development opportunities.
- iii. Make recommendations for strategic industries for the study area for targeted attraction efforts. Estimate the number of permanent retail, commercial and industrial jobs and 1 year construction jobs that will be created by the project.
- iv. Identify the nature and types of key partnerships necessary to implement the affordable housing program.
- v. For each station area, specify the appropriate economic development incentive programs administered by the city that will support the location of the identified target employers in the retail, commercial and light industrial sectors. Make recommendations for the creation of new tools and programs that may be identified as needed.
- vi. Identify barriers to reaching job creation goals.
- vii. Include an analysis of and recommendations for alternative funding sources for economic development initiatives, station area infrastructure improvements and workforce development; include demonstrated examples from other communities, foundations, federal and state agencies and organizations.
- viii. Identify metrics and benchmarks that should be used to track and monitor progress.

Catalysts for Change in Station Areas

Meetings held in Chattanooga in August 2016 with business stakeholder groups identified a number of possible catalyst changes that would help to fundamentally change the developer activity and attractiveness of the rail station areas. Those ideas included:

- **Education** can be a game changer for the study area, and skills development to match current and future job opportunities has been highlighted as a need for the City as a whole, and particularly for the study area. Study participants mentioned at several meetings the need for improved connections to education facilities, particularly Chattanooga State College which would be better connected by shuttle bus connection from the Glass Street station.
- **Healthcare education** could be a significant opportunity in the study area with Memorial, Parkridge and Erlanger health complexes serving as major employment draws in the study area today, with plans for growth in future.
- The **Buster Brown** site off Chamberlain Avenue is one candidate development location for education opportunities. The building has historically and currently hosts education activities, and has significant additional existing space to expand these activities, as well as a lot of additional property that could be further developed.
- **Magnet schools** can be a catalytic change to attracting new residents to a neighborhood or community. Buster Brown could be a site for such a school.
- The former **Harriet Tubman** site off Hickory Street is a potential game changer for the Glass Street station site. This site is a large parcel of assembled land close to a wide mix of uses and transportation facilities, and could be redeveloped as residential, commercial, light industrial, or a mix of uses.
- **Open space** and recreational land is already a significant contributor to this community, and there are additional opportunities to connect protected open spaces into corridors that could serve active transportation uses as well as nature and open space. Momentum for this work is already underway by the Trust for Public Lands and other partners.
- The City is developing a **new recreational center** facility in the Avondale neighborhood that would benefit from improved transportation access, including active transportation via connected open space lands, and improved connections to educational opportunities and facilities.
- The **Chattanooga Developer Network** is an example of an existing organization that has the potential to have a transformational impact on development activity in the station areas along the project alignment. Their boot camp activities bring together experienced and new developers and can provide an opportunity to match local community desires and opportunities with investors looking to meet market demand in a wide range of areas, identifying local area-specific needs and opportunities for development.
- **Safety improvements** were discussed as a need for station areas to help attract new development. Improved street lighting, safety-by-design principles and community policing were noted as candidates for station area enhancements to support growth and economic development.

3.0 Phase 1 Trail Segments (Design and Construction)

Subtask Description	Work with Trust for Public Lands and other trail partners to implement Phase 1 trails – Choo Choo to Centra Avenue Station; Central Avenue to Holtzclaw station; former NS rail ROW through Orchard Knob an along Chamberlain Ave. to Glass Street station; south side of Cemetery and along Holtzclaw Ave; Chamberlain Ave and Glass Stconnector to NPS trail via rail alignment; Glass Street to Boyce Station and East Chatt. Rec. Center; completion of South Chick Greenway to Rail Museum station.
Task Duration	36 months
Planning Cost Estimate	\$4.8
PARTNER AGENCY ROLES	
City Communications Office	Coordinate communications with neighborhoods, communities, business groups, and trail partners. Utilize communications materials (project overview brochure, system wide map and station area maps that depict how the trails connect neighborhood activity centers and points of interest to the future rail stations) to inform stakeholders and the public. Host neighborhood information meetings (in combination with station area planning).
Chattanooga Department of Transportation	Task Lead: Finalize trail concepts; complete design; procure contractor.
Regional Planning Agency	Coordinate multimodal planning and integration with non-motorized transportation network including sidewalks and bike lanes. Integrate with station area planning effort.
Transportation Planning Organization	Plan for multimodal access to trails from local transportation system; integrate with TIP, RTP.
CARTA	Plan for bus stop access enhancements to trails; consider necessary bus stop relocations and minor routing adjustments for trail connections.
Other	Trust for Public Lands: Coordinate on trail design and construction contracts; coordinate on signage and wayfinding.
NOTES	
Detail on Trail Design and Implementation	Need to coordinate closely with station area planning efforts at Central Avenue, Holtzclaw and Glass Street stations.

4.0 NEPA Document Preparation and Finding of No Significant Impact (FONSI) for Rail

Subtask Description	Conduct environmental study in accordance with the National Environmental Policy Act (NEPA). The anticipated class of action is an Environmental Assessment (EA) and the anticipated lead federal agency is FTA. Environmental clearance to be sought for the entire rail transit project from TVRM to the Chattanooga Choo Choo (Phase I and Phase II).
Task Duration	18 months
Planning Cost Estimate	\$1.0M
PARTNER AGENCY ROLES	
City Communications Office	Public outreach per NEPA guidelines
Chattanooga Department of Transportation	Coordinate through CARTA
Regional Planning Agency	Stakeholders involved throughout process
Transportation Planning Organization	Stakeholders involved throughout process
CARTA	Lead on NEPA as potential FTA grantee
Other	FTA anticipated to be lead federal agency. Federal Railroad Administration (FRA) likely to be a cooperating agency
NOTES	
NEPA Document Preparation	Anticipated class of action is for an Environmental Assessment (EA). The EA would establish the Purpose and Need for the proposed project and document the proposed action and alternatives considered. The EA would provide an assessment of potential effects including air quality, noise and vibration, traffic, water quality, wetlands, floodplains, endangered species, hazardous materials, cultural resources, parklands, soils, energy, land use, environmental justice and construction.
FONSI	Upon completion and FTA approval of the draft EA, notice would be published in the Federal Register to provide for the opportunity for public comment. At the conclusion of the public comment period, comments would be assessed and a final EA prepared to respond to substantive comments. It is anticipated that the conclusion of the NEPA review will be a Finding of No Significant Impact (FONSI).

5.0 Preliminary Engineering (Rail Improvements)

Subtask Description	This task will develop 30% design plans for the rail and station improvements for both phases of the project. The preliminary design plans will define the project limits to be considered as part of the NEPA process.
Task Duration	18 months
Planning Cost Estimate	\$1.0M
PARTNER AGENCY ROLES	
City Communications Office	Facilitate information outreach to public and stakeholders throughout design progress
Chattanooga Department of Transportation	Management of design consultant, coordination with stakeholders
Regional Planning Agency	Stakeholders involved throughout process
Transportation Planning Organization	Incorporate in plans and Transportation Improvement Program (TIP)
CARTA	Designated as grant recipient (grantee) and as such must be designated as project sponsor
Other	Resource agencies Railroads
NOTES	
Preliminary Engineering Plans	The preliminary engineering task will define and develop design plans for all project elements including track design, track improvements, signal systems, stations, preliminary construction limits, etc. up to a level of 30% design for both phases of the project however can be split into separate drawings packages for each phase. A passenger rail operating plan will be required to define a timetable for train operations as well as storage and maintenance activities. Preliminary engineering is done in conjunction with and to support the NEPA document.

6.o Final Design Phase 1 Rail

Subtask Description	Prepare final procurement documents for track, station, tunnel and signaling improvements. Prepare vehicle procurement specifications.
Task Duration	1 year
Planning Cost Estimate	\$5.6M (percentage of construction cost estimate)
PARTNER AGENCY ROLES	
City Communications Office	Facilitate information outreach to public and stakeholders throughout design progress
Chattanooga Department of Transportation	Management of design consultant, coordination with stakeholders
Regional Planning Agency	Stakeholders involved throughout process
Transportation Planning Organization	Stakeholders involved throughout process
CARTA	Stakeholders involved throughout process, participate in project design as assumed operator of the service; design feeder bus network
Other	TVRM: coordinate on operating plan design Railroads: Coordinate on operating plan
NOTES	
Final Design/Engineering	Final design documents must be sufficient to develop a firm and reliable cost, scope, and schedule for the project. Upon completion of final design all operating agreements should be executed, property acquisition completed where necessary, and all critical third party agreements completed. Phase 1 final design would include the TVRM maintenance facility improvements, station designs, park and ride improvements, track rehabilitation, new track construction, siding tracks, special trackwork, etc. from the Central Avenue station to TVRM.

7.0 Phase 2 Trail segments

Subtask Description	Continue work with trail partnerships to implement Phase 2 trails – Choo Choo station; Holtzclaw to Glass Street; Dodson Avenue; Glass Street; NS rail ROW to Boyce Station neighborhood Alternative alignment through National Cemetery and Warner Park; spur to Montague Park; Glass St. spur to Hardy/Garber Elementary; Boyce Station to South Chick Greenway via Dodson Ave.; connector from South Chick Greenway to Bonny Oaks.
Task Duration	18 months
Planning Cost Estimate	\$1.5M
PARTNER AGENCY ROLES	
City Communications Office	Coordinate communications with neighborhoods, communities, business groups; host neighborhood information meetings (in combination with station area planning).
Chattanooga Department of Transportation	Lead: Finalize concepts; complete trail planning and design; procure contractor
Regional Planning Agency	Coordinate multimodal planning and integration with non-motorized transportation network including sidewalks and bike lanes. Integrate with station area planning effort.
Transportation Planning Organization	Coordinate multimodal planning, access ; integrate with TIP, RTP.
CARTA	Implement route changes and bus stop access enhancements to provide better-coordinated access between trail and transit
Other	TPL: Coordinate on design and construction contracts
NOTES	
Subtask Detail	Phase 2 trails focus on ECTB rail line ROW along Holtzclaw Street to Glass Street neighborhood, including along Dodson Avenue.

8.0 Procure DMU rail vehicles

Subtask Description	Procure three train sets: two for service and one spare. Anticipate self-propelled diesel powered vehicles (DMU). This procurement would be partially funded through the first federal funding request.
Task Duration	24 months
Planning Cost Estimate	\$27M
PARTNER AGENCY ROLES	
City Communications Office	Stakeholders involved throughout process
Chattanooga Department of Transportation	Coordinate with CARTA
Regional Planning Agency	Stakeholders involved throughout process
Transportation Planning Organization	Stakeholders involved throughout process
CARTA	Lead vehicle procurement process within FTA oversight
Other	TVRM & Railroads: coordinate on any vehicle specification requirements
NOTES	
Subtask Detail	Industry forum or surveys with peer agencies recommended in order to get feedback and lessons learned on the vehicle procurement process. Vehicles of existing "proven" designs and/or combined vehicle procurements with other agencies should be considered to potentially reduce costs. Additional steps include schedule preparation, performance and design criteria, specification preparation, solicitation, contract award and management, conceptual design, preliminary design, engineering, first article inspection, manufacturing and oversight of the vehicle manufacturer throughout this process will be required.

9.0 Construction Phase 1 Rail

Subtask Description	Includes construction of all the necessary infrastructure elements to enable operation of a rail transit system between the TVRM and Central Avenue. This project would be partially funded through the first federal funding request.
Task Duration	18 months
Planning Cost Estimate	\$36.5M
PARTNER AGENCY ROLES	
City Communications Office	Facilitate information outreach to public and stakeholders throughout construction
Chattanooga Department of Transportation	Procure contractor and construction management services
Regional Planning Agency	Stakeholders involved throughout process
Transportation Planning Organization	Stakeholders involved throughout process
CARTA	Coordinate on transit related equipment – rail and bus, and on station access accommodations
Other	TVRM – maintenance facility upgrade Railroads – coordinate on construction HCRA – coordinate on construction
NOTES	
Subtask Detail	Construction bid packages are prepared during final design and are bid upon by contractors for various aspects of work. Construction management is performed by the Project Sponsor or its consultant and involves oversight of the work in progress as well as inspection and testing, quality assurance, cost and schedule control, documentation of as-built drawings, etc. A detailed Construction Management Plan should be developed to assure implementation of the proposed transit improvements in accordance with the designs, specifications, and resources established in the previous phases. Phase 1 construction would include the TVRM maintenance facility improvements, station designs, park and ride improvements, track rehabilitation, new track construction, siding tracks, special trackwork, etc. from the Central Avenue station to TVRM.

10.0 Construction of Station Area Capital Improvements

Subtask Description	Includes design and construction of publically-funded capital improvements to support access to rail stations and TOD activity as identified in the station area plans. Additionally includes construction of infrastructure elements that may be identified in the Economic Development Action Plan (see Task 2). To be funded through a combination of federal funds for Phase 1 rail and local funds generated by value-capture mechanisms.
Task Duration	18 months
Planning Cost Estimate	To be determined in Station Area Plans – see Task 2.
PARTNER AGENCY ROLES	
City Communications Office	Coordination with neighborhood and business entities.
Chattanooga Department of Transportation	Lead: Procure contractor and construction management services.
Regional Planning Agency	Coordinate and advise City to ensure improvements are consistent with station area plans.
Transportation Planning Organization	Coordinate on access and circulation opportunities and issues
CARTA	Coordinate on transit route changes and access opportunities related to station area improvements.
Other	TVRM – coordinate/lead on museum station enhancements
NOTES	
Subtask Detail	Capital improvements will be identified in the Station Area Plans (Task 2) and could include: <ul style="list-style-type: none"> – Stations – Parking – Civic space – Sidewalks, bikeways and greenway connections – Streetscape – Signage/wayfinding – Road improvements
	Economic Development Improvements will be identified through a focused Action Plan (Task 2) and could include: <ul style="list-style-type: none"> – Workforce development - local initiatives that can be facilitated through existing or new education institutions and facilities within the study corridor. – Land development/site preparation aimed at specific industry clusters identified as targets for specific station areas. May be oriented to residential, commercial or small industrial uses. – Specific infrastructure investments aimed at target industries – probably rail-related in this case. – May include funds for incentive programs – either existing or new.

11.0 Phase 3 Trail segments

Subtask Description	Continue work with trail partnerships to implement Phase 3 trails – Boyce Station to South Chick Greenway; Bonny Oaks to Enterprise SouthCentral Avenue connector to Bessie Smith Center; rail-with-trail section from Holtzclaw to Glass St.; Bonny Oaks Drive (concurrent with road construction).
Task Duration	18 months
Planning Cost Estimate	\$1.9M
PARTNER AGENCY ROLES	
City Communications Office	Coordinate communications with neighborhoods, communities, business groups; host neighborhood information meetings (in combination with station area planning).
Chattanooga Department of Transportation	Lead (Boyce Station to South Chick segment): Finalize concepts; complete design; procurement of construction contractor. Coordinate: Ensure multi-use trail is incorporated into Bonny Oaks design. Advise on design.
Regional Planning Agency	
Transportation Planning Organization	Coordinate regional trails and multimodal network Ensure project is included in Bonny Oaks widening.
CARTA	Bus stop access enhancements.
Other	TDOT: Lead on Enterprise South extension (included as part of Bonny Oaks widening). TPL: Coordinate on design and construction contracts.
NOTES	
Subtask Detail	Phase 3 segments focus on extending the trail from the Boyce Street neighborhood north along Dodson Avenue and Harrison Pike and east to Bonny Oaks Drive, extending to Enterprise South, incorporated as part of a road widening project on Bonny Oaks Drive.

12.0 Delivery of DMU rail vehicles

Subtask Description	Take delivery and initiate service testing of vehicles. Includes two service vehicles and one spare. Used vehicles may be considered.
Task Duration	9 months
Planning Cost Estimate	\$1.1M (percentage of first year operating budget)
PARTNER AGENCY ROLES	
City Communications Office	Communicate with Media/Press to keep public informed and showcase new investment.
Chattanooga Department of Transportation	Stakeholders involved throughout process. Traffic safety management in station areas and at intersections.
Regional Planning Agency	Stakeholders involved throughout process
Transportation Planning Organization	Stakeholders involved throughout process
CARTA	Lead: Receipt, testing and system integration.
Other	Railroads: Coordinate on testing and integration
NOTES	
Testing and Start-Up	The purpose of this phase is to verify that the project meets the contractual specifications by conducting system, performance, and acceptance tests. In addition, a period of pre-revenue service is required to familiarize the management and operations and maintenance (O&M) personnel with the new system prior to beginning revenue service.

13.0 Initiate Rail Service Phase 1

Subtask Description	Initiate operation of the passenger rail system between TVRM and Central Avenue.
Task Duration	12 months includes testing
Planning Cost Estimate	\$5.4M annual operating cost
PARTNER AGENCY ROLES	
City Communications Office	Keep public informed of progress. Opening ceremonies.
Chattanooga Department of Transportation	Stakeholders involved throughout process
Regional Planning Agency	Stakeholders involved throughout process
Transportation Planning Organization	Stakeholders involved throughout process
CARTA	CARTA is assumed to be the service operator. Realign existing CARTA routes for station access, add feeder bus routes to Enterprise South and other destinations. Realign existing CARTA routes for station access, add feeder bus routes.
Other	TVRM: assumed a potential contract service operator
NOTES	
Subtask Detail	Begin revenue service operations, maintain coordination with railroads

14.0 Final Design Phase 2 Rail

Subtask Description	Prepare final procurement documents for track, station and underpass/bridges. Extensive coordination with CSX and NS railroads to maintain service during construction.
Task Duration	18 months
Planning Cost Estimate	\$4.2M (based on estimated construction cost)
PARTNER AGENCY ROLES	
City Communications Office	Facilitate information outreach to public and stakeholders throughout design progress.
Chattanooga Department of Transportation	Management of consultant, coordination with stakeholders
Regional Planning Agency	Stakeholders involved throughout process
Transportation Planning Organization	Stakeholders involved throughout process
CARTA	Stakeholders involved throughout process, refine feeder bus network.
Other	HCRA and Railroads: Coordinate on design
NOTES	
Final Design/Engineering	Prepare final procurement documents for track, station and underpass/bridges. Extensive coordination with CSX and NS railroads to maintain service during construction.

15.0 Construction Phase 2 Rail

Subtask Description	Bridges under Central Avenue and NS and spur tracks; assumes transition to 10' depth.
Task Duration	18 months
Planning Cost Estimate	\$47.4M
PARTNER AGENCY ROLES	
City Communications Office	Keep public informed of progress.
Chattanooga Department of Transportation	Procure contractor and construction management services.
Regional Planning Agency	Stakeholders involved throughout process
Transportation Planning Organization	Stakeholders involved throughout process
CARTA	Stakeholders involved throughout process
Other	HCRA and Railroads: Coordinate on construction and maintenance of traffic
NOTES	
Subtask Detail	On full implementation of the project, a new underpass will be constructed under the existing NSR and CSX freight tracks and a new station will be constructed on the site of the Chattanooga Choo Choo. Extensive coordination with CSX and NS railroads to maintain service during construction.

16.0 Initiate Rail Service Phase 2

Subtask Description	Testing and service expansion; new track and station.
Task Duration	12 months including testing; Ongoing
Planning Cost Estimate	\$5.6M annual operating cost
PARTNER AGENCY ROLES	
City Communications Office	Keep public informed of progress and opening day events and services
Chattanooga Department of Transportation	Stakeholders involved throughout process
Regional Planning Agency	Stakeholders involved throughout process
Transportation Planning Organization	Stakeholders involved throughout process
CARTA	CARTA is assumed to be the service operator. Realign existing CARTA routes for station access, add feeder bus routes to Enterprise South and other destinations Realign existing CARTA routes for station access, add feeder bus routes.
Other	TVRM: assumed a potential contract service operator
NOTES	
Subtask Detail	Begin revenue service operations, maintain coordination with railroads.