

GRANT APPLICATION SUMMARY SHEET

Grant Name: Advanced Transportation Technology and Innovation (ATTAIN)
23-26

Department: NDOT

Grantor: U.S. DEPARTMENT OF TRANSPORTATION

**Pass-Through Grantor
(If applicable):**

Total Applied For \$12,000,000.00

Metro Cash Match: \$3,400,000.00

Department Contact: Casey Hopkins
8801676

Status: NEW

Program Description:

The Metropolitan Government of Nashville and Davidson County (Metro Nashville) proposes to develop a fully instrumented Advanced Transportation Management System (ATMS) with Transit Signal Priority (TSP) technology along Gallatin Pike in Nashville, Tennessee. Gallatin Pike routinely experiences some of the highest transit ridership in Middle Tennessee and is one of Metro Nashville's most congested corridors.

Plan for continuation of services upon grant expiration:

N/A

**APPROVED AS TO AVAILABILITY
OF FUNDS:**

DocuSigned by:
Kelly Flannery 11/18/2022
Director of Finance Date
DS DS
GLM TE

**APPROVED AS TO FORM AND
LEGALITY:**

DocuSigned by:
Courtney Mohan 11/18/2022
Metropolitan Attorney Date

**APPROVED AS TO RISK AND
INSURANCE:**

DocuSigned by:
Balogun Cole 11/18/2022
Director of Risk Management Date
Services

DocuSigned by:
John Cooper 11/18/2022
Metropolitan Mayor Date
(This application is contingent upon approval of the application by the Metropolitan Council.)

Grants Tracking Form

Part One

Pre-Application ☐		Application ☒		Award Acceptance ☐		Contract Amendment ☐	
Department	Dept. No.	Contact				Phone	Fax
NDOT	042	Casey Hopkins				8801676	
Grant Name:		Advanced Transportation Technology and Innovation (ATTAIN) 23-26					
Grantor:		U.S. DEPARTMENT OF TRANSPORTATION				Other:	
Grant Period From:		05/01/23	(applications only) Anticipated Application Date:		11/18/22		
Grant Period To:		05/01/26	(applications only) Application Deadline:		11/18/22		
Funding Type:	FED DIRECT	Multi-Department Grant		☐ If yes, list below.			
Pass-Thru:	Select Pass-Thru -->	Outside Consultant Project:		☐			
Award Type:	COMPETITIVE	Total Award:		\$12,000,000.00			
Status:	NEW	Metro Cash Match:		\$3,400,000.00			
Metro Category:	New Initiative	Metro In-Kind Match:		\$0.00			
CFDA #	20.200	Is Council approval required?		☒			
Project Description:		Applic. Submitted Electronically?		☒			
The Metropolitan Government of Nashville and Davidson County (Metro Nashville) proposes to develop a fully instrumented Advanced Transportation Management System (ATMS) with Transit Signal Priority (TSP) technology along Gallatin Pike in Nashville, Tennessee. Gallatin Pike routinely experiences some of the highest transit ridership in Middle Tennessee and is one of Metro Nashville's most congested corridors.							
Plan for continuation of service after expiration of grant/Budgetary Impact:							
N/A							
How is Match Determined?							
Fixed Amount of \$		or		20.0%		% of Grant	
Explanation for "Other" means of determining match:		Other: ☐					
For this Metro FY, how much of the required local Metro cash match:							
Is already in department budget?		\$3,400,000.00		Fund	42021	Business Unit	42409021
Is not budgeted?		\$0.00		Proposed Source of Match:		FY21 CSP	
(Indicate Match Amount & Source for Remaining Grant Years in Budget Below)							
Other:							
Number of FTEs the grant will fund:		0.00		Actual number of positions added:		0.00	
Departmental Indirect Cost Rate		18.83%		Indirect Cost of Grant to Metro:		\$2,899,820.00	
*Indirect Costs allowed? ☐ Yes ☒ No		% Allow.		Ind. Cost Requested from Grantor:		\$0.00 in budget	
*(If "No", please attach documentation from the grantor that indirect costs are not allowable. See Instructions)							
Draw down allowable? ☐							
Metro or Community-based Partners:							

Part Two

Grant Budget										
Budget Year	Metro Fiscal Year	Federal Grantor	State Grantor	Other Grantor	Local Match Cash	Match Source (Fund, BU)	Local Match In-Kind	Total Grant Each Year	Indirect Cost to Metro	Ind. Cost Neg. from Grantor
Yr 1	FY23	\$4,000,000.00	\$0.00	\$0.00	\$1,700,000.00	42021, 42409021	\$0.00	\$5,700,000.00	\$1,073,310.00	\$0.00
Yr 2	FY24	\$4,000,000.00	\$0.00	\$0.00	\$1,700,000.00	42021, 42409021	\$0.00	\$5,700,000.00	\$1,073,310.00	\$0.00
Yr 3	FY25	\$4,000,000.00	\$0.00	\$0.00	\$0.00	42021, 42409021	\$0.00	\$4,000,000.00	\$753,200.00	\$0.00
Yr 4	FY__									
Yr 5	FY__									
Total		\$12,000,000.00	\$0.00	\$0.00	\$3,400,000.00	42021, 42409021	\$0.00	\$15,400,000.00	\$2,899,820.00	\$0.00
Date Awarded:		Tot. Awarded:				Contract#:				
(or) Date Denied:		Reason:								
(or) Date Withdrawn:		Reason:								

Contact: juanita.paulsen@nashville.gov
vaughn.wilson@nashville.gov

VW

Application for Federal Assistance SF-424

* 1. Type of Submission:

- ☐ Preapplication
☒ Application
☐ Changed/Corrected Application

* 2. Type of Application:

- ☒ New
☐ Continuation
☐ Revision

* If Revision, select appropriate letter(s):

* Other (Specify):

* 3. Date Received:

Completed by Grants.gov upon submission.

4. Applicant Identifier:

5a. Federal Entity Identifier:

5b. Federal Award Identifier:

State Use Only:

6. Date Received by State:

7. State Application Identifier:

8. APPLICANT INFORMATION:

* a. Legal Name:

Metropolitan Government of Nashville-Davidson County

* b. Employer/Taxpayer Identification Number (EIN/TIN):

62-0694743

* c. UEI:

LGZLHP6ZHM55

d. Address:

* Street1:

1 Public Square

Street2:

* City:

Nashville

County/Parish:

* State:

TN: Tennessee

Province:

* Country:

USA: UNITED STATES

* Zip / Postal Code:

37201-5007

e. Organizational Unit:

Department Name:

Division Name:

f. Name and contact information of person to be contacted on matters involving this application:

Prefix:

* First Name:

Casey

Middle Name:

* Last Name:

Hopkins

Suffix:

Title:

Organizational Affiliation:

* Telephone Number:

6158801676

Fax Number:

* Email:

casey.hopkins@nashville.gov

Application for Federal Assistance SF-424

* 9. Type of Applicant 1: Select Applicant Type:

C: City or Township Government

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

* 10. Name of Federal Agency:

DOT Federal Highway Administration

11. Catalog of Federal Domestic Assistance Number:

CFDA Title:

* 12. Funding Opportunity Number:

693JJ322NF00010

* Title:

Advanced Transportation Technologies and Innovative Mobility Deployment (ATTIMD) Program

13. Competition Identification Number:

693JJ322NF00010

Title:

ATTIMD/ATTAIN

14. Areas Affected by Project (Cities, Counties, States, etc.):

Add AttachmentDelete AttachmentView Attachment

* 15. Descriptive Title of Applicant's Project:

Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

Attach supporting documents as specified in agency instructions.

Add AttachmentsDelete AttachmentsView Attachments

Application for Federal Assistance SF-424**16. Congressional Districts Of:*** a. Applicant * b. Program/Project

Attach an additional list of Program/Project Congressional Districts if needed.

Add Attachment

Delete Attachment

View Attachment

17. Proposed Project:* a. Start Date: * b. End Date: **18. Estimated Funding (\$):**

* a. Federal	12,000,000.00
* b. Applicant	3,400,000.00
* c. State	0.00
* d. Local	0.00
* e. Other	0.00
* f. Program Income	0.00
* g. TOTAL	15,400,000.00

*** 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

- ☐ a. This application was made available to the State under the Executive Order 12372 Process for review on .
- ☐ b. Program is subject to E.O. 12372 but has not been selected by the State for review.
- ☒ c. Program is not covered by E.O. 12372.

*** 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes," provide explanation in attachment.)**

☐ Yes ☒ No

If "Yes", provide explanation and attach

Add Attachment

Delete Attachment

View Attachment

21. *By signing this application, I certify (1) to the statements contained in the list of certifications and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 18, Section 1001)**

☒ ** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:

Prefix: * First Name:

Middle Name:

* Last Name:

Suffix:

* Title: * Telephone Number: Fax Number: * Email:

* Signature of Authorized Representative: * Date Signed:

BUDGET INFORMATION - Non-Construction Programs

OMB Number: 4040-0006
Expiration Date: 02/28/2025

SECTION A - BUDGET SUMMARY

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Advanced Transportation Technologies and Innovative Mobility Deployment (ATTIMD) Program	20.200	\$	\$	\$ 12,000,000.00	\$ 3,400,000.00	\$ 15,400,000.00
2.						
3.						
4.						
5. Totals		\$	\$	\$ 12,000,000.00	\$ 3,400,000.00	\$ 15,400,000.00

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SECTION B - BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY				Total (5)
	(1)	(2)	(3)	(4)	
	Advanced Transportation Technologies and Innovative Mobility Deployment (ATTIMD) Program				
a. Personnel	\$	\$	\$	\$	\$
b. Fringe Benefits					
c. Travel					
d. Equipment					
e. Supplies					
f. Contractual					
g. Construction	15,400,000.00				15,400,000.00
h. Other					
i. Total Direct Charges (sum of 6a-6h)	15,400,000.00				\$ 15,400,000.00
j. Indirect Charges					\$
k. TOTALS (sum of 6i and 6j)	\$ 15,400,000.00	\$	\$	\$	\$ 15,400,000.00
7. Program Income	\$	\$	\$	\$	\$

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SECTION C - NON-FEDERAL RESOURCES

	(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) TOTALS
8.	Advanced Transportation Technologies and Innovative Mobility Deployment (ATTIMD) Program	\$ 3,400,000.00	\$ 0.00	\$ 0.00	\$ 3,400,000.00
9.					
10.					
11.					
12. TOTAL (sum of lines 8-11)		\$ 3,400,000.00	\$ 0.00	\$ 0.00	\$ 3,400,000.00

SECTION D - FORECASTED CASH NEEDS

	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
13. Federal	\$	\$	\$	\$	\$
14. Non-Federal	\$				
15. TOTAL (sum of lines 13 and 14)	\$	\$	\$	\$	\$

SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT

	(a) Grant Program	FUTURE FUNDING PERIODS (YEARS)			
		(b) First	(c) Second	(d) Third	(e) Fourth
16.	Advanced Transportation Technologies and Innovative Mobility Deployment (ATTIMD) Program	\$ 4,000,000.00	\$ 4,000,000.00	\$ 4,000,000.00	\$
17.					
18.					
19.					
20. TOTAL (sum of lines 16 - 19)		\$ 4,000,000.00	\$ 4,000,000.00	\$ 4,000,000.00	\$

SECTION F - OTHER BUDGET INFORMATION

21. Direct Charges:		22. Indirect Charges:	
23. Remarks:			

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ASSURANCES - NON-CONSTRUCTION PROGRAMS

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0040), Washington, DC 20503.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

NOTE: Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the awarding agency. Further, certain Federal awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project cost) to ensure proper planning, management and completion of the project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
4. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
5. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
6. Will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee- 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.
7. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
8. Will comply, as applicable, with provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

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9. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333), regarding labor standards for federally-assisted construction subagreements.
10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).
12. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).
14. Will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.
15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. §§2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.
16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."
18. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.
19. Will comply with the requirements of Section 106(g) of the Trafficking Victims Protection Act (TVPA) of 2000, as amended (22 U.S.C. 7104) which prohibits grant award recipients or a sub-recipient from (1) Engaging in severe forms of trafficking in persons during the period of time that the award is in effect (2) Procuring a commercial sex act during the period of time that the award is in effect or (3) Using forced labor in the performance of the award or subawards under the award.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL	TITLE
Completed on submission to Grants.gov	Grants Coordinator
APPLICANT ORGANIZATION	DATE SUBMITTED
Metropolitan Government of Nashville-Davidson County	Completed on submission to Grants.gov

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CERTIFICATION REGARDING LOBBYING**Certification for Contracts, Grants, Loans, and Cooperative Agreements**

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Statement for Loan Guarantees and Loan Insurance

The undersigned states, to the best of his or her knowledge and belief, that:

If any funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this commitment providing for the United States to insure or guarantee a loan, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions. Submission of this statement is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required statement shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

*** APPLICANT'S ORGANIZATION**

Metropolitan Government of Nashville-Davidson County

*** PRINTED NAME AND TITLE OF AUTHORIZED REPRESENTATIVE**

Prefix: * First Name: Middle Name:
* Last Name: Suffix:
* Title:

* SIGNATURE:

* DATE:

DISCLOSURE OF LOBBYING ACTIVITIES

Complete this form to disclose lobbying activities pursuant to 31 U.S.C.1352

OMB Number: 4040-0013

Expiration Date: 02/28/2025

1. * Type of Federal Action: ☐ a. contract ☒ b. grant ☐ c. cooperative agreement ☐ d. loan ☐ e. loan guarantee ☐ f. loan insurance	2. * Status of Federal Action: ☒ a. bid/offer/application ☐ b. initial award ☐ c. post-award	3. * Report Type: ☒ a. initial filing ☐ b. material change
4. Name and Address of Reporting Entity: ☒ Prime ☐ SubAwardee *Name Metropolitan Government of Nashville-Davidson County *Street 1 1 Public Square Street 2 *City Nashville State TN: Tennessee Zip Congressional District, if known:		
5. If Reporting Entity in No.4 is Subawardee, Enter Name and Address of Prime: 		
6. * Federal Department/Agency: U.S Department of Transportation	7. * Federal Program Name/Description: CFDA Number, if applicable:	
8. Federal Action Number, if known: 	9. Award Amount, if known: \$	
10. a. Name and Address of Lobbying Registrant: Prefix *First Name Ana Middle Name *Last Name Cruz Suffix *Street 1 601 Thirteenth St, NW, Suite 250 S Street 2 *City Washington State DC: District of Columbia Zip		
b. Individual Performing Services (including address if different from No. 10a) Prefix *First Name Ana Middle Name *Last Name Cruz Suffix *Street 1 601 Thirteenth St, NW, Suite 250 S Street 2 *City Washington State DC: District of Columbia Zip		
11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when the transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure. *Signature: Completed on submission to Grants.gov *Name: Prefix *First Name Casey Middle Name *Last Name Hopkins Suffix Title: Telephone No.: Date: Completed on submission to Grants.gov		
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Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

PROJECT INFORMATION

Project Title	Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment
Eligible Entity Applying To Receive Federal Funding	Metropolitan Government of Nashville & Davidson County, Tennessee
Total Project Cost (From All Sources)	\$15,400,000
Attain Request	\$12,000,000
Are Matching Funds Restricted To A Specific Project Component? If So, Which One?	
State(s) In Which The Project Is Located	Tennessee
Project Is Currently Programmed In	Not Yet Programmed
Project Will Use The Following Connected Technologies	BlueTooth® Dual-Use DSRC/C-V2X Cellular Component
Technologies Proposed To Be Deployed	• Traffic signal synchronization strategies • Automated traffic signal performance measures (ATSPMs) • Special event traffic management • Traffic Signal Priority (TSP) strategies • Updated pedestrian signalization infrastructure • Video surveillance via arterial CCTV cameras • BlueTooth® travel time units
Will The Project Use Automated Driving System Technologies?	No
Located In Rural Area?	No





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

TABLE OF CONTENTS

Cover Page	1
Project Narrative	3
Project Summary	3
Demographics	6
Real-World Issues and Challenges	8
Transportation Systems and Services to be Included in the Project	9
Deployment Plan	10
Obstacles to Deployment	11
Quantifiable Performance Improvements	11
Safety, Mobility, and Environmental Benefits	11
Vision, Goals, and Objectives	14
Leveraging Existing Assets	15
Schedule	16
Climate Change and Environmental Justice	18
Racial Equity and Eliminating Barriers to Opportunity	19
Leveraging Existing U.S. DOT Resources	19
Alignment with U.S. DOT Goals	20
Project Outcome Criteria	22
Criterion #1: Economic Impacts, Freight Movement, and Job Creation	22
Criterion #2: Climate Change, Resiliency, and the Environment	23
Criterion #3: Equity, Multimodal Options, and Quality of Life	24
Management Structure	26
Description of Applicant Organization	26
Partnership Plan	27
Designation of Sub-Recipients	27
Evidence of Memorandum of Understanding	27
Organizational Chart	28
Staffing Description	28
Appendix: Resumes of Key Personnel	





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

PROJECT NARRATIVE

Project Summary

The Metropolitan Government of Nashville and Davidson County (Metro Nashville) proposes to develop a fully instrumented Advanced Transportation Management System (ATMS) with Transit Signal Priority (TSP) technology along Gallatin Pike in Nashville, Tennessee. Gallatin Pike routinely experiences some of the highest transit ridership in Middle Tennessee and is one of Metro Nashville's most congested corridors.

Description of Project

The Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment project would include an Ethernet-based fiber optic communications network constructed along Gallatin Pike that connects to a regional Transportation Management Center (TMC) currently in the design phase via a separate funding mechanism. The improvements would extend along Gallatin Pike from South 5th Street to Riverchase Boulevard, for a distance of approximately 8.4 miles. Intelligent Transportation Systems (ITS) technology components would be placed along the corridor, including Advanced Transportation Controller (ATC) deployment, non-intrusive radar detection, arterial closed-circuit television (CCTV) camera deployment, and Bluetooth® travel time technology. From a transit perspective, TSP technology would be deployed along the corridor to prioritize bus movements and maintain transit schedules.

ITS and TSP equipment installed along the corridor and/or within a transit vehicle would improve multimodal traffic operations along Gallatin Pike by enabling the following real-time operational strategies:

- Traffic signal synchronization strategies (time-of-day/day-of-week plans, traffic responsive, and/or adaptive signal-control technologies (ASCT));
- Automated traffic signal performance measures (ATSPMs) to continually manage and optimize traffic operations;
- Special event traffic management;
- TSP strategies such as:
 - Queue jumps (QJ),
 - Early green and green extension of vehicle phases serving transit movements, and
 - Signal phase insertions to exclusively serve transit;
- Updated pedestrian signalization infrastructure (countdown pedestrian signal heads, Public Rights-of-Way Accessibility Guidelines (PROWAG) compliant pedestrian push buttons and curb ramps, enhanced pedestrian crosswalks) to provide greater access to bus stops;





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

- Video surveillance via arterial CCTV cameras; and
- BlueTooth® travel time units to assist with disseminating travel times.

These improvements would make it easier for residents and tourists to move in and around Metro Nashville, improve safety, attract additional transit users, provide greater access to jobs, and enhance economic development.

Description of Project Area

The Gallatin Pike ATMS and TSP Deployment project is located in Nashville, Tennessee. Nashville is the cultural and political capital of Tennessee, as well as the heart of the country music industry. The country's longest running radio program, the Grand Ole Opry, started in, and is still broadcast from, Nashville. Nashville is also home to the corporate headquarters for a variety of health care entities, as well as several colleges and universities, including:

- Belmont University
- Fisk University
- Lipscomb University
- Meharry Medical College
- Tennessee State University
- Vanderbilt University

More specifically, the Gallatin Pike ATMS and TSP Deployment project is located along Gallatin Pike, which extends from downtown Nashville in a northeasterly direction for 8.4 miles to the Davidson/Sumner County line. Gallatin Pike serves a multi-modal mix of commuters and local traffic. The Metropolitan Transit Authority's (WeGo Public Transit) Bus Rapid Transit (BRT) Lite service on Gallatin Pike provides the corridor with additional level of transit reliability and access. Within the project area, Gallatin Pike passes through three community plan areas¹ - Downtown, East Nashville, and Madison.

Gallatin Pike is experiencing growth throughout each of these plan areas, as well as related operational issues due to increased congestion and is an excellent candidate for deploying enhanced ATMS and TSP technologies aimed at improving mobility. These upgrades would lead to better congestion management, more predictable trips (including transit trips), and improved livability along this important corridor within the Nashville region. These improvements will help build important local capacity and set Nashville on the path to deploy new mobility technology solutions throughout the regional roadway and transit network.

Downtown

The proposed improvements to Gallatin Pike begin along the northeastern edge of Downtown Nashville, at the intersection of South 5th Street and Main Street (Main Street transitions to be called Gallatin Pike approximately one (1) mile to the northeast).

¹ Nashville, Community Plans. Community Plans | Nashville.gov





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

Downtown Nashville is a cultural, entertainment, tourism, and employment hub for Middle Tennessee. In recent years, Downtown Nashville has experienced the addition of new and expanding businesses, the preservation of historic sites, investment in new civic facilities and open spaces, increasing variety of entertainment options, and new residential choices.

Downtown Nashville features a high concentration of cultural attractions that bring an influx of visitors to Metro Nashville's downtown each year. In 2021, 12.6 million tourists² visited Metro Nashville, quickly rebounding from the reduction in tourism experienced during the height of the COVID-19 pandemic in 2020. Visitors to Downtown Nashville are attracted to the historic music venues and honky-tonk bars. In 2021, visitors brought with them over seven billion dollars in direct visitor spending. These tourism numbers over the last several years have helped to spur a boom in new hotel rooms and nationally renowned dining experiences, with Nashville ranking among the top five (5) U.S. cities with the highest demand for hotel rooms.



Source: Downtown Nashville Community Plan

East Nashville

The proposed project corridor extends to the northeast from Downtown Nashville into the East Nashville planning area, within which it begins to be called Gallatin Pike.

East Nashville consists primarily of historic urban residential neighborhoods and classic suburban neighborhoods, with restaurant, retail, and service businesses along Gallatin Pike serving both pass-through customers and customers from adjacent neighborhoods.

With imaginative, local mixed-use developments at Five Points and along the Main Street/ Gallatin Pike corridor, Gallatin Pike is becoming a destination for locals and tourists alike.

While arguably one of Nashville's most urban communities, East Nashville includes 2,018 acres (15 percent of its land uses) in open space, civic facilities, schools, community centers, common open space areas of residential developments, cemeteries, and places of worship.



Source: East Nashville Community Plan

² Nashville, Music City. Research and Hospitality Stats.



Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment



Source: Madison Community Plan

Madison

Beyond the East Nashville planning area, the proposed improvements move into, and ultimately end in, the Madison planning area. Gallatin Pike extends along the entire length of the Madison planning area and serves as a major north south thoroughfare.

Madison contains numerous established urban and suburban neighborhoods. Though to a lesser degree than in the Downtown Nashville and East Nashville planning areas, Madison has also experienced residential infill

and an increase in commercial density. Madison's offerings run the gamut from dense retail in and around the Rivergate Mall area to the rural oasis of Neely's Bend.

Demographics

Nashville has a population of 670,820 (Census 2019) and is 525 square miles in size, with an annual growth rate of 1.24% over the last decade. The Gallatin Pike ATMS and TSP Deployment project is located in or along 12 Census Tracts (CTs 104.01, 104.04, 107.01, 107.02, 111, 112, 114, 117, 119, 121, 192, 193) within the Nashville-Davidson Metropolitan Statistical Area. The population living below the poverty line in five (5) of these Census Tracts (CT 104.04 [22.1%], CT 107.02 [15.9%], CT 119 [31.5%], CT 192 [20.8%], and CT 193 [61.3%]) is greater than the poverty rate (14.4%) of the broader Nashville area.³ Also, the minority population in eight (8) of the twelve (12) Census Tracts along the project corridor exceed the percentage (44.7%) of minority population in the broader Nashville area (CT 104.01 [59.4%], CT 104.04 [66.7%], CT 107.01 [64.0%], CT 107.02 [55.0%], CT 114 [54.8%], CT 119 [66.2%], CT 192 [47.4%], and CT 193 [82.6%]).⁴

The project corridor was also reviewed for the presence of historically disadvantaged communities as defined by the U.S. Department of Transportation's (U.S. DOT's) Transportation Disadvantaged Census Tracts tool. Consistent with the Justice40 Initiative, the U.S. DOT developed a tool to identify disadvantaged communities. Where a Census Tract (CT) includes four (4) or more defined indicators, the U.S. DOT's Transportation Disadvantaged Census Tracts tool identifies that CT as containing historically disadvantaged community.

³ Grid View: Table C17002 - Census Reporter (viewed on 11/11/2022)

⁴ Grid View: Table B03002 - Census Reporter (viewed on 11/11/2022)





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

The indicators referenced by the tool are:

1. **Transportation Access Disadvantage** identifies communities and places that spend more, and take longer, to get where they need to go.
2. **Health Disadvantage** identifies communities based on variables associated with adverse health outcomes, disability, as well as environmental exposures.
3. **Environmental Disadvantage** identifies communities with disproportionately high levels of certain air pollutants and high potential presence of lead-based paint in housing units.
4. **Economic Disadvantage** identifies areas and populations with high poverty, low wealth, lack of local jobs, low homeownership, low educational attainment, and high inequality.
5. **Equity Disadvantage** identifies communities with a high percentile of persons (age five (5)+) who speak English “less than well.”
6. **Resilience Disadvantage** identifies communities vulnerable to hazards caused by climate change.

Based on a review of this tool, six (6) of the twelve (12) Census Tracts along the project corridor meet the definition of a historically disadvantaged community (CTs 104.01, 104.02⁵, 107.01, 107.02, 114, and 193). Table 1 below notes which indicators were present in each of the CTs within the project area.

TABLE 1: Historically Disadvantaged Communities

		Census Tract											
		104.01	104.02	107.01	107.02	111	112	114	117	119	121	192	193
Disadvantage Indicator	Transportation Access		•										•
	Health	•	•	•	•	•	•	•					
	Environmental	•	•	•	•	•	•	•	•	•	•	•	
	Economic	•	•	•	•			•		•		•	•
	Equity	•	•	•	•	•		•		•		•	
	Resiliency	•		•									•
Historically Disadvantaged*		•	•	•	•			•					•

*Census Tracts where four or more indicators are present are considered historically disadvantaged.





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

Real-World Issues and Challenges

More than one (1) million people are expected to move to the Nashville region in the coming decades, making the transportation experience an increasingly complex challenge. Downtown Nashville is the region's most concentrated trip destination, with Gallatin Pike serving as an important connection between Downtown Nashville and all points to the northeast. Since more people travel to downtown Nashville than any other location in the region, investment into mobility enhancements along this corridor is vital to the region's success.

Gallatin Pike experiences recurring congestion and currently lacks a reliable central control of the signal system. Traffic congestion can have significant impacts to quality of life including longer travel times for commuters and freight. Based on growth and development trends, longer commutes between key destinations are expected between now and 2040. The table below was developed by the Greater Nashville Regional Council (GNRC) to compare travel times for the quickest routing between destinations for three (3) separate time periods: 1) Google Maps routing for 11 p.m., present day; 2) Google Maps routing for morning rush hour, present-day; 3) the GNRC Metropolitan Planning Organization's (MPO's) traffic model routing during morning rush hour in the year 2040.⁶ Gallatin Pike serves as a critical corridor for the commute reflected in the table as Downtown Gallatin to Nashville. Routes that serve Downtown Gallatin to Nashville, including Gallatin Pike, are already experiencing travel time delays during the morning rush hour, and are expected to see a 38% increase in travel time for the morning rush hour by 2040 – one of the worst increases noted.

Average Weekday	Google Maps @ 11 PM	Present-Day Morning Rush Hour*	Morning Rush Hour Change by 2040*
Downtown Franklin to Nashville	28 minutes	39 minutes	13% longer
Downtown Franklin to Murfreesboro	45 minutes	47 minutes	22% longer
Downtown Gallatin to Nashville	40 minutes	58 minutes	38% longer
Downtown Lebanon to Gallatin	30 minutes	32 minutes	52% longer
Downtown Murfreesboro to Nashville	40 minutes	57 minutes	24% longer
Downtown Columbia to Cool Springs	40 minutes	45 minutes	42% longer
Mt. Juliet to Vanderbilt University	26 minutes	38 minutes	26% longer
Downtown Portland to Spring Hill	75 minutes	79 minutes	26% longer

Source: *MPO Travel Demand Model. Based on current transportation system. Morning Rush Hour is 7 to 9 A.M.

⁵ Census Reporter designates this CT as 104.04; however, the U.S. DOT's Transportation Disadvantaged Census Tracts tool identifies the same CT as 104.02.





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

Metro Nashville is in the process of designing and constructing, under a separate effort, a Transportation Management Center (TMC) to provide centralized control for the signal system. However, additional improvements such as those proposed for this project are needed to support that effort and provide the necessary field technology infrastructure to apply traffic signal synchronization strategies along Gallatin Pike.

Currently, Gallatin Pike does not have the technological capability to give preferential treatment for transit traffic. A major goal of the Gallatin Pike ATMS and TSP Deployment project is to utilize technological enhancements such as TSP and queue jump lanes to provide that preferential treatment and enhance transit mobility and trip predictability for Metro Nashville's transit users.

Further, Gallatin Pike provides limited pedestrian accessibility throughout the corridor. Among the proposed improvements are updates to the pedestrian infrastructure to alleviate this issue, including PROWAG compliant pedestrian push buttons and curb ramps and enhanced pedestrian crosswalks to provide greater access to bus stops.

Transportation Systems and Services to be Included in the Project

The following transportation systems will be included in the Gallatin Pike ATMS and TSP Deployment project.

- Ethernet-based fiber optic communications network, connecting to a regional TMC
- ITS Technology
- ATC Deployment
- Non-intrusive radar detection
- Arterial CCTV
- Bluetooth® travel time technology
- TSP Technology

With these systems, the following services are anticipated:

- Enhanced service for transit (TSP)
- More reliable signal system communications
- Quicker identification of congestion issues (CCTV)
- Better incident management responses and strategies as well as more efficient emergency response by facilitating the determination of which type(s) of assistance are warranted – fire, ambulance, police, tow truck, hazmat, etc. (CCTV)

⁶ GNRC. Highlights of the Nashville Metropolitan Area Congestion Management Process (2019)





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

- More effective management of day-to-day traffic operations (high resolution signal operations data, travel time / speed profile data, etc.).
- Improved pedestrian accessibility at signals and adjacent bus stops – adding in crosswalks, pedestrian signalization (countdown pedestrian signals, PROWAG compliant pedestrian push buttons, and PROWAG compliant curb ramps / sidewalk sections).

Deployment Plan

Program Management, Performance Measurement, Systems Engineering, and Design

Following award, Metro Nashville will work with U.S. DOT to enter into a Cooperative Agreement. This agreement will include a Project Management Plan that includes a statement of work, project schedule with milestones, staffing plan, and budget. Metro Nashville will work with U.S. DOT to develop mutually agreeable performance measures to track for the duration of the project. These will be documented in a Project Evaluation Plan, with all data collection described in the Data Management Plan.

Through the use of local funds, a Concept of Operations (ConOPs) and Systems Engineering Analysis (SEA) are currently under development. The goal of this analysis is to address the long-term operation, maintenance, and implementation of county-wide technology upgrades, including the proposed improvements. A Systems Engineering Management Plan (SEMP), Concept of Operations, and Systems Engineering Review Form will be developed for U.S. DOT approval and will utilize the Department's relevant systems engineering resources to the extent practicable.

Metro Nashville anticipates issuing a solicitation for consulting services to assist with program management, systems engineering, design, and evaluation and reporting activities.

System Development, Integration, and Construction

Following the completion of performance management, systems engineering, and design deliverables, Metro Nashville will issue a competitive procurement for a technology-based ITS Contractor that has expertise constructing and deploying the ATMS and TSP technologies described in this grant application. Prior to this procurement effort, Metro Nashville will also issue a solicitation for Construction Engineering & Inspection (CEI) services to hire an experienced consulting firm that has successfully overseen the construction, testing, and acceptance of similar ATMS and TSP technologies such as those being proposed for this grant request. The CEI consultant as well as the planning / design consultant will partner with Metro Nashville and WeGo Public Transit during construction to oversee construction progress and ensure that technology elements are being procured and





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

installed in a manner to satisfy the goals of the project. From similar past grant experiences, Metro Nashville has seen the benefits of having the design Engineer of Record available during construction to assist CEI consultant to ensure that the intent of the design is being deployed and constructed.

Obstacles to Deployment

National Environmental Policy Act (NEPA)

The proposed improvements will warrant an environmental review pursuant to the National Environmental Policy Act (NEPA), which has yet to be completed. However, it is not anticipated there will be environmental challenges, as the activities described should fall under a categorical exclusion. Activities should be contained within existing right-of-way with benefits to the traveling public and minimal negative impacts to Environmental Justice populations or private property.

Quantifiable Performance Improvements

Overall signal upgrades will allow for better signal operations, which will in turn lead to reduced congestion, improved transit service, fewer crashes, improved emergency vehicle response times, and overall optimized system efficiency. Many of these benefits can be measured, and Metro Nashville will work with U.S. DOT to consider this as part of the ATTAIN evaluation process.

Safety, Mobility, and Environmental Benefits

The proposed improvements to the Gallatin Pike corridor will generate multiple benefits for transit riders, personal vehicle and truck drivers, and pedestrians, as well as residents and workers along the corridor.

Safety Benefits

Among the most significant benefits anticipated by the proposed improvements are safety benefits from a reduction in the number and severity of crashes along the route. The following safety benefits are expected:

- **Reduced crashes due to signal adjustments to manage congestion.** The Federal Highway Administration (FHWA) report, Enhancing Transportation: Connecting TSMO and Safety (December 2018) notes that significant overlap exists between strategies that improve operations and those that improve safety.” Congestion often leads to aggressive driving and deployment of the types of improvements proposed in the Gallatin Pike ATMS and TSP Deployment project can reduce this congestion thereby reducing the likelihood





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

of unsafe driving behaviors. These improvements would also allow for better traffic management for special events, work zones, and traffic incidents, promoting an overall more reliable travel time along this roadway.

- **Future reduced emergency vehicle crashes from signal prioritization and pre-emption.** With the information gleaned from the better-connected network, traffic operations can refine signal time and prioritizes so as to reduce the likelihood of crashes between emergency and other vehicles. Avoiding emergency vehicle crashes has an even greater benefit than other crashes because in addition to the direct effects of that crash, there is a negative impact on their response time.
- **Reduced emergency vehicle response times.** Signal prioritization, combined with reduced congestion along the corridor, will help police, fire, and ambulances that need to use the corridor arrive at their destination sooner than they otherwise would.
- **Safer conditions for pedestrians.** If a reduction in congestion can lead to fewer aggressive drivers, this inherently improves safety for pedestrians along the roadway. Additionally, the proposed pedestrian signalization infrastructure along Gallatin Pike (countdown pedestrian signal heads, PROWAG compliant pedestrian push buttons and curb ramps, and enhanced pedestrian crosswalks) more clearly define, for drivers and pedestrians alike, a safe time and place for pedestrians to cross a roadway.

Mobility Benefits

In addition to the notable safety benefits, the proposed system upgrades will generate important mobility benefits as well. Travel along the corridor will become faster, on average, and also more reliable – for all traveling by bus, car, or on foot. The following mobility benefits are expected:

- **Improved average travel time.** Signal optimization, reduced congestion, and signal prioritization (for transit riders) will lead to shorter overall trips along the entire corridor. Travel time will be saved for those on work or leisure trips.
- **Improved reliability.** People place a value on reliability itself. When users are not confident that the chances of being late for work or an important appointment are extremely low, they take other modes or build in additional ‘buffer time’ into their trips. Traffic signal synchronization strategies and automated traffic signal performance measures to continually manage and optimize traffic operations are expected to reduce the congestion issues along Gallatin Pike. This would greatly improve travel time reliability along the route, improving mobility and, therefore, access to goods, services, jobs, and other critical destinations.



Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

- **With better pedestrian accommodations, more people will opt to walk.** The proposed pedestrian signalization infrastructure will enhance the walkability of the Gallatin Pike corridor, making pedestrian travel a more viable transportation choice. Pedestrian travel is one of the most affordable transportation modes, and therefore the enhancement of this option increases mobility for all users for access to key destinations along the corridor.
- **As transit performance improves along the corridor, more people will find transit attractive.** Improvements to pedestrian signalization infrastructure also enhances access to bus stops. This coupled with the proposed prioritization of transit along the corridor will make bus travel even more attractive. This affordable transportation option also pulls even more congestion off of the roadway, as a single bus carrying 40 people takes up a fraction of the roadway that those same 40 people in single occupant vehicles (SOV's) would. Drawing more users to transit allows for an overall improvement to mobility along the corridor, moving even more people efficiently to their travel destinations.

Environmental Benefits

The Gallatin Pike ATMS and TSP Deployment project aims to utilize technology to reduce congestion along Gallatin Pike. When traffic flows more smoothly and without congestion, vehicles also produce fewer emissions and ultimately the air is cleaner.

- **Transit signal priority will lead to some reduction in breaking and speeding.** This, in turn, will lead to improved fuel efficiency and reduced emissions for transit vehicles along Gallatin Pike. An added point to note is that the reduction in emissions will occur in a densely populated area, affecting large numbers of residents and workers.
- **The proposed TSP strategies would make transit a more attractive option.** The prioritization of transit allows buses to more consistently keep their schedules, thus making transit a more reliable and attractive option for travel. The more users who opt for transit, the fewer vehicles overall on the road, thus further reducing congestion and emissions.
- **Enhanced walkability will promote active transportation.** The proposed updates to pedestrian signalization infrastructure will enhance the walkability of the Gallatin Pike corridor. The more users who opt for an active transportation mode, such as walking, the greater the reduction in overall emissions. Further, these improvements are expected to improve pedestrian access to bus stops, further bolstering the appeal of transit.
- **Reduction in noise impacts.** The reduced breaking and overall congestion will also lead to a reduction in noise. This will be particularly beneficial for pedestrians and residents along the corridor.



Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

Vision, Goals, and Objectives

Vision

Generally, the vision for this project is to enhance mobility along the project corridor through the use of technology, thereby better connecting all users to employment, institutional, and cultural destinations. Not only will this transform the operation of a key corridor, it will also set the stage for future technology investments throughout the rapidly growing region. The Concept of Operations and Systems Engineering Analysis for the TMC, currently under development, will further define Metro Nashville's vision for county-wide improvements, including these proposed improvements. The Concept of Operations and Systems Engineering Analysis will be provided to U.S. DOT – specifically the FHWA Tennessee Division staff – for approval.

Project Goals

Mobility

A corridor that facilitates the efficient movement of people quickly through key districts in and around downtown. Improved route headway management and signal prioritization will improve system efficiency and facilitate increased mobility efficiency in all modes.

Equity

A corridor that ensures access to critical employment, healthcare, education, and other critical destinations for all members of the Nashville community, regardless of modal preference.

Quality of life

A corridor that increases the overall quality of life for the Nashville community along Gallatin Pike and for the many communities it connects, that provides a route with less congestion, better corridor operations, and the basis for future technology improvements.

Safety

A corridor that improves safety for Nashville residents and leverages connected communication technologies to provide safety benefits to vulnerable roadway users and drivers. Contributions to congestion management and pedestrian signalization infrastructure will lead to added benefits.

Choice

A corridor that uses technology to improve the efficiency of all modes and establishes options for mobility. The proposed pedestrian signalization infrastructure improvements



Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

will enhance the viability of pedestrian options. The transit signal prioritization and overall anticipated reduction in route congestion are expected to greatly improve the reliability of transit schedules. This coupled with the improved pedestrian access to bus stops will enable transit to become a more viable choice for the many thousands of residents and workers along the corridor.

Flexibility

A corridor with infrastructure improvements that will pay both short and long-term dividends to the community. The fiber installation will be able to adapt and evolve to serve as the backbone of emerging 21st century vehicle technologies.

Project Objectives

Drive ongoing neighborhood improvements and development. Updates to this corridor will enable it to act as a catalytic force for further development and increased neighborhood services in the area. It will serve as part of the overall congestion management strategy of the area and a key linkage between home, work, and goods for tens of thousands of workers, residents, students, and visitors.

Improve corridor infrastructure through technology, for present and future mobility. Equipping the corridor infrastructure with the proposed technology will create a smart, connected ecosystem of real-time traffic information that can be used to better optimize signal timing and transit routes. These improvements will provide a testing ground and lay the foundation of base technologies to create a corridor supporting the future deployment and testing of new mobility models.

Leveraging Existing Assets

Nashville Transit Signal Priority System Initiative

The Nashville Transit Signal Priority System initiative includes the installation of upgraded traffic signal equipment and safety enhancements that improve on-time bus service and provide a more comfortable ride for thousands traveling to Nashville's Central Business District every day. The Nashville Transit Signal Priority System has upgraded decades-old traffic signals and added signal priority equipment at various points and along various routes throughout Nashville. The proposed TSP improvements included within Gallatin Pike ATMS and TSP Deployment project continue to build upon the progress already made through this initiative.

Regional Transportation Management Center

The Gallatin Pike ATMS and TSP Deployment project would include an Ethernet-based fiber optic communications network constructed along Gallatin Pike that connects to a regional





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

TMC currently in the design phase via a separate funding mechanism. Metro Nashville is in the process of designing and constructing this TMC to provide a centralized control for the signal system throughout the entire County. The proposed improvements along Gallatin Pike would support that effort and provide the necessary technology infrastructure to apply traffic signal synchronization strategies along Gallatin Pike.

Econolite Centrac's ATMS Software

Econolite Centrac's ATMS is currently in use for the majority of the signals within Davidson County and operates the signals within the Gallatin Pike project area. Centrac's is an intuitive GUI-based traffic software that provides ITS management, traffic control, and data sharing in a single ATMS platform. NDOT and WeGo Public Transit partnered together to incorporate a TSP module add-on to this software as part of the TIGER-funded implementation of TSP on the Murfreesboro Pike corridor, which was completed in Spring 2020, and a similar partnership is anticipated for the current proposed improvements.

TransitMaster AVL

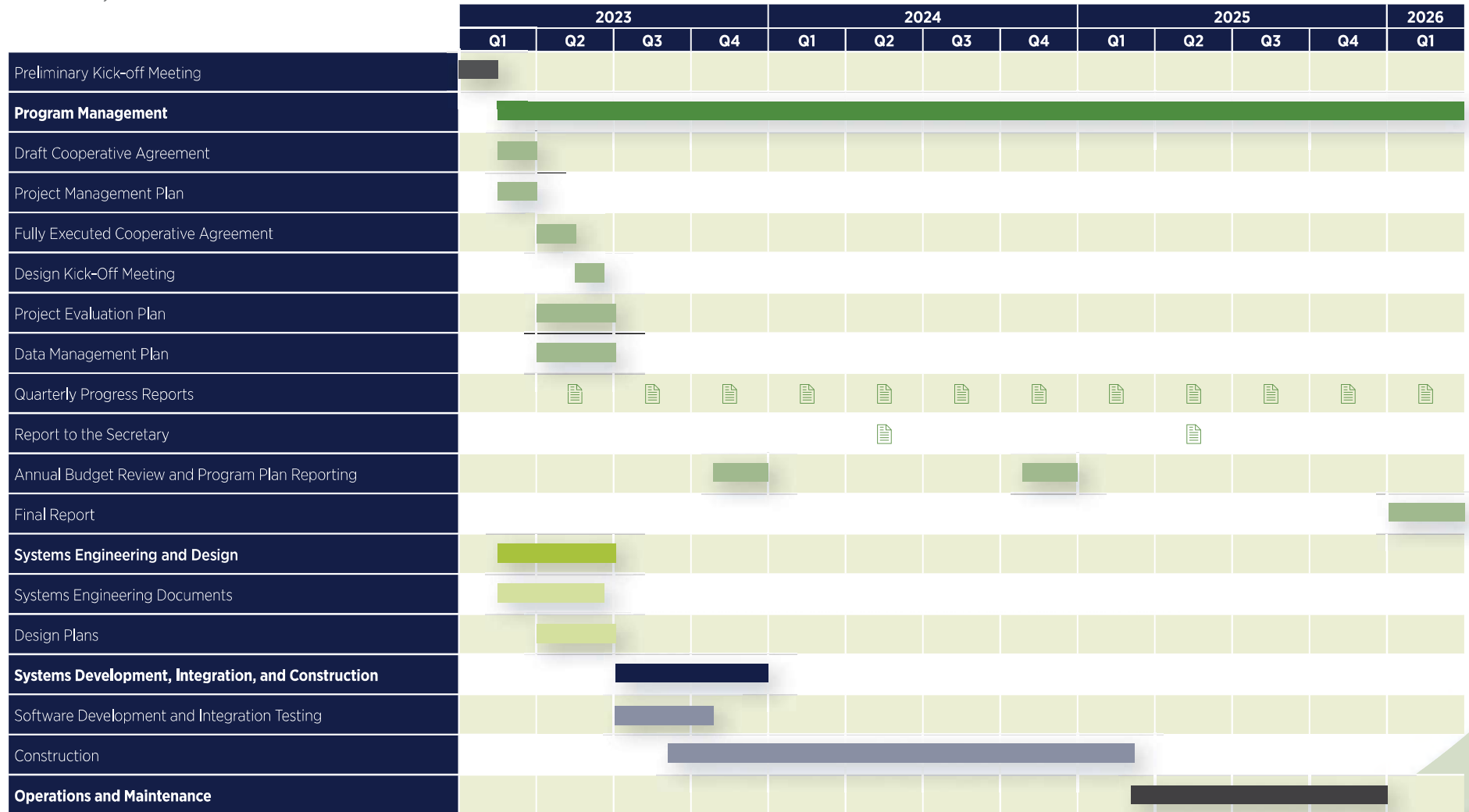
WeGo Public Transit utilizes TransitMaster for their automatic vehicle location (AVL) system. The transit system has advanced many technologies on board its vehicles and throughout its network. In recent years, many electronic devices have been added onboard vehicles, at facilities, and on transit infrastructure. The in-vehicle technology incorporates many devices that communicate with and through the CAD/AVL system. TransitMaster In-Vehicle Logic Unit (IVLU) is the onboard computer for the TransitMaster CAD/AVL system. It runs all mobile software supporting vehicle tracking, automated and manual communications, passenger counting, and schedule adherence. This project will build upon WeGo Public Transit's existing AVL system, which is integrated with Metro's ATMS software (Centrac's), by adding TSP technology to a second heavily traveled transit corridor to enhance transit mobility in the Nashville region.

Schedule

The project schedule is outlined in Figure 1. Project work steps can begin immediately after award of grant funds.



FIGURE 1: Project Schedule





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

Climate Change and Environmental Justice

Through the proposed installation of ITS and TSP equipment along the corridor, the Gallatin Pike ATMS and TSP Deployment project is expected to improve multimodal traffic operations, reduce congestion along the Gallatin Pike corridor, and provide improved access for pedestrian and transit users. These proposed improvements are anticipated to reduce overall emissions within the project area, a benefit that is in support of ongoing efforts to reduce the harmful effects of climate change. The improvements would not only reduce congestion for single-rider vehicular traffic, but they also would prioritize transit and pedestrian users. Updated pedestrian signalization infrastructure will improve safety for pedestrian users and will provide better access to bus stops. This coupled with the proposed TSP strategies will also enhance the transit user experience. This focus on affordable, active transportation modes will further help to reduce emissions and provide better access for low-income populations that utilize the Gallatin Pike corridor for access to their homes, jobs, and other essential or desired destinations.

Climate Change

In support of Executive Order (E.O.) 14008, “Tackling the Climate Crisis at Home and Abroad,” Metro Nashville will assess the project’s ability to reduce the harmful effects of climate change and anticipate necessary improvements to prepare for extreme weather events. Such considerations will include, but are not limited to, the extent to which the project reduces emissions, promotes energy efficiency, increases resiliency, and recycles or redevelops existing infrastructure. Appropriate analyses and coordination for compliance with the E.O., as well as analyses to address potential air quality impacts would be conducted during the NEPA process.

Environmental Justice

The Gallatin Pike ATMS and TSP Deployment project aims to enhance mobility and provide improved connectivity for adjacent and nearby communities along the Gallatin Pike corridor, including Environmental Justice communities. The potential for impacts to properties belonging to or utilized by disadvantaged communities along this corridor as a result of the proposed project will be better understood as the project progresses further into design; however, the goal and anticipation is that any such impacts would be very limited. Appropriate analyses and coordination for compliance with Executive Order 12898 Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations, and Executive Order 14008, Tackling the Climate Crisis at Home and Abroad, would be conducted during the NEPA process.





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

Racial Equity and Eliminating Barriers to Opportunity

As mentioned in the Demographics discussion within this application, the majority of the census tracts along the Gallatin Pike corridor contain a larger percentage of minority persons than the average for Davidson County. It is anticipated that the proposed improvements will benefit those minority populations by improving travel time, trip reliability, congestion, transit options, and walkability - thereby improving access to job centers, recreation, and other essential destinations.

The project will also be implemented by Metro and TDOT to foster opportunities for Minority and Women-Owned Business Enterprise (MWBE) inclusion efforts. Through procurement regulation changes underway, Metro is implementing a race and gender-neutral program that establishes a contract threshold, under which certain contracts become eligible by designation to only be bid on by small businesses in accordance with SBA guidelines. The program will also provide more time for prime contractors and subcontractors to plan for and prepare timely bids. This is to increase the ability for firms to form joint ventures or teaming arrangements and to obtain any needed support services. Metro is developing an enhanced communications plan for how it will better assist MWBE Business community in understanding its programs, implementations and how to prepare for future procurement opportunities.

Federal Motor Vehicle Safety Standards (FMVSS)

The National Highway Traffic Safety Administration (NHTSA) issues Federal Motor Vehicle Safety Standards (FMVSS) to implement laws from Congress with the aim to prevent and reduce vehicle crashes. Metro Nashville does not anticipate requiring an exemption from the FMVSS.

Federal Motor Carrier Safety Regulations (FMCSR)

The Federal Motor Carrier Safety Regulations (FMCSRs) set forth minimum safety standards for motor carriers and drivers. Metro Nashville does not anticipate requiring an exemption from the FMCSR.

Buy America Act

Metro Nashville anticipates that the proposed project can be completed in compliance with Buy America Act requirements.

Leveraging Existing U.S. DOT Resources

Metro will seek to leverage and support U.S. DOT resources and programs wherever possible. The following will be consulted as part of the planning, systems engineering, and design of the Gallatin Pike ATMS and TSP Deployment project:





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

- Systems engineering and lessons learned documentation for Transit Signal Priority and other relevant signal-based connected vehicle applications.
- Early lessons learned and evaluation outcomes from previous ATCMTD grant awardees that have implemented dynamic transit management, connected vehicle, and signal priority technologies. Including, but not limited to:
 - East Los Angeles Advanced Transportation Management Project
 - Connecting the East Orlando Communities
- Reports developed as part of the Smart Columbus demonstration, especially those pertaining to the Connected Vehicle Environment and Enhanced Human Services projects.

U.S. DOT lessons learned and best practices will be used based on similar project deployments from the Intelligent Transportation Systems Joint Program Office (ITS JPO) Connected Vehicle Pilot Deployment Program. Metro will utilize the following documentation, and other similar project reports, when developing and implementing the Gallatin Pike ATMS and TSP Deployment project:

- Connected Vehicle Pilot Deployment Program Phase 1 Lessons Learned: FHWA-JPO-17-504
- Wyoming Department of Transportation (WYDOT)
 - Connected Vehicle Pilot Deployment Program Phase 1, Concept of Operations (ConOps), ICF/WYDOT [Phase 2 Update]: FHWA-JPO-16-287
- Tampa Hillsborough Expressway Authority (THEA)
 - Lessons Learned from Tampa (THEA) Connected Vehicle Pilot Onboard Unit (OBU) Quality, Maturity and Deployment Readiness: FHWA-JPO-17- 463
 - Connected Vehicle Pilot Deployment Program Phase 2 : Comprehensive Maintenance And Operations Plan: FHWA-JPO-17- 46

Alignment with U.S. DOT Goals

Table 2 summarizes the project's alignment with U.S. DOT desired technologies, goals, and focus areas.

TABLE 2: U.S. DOT Desired Technologies, Goals, and Focus Areas Addressed By Project

U.S. DOT Desired Technologies	
Advanced traveler information systems	
☒	Advanced transportation management technologies
☒	Advanced transportation technologies to improve emergency evacuation and response by Federal, State, and local authorities





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

- ☑ Infrastructure maintenance, monitoring, and condition assessment
- ☑ Advanced public transportation systems
- ☑ Transportation system performance data collection, analysis, and dissemination systems
- Advanced safety systems, including V2V and V2I communications, technologies associated with automated vehicles, and other collision avoidance technologies, including systems using cellular technology
- Integration of intelligent transportation systems with the Smart Grid and other energy distribution and charging systems
- Integrated corridor management systems
- Advanced parking reservation or variable pricing system or system to assist trucks locate available truck parking
- Electronic pricing, toll collection, and payment systems
- Technology that enhances high occupancy vehicle toll lanes, cordon pricing, or congestion pricing
- Integration of transportation service payment systems
- Advanced mobility and access technologies, such as dynamic ridesharing and information systems to support human services for elderly and disabled individuals
- Retrofitting DSRC technology deployed as part of an existing pilot program to C-V2X technology, subject to the condition that the retrofitted technology operates only within the existing spectrum allocations for connected vehicle systems
- Advanced transportation technologies, in accordance with the research areas described in section 6503 of title 49

ATTAIN Goals

- ☑ Improvement in the mobility of people and goods
 - Improvement in the durability and extension of the life of transportation infrastructure
 - Reduced costs and improved return on investments, including through the enhanced use of existing transportation capacity
- ☑ Protection of the environment and delivery of environmental benefits that alleviate congestion and streamline traffic flow
- ☑ Measurement and improvement of the operational performance of the applicable transportation networks
- ☑ Reduction in the number and severity of traffic crashes and an increase in driver, passenger, and pedestrian safety
 - Collection, dissemination, and use of real-time transportation related information including, but not limited to work zone, weather, transit, and paratransit, to improve mobility, reduce congestion, and provide for more efficient and accessible, and integrated transportation, including access to safe, reliable, and affordable connections to employment, education, healthcare, freight facilities, and other services





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

Facilitating account-based payments for transportation access and services and integrate payment systems across modes

Monitoring transportation assets to improve infrastructure management, reduce maintenance costs, prioritize investment decisions, and ensure a state of good repair

- ☒ Delivery of economic benefits by reducing delays, improving system performance and throughput, and providing for the efficient and reliable movement of people, goods, and services

Accelerated deployment of V2V, V2I, vehicle-to-pedestrian, and technologies associated with automated vehicle applications and other advanced technologies

- ☒ Integration of advanced technologies into transportation system management and operations

Demonstration, quantification, and evaluation of the impact of these advanced technologies, strategies, and applications towards improved safety, efficiency, equity, and sustainable movement of people and goods

Reproducibility of successful systems and services for technology and knowledge transfer to other locations facing similar challenges

Incentivizing travelers— (I) to share trips during periods in which travel demand exceeds system capacity; or (II) to shift trips to periods in which travel demand does not exceed system capacity.

Focus Areas

State of Good Repair

Integration of intelligent transportation systems with the Smart Grid and other energy distribution and charging systems

- ☒ Advanced public transportation systems

Freight (or Port) Community Systems

ROUTES Initiative

Complete Trip Program

Data Availability

PROJECT OUTCOME CRITERIA

Criterion #1: Economic Impacts, Freight Movement, and Job Creation

The proposed Gallatin Pike ATMS and TSP Deployment project aims to provide improvements to the overall operations of Gallatin Pike. Through the proposed installation of ITS and TSP equipment along the corridor, this project is expected to improve multimodal traffic operations, reduce congestion along the Gallatin Pike corridor, and provide improved access for pedestrian and transit users as well as for standard vehicular traffic.





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

Traffic congestion and unreliable transit service impede the ability of Nashville's citizens to fully engage with civic life and economic opportunities along the Gallatin Pike corridor and with the areas it connects. Congestion and unreliable travel times also affect the movement of freight.

A reduction in overall congestion through the various strategies to be implemented in the proposed project will have a positive effect on freight movement. Increased reliability for travel time for day-to-day trips and during special events or unexpected situations (such as weather and/or traffic incidents) will provide a meaningful benefit for the movement of freight.

This coupled with the improved travel time and access for single occupant vehicles (SOV's), transit users, and pedestrian users will promote overall benefits to access throughout the corridor. This improved access to jobs, retail, and other businesses enhances economic opportunities throughout the project area and for the region.

Criterion #2: Climate Change, Resiliency, and the Environment

The proposed Gallatin Pike ATMS and TSP Deployment project aims to provide improvements to the overall operations of Gallatin Pike, reducing congestion for vehicular traffic and providing improvements that benefit affordable and active transportation options. When traffic flows more smoothly and without congestion, vehicles also produce fewer emissions and ultimately the air is cleaner.

Real-time management of the signal system and the use of traffic signal synchronization strategies is expected to reduce congestion, thereby reducing idling time. This reduction in idling time and overall travel time is expected to reduce carbon dioxide emissions, a benefit that is in support of ongoing efforts to reduce the harmful effects of climate change.

The improvements would not only reduce congestion for single-rider vehicular traffic, but they also would prioritize transit and pedestrian users. Updated pedestrian signalization infrastructure will improve safety for pedestrian users and will provide better access to bus stops. This coupled with the proposed TSP strategies will also enhance the transit user experience. This focus on affordable, active transportation modes will further help to reduce emissions and provide better access for low-income populations that utilize the Gallatin Pike corridor for access to their homes, jobs, and other essential or desired destinations. More specifically:

- Transit signal priority will lead to some reduction in breaking and speeding. This, in turn, will lead to improved fuel efficiency and reduced emissions for transit vehicles along Gallatin Pike. An added point to note is that the reduction in emissions will occur in a densely populated area, affecting large numbers of residents and workers.





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

- The proposed TSP strategies would make transit a more attractive option. The prioritization of transit allows buses to more consistently keep their schedules, thus making transit a more reliable and attractive option for travel. The more users who opt for transit, the fewer vehicles overall on the road, thus further reducing congestion and emissions.
- Enhanced walkability will promote active transportation. The proposed updates to pedestrian signalization infrastructure will enhance the walkability of the Gallatin Pike corridor. The more users who opt for an active transportation mode, such as walking, the greater the reduction in overall emissions. Further, these improvements are expected to improve pedestrian access to bus stops, further bolstering the appeal of transit.
- Reduction in noise impacts. The reduced breaking and overall congestion will also lead to a reduction in noise. This will be particularly beneficial for pedestrians and residents along the corridor.

The Gallatin Pike corridor features in the Metro Nashville Transportation Plan (December 2020) as a “Test bed” corridor for green infrastructure/ sustainability. Metro Nashville’s Transportation Plan proposes \$1.6 billion in critical projects for community resilience, neighborhood livability, shared prosperity, and system preservation and performance. The plan calls for the “Gallatin Sustainability Corridor” to include technology and sustainability pilots and demonstrations including smart signals, crosswalks, parking, CAE (computer-aided engineering) vehicles, green infrastructure, solar powered features such as crosswalks, lighting, native species right-of-way plantings, and others. The proposed Gallatin Pike ATMS and TSP Deployment improvements are in furtherance of these Gallatin Pike Sustainability Corridor goals.

Climate Change

In support of Executive Order (E.O.) 14008, “Tackling the Climate Crisis at Home and Abroad,” Metro Nashville will assess the project’s ability to reduce the harmful effects of climate change and anticipate necessary improvements to prepare for extreme weather events. Such considerations will include, but are not limited to, the extent to which the project reduces emissions, promotes energy efficiency, increases resiliency, and recycles or redevelops existing infrastructure.

Criterion #3: Equity, Multimodal Options, and Quality of Life

The proposed Gallatin Pike ATMS and TSP Deployment project aims to provide improvements to the overall operations of Gallatin Pike, reducing congestion for vehicular traffic and providing improvements that benefit affordable and active transportation options. Through the proposed installation of ITS and TSP equipment along the corridor, the Gallatin Pike ATMS and TSP Deployment project is expected to improve the overall





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

operations along this vital corridor, promoting equity through the advancement of affordable and active transportation modes as well as the reliability of a key commuter route, and will thereby enhance the quality of life for all Nashvillians.

Equity

This project aims to create a corridor that ensures access to critical employment, healthcare, education, and other critical destinations for all members of the Nashville community, regardless of modal preference. The proposed improvements aim to provide transit schedule reliability and improved access to bus stops. Transit serves as one of the most affordable transportation modes and supports equity in the greater Nashville community by serving neighborhoods with high levels of poverty, joblessness, and vulnerable health populations.

Further, with the overall anticipated reduction in congestion along this critical route, travel time for the various modes, whether by car, bus, or on foot, will be more reliable. Job seekers and those that are actively employed, will be better able to predict commute times.

Environmental Justice

The Gallatin Pike ATMS and TSP Deployment project aims to enhance mobility and provide improved connectivity for adjacent and nearby communities along the Gallatin Pike corridor, including Environmental Justice communities. The potential for impacts to properties belonging to or utilized by disadvantaged communities along this corridor as a result of the proposed project will be better understood as the project progresses further into design; however, the goal and anticipation is that any such impacts would be very limited. Appropriate analyses and coordination for compliance with Executive Order 12898 Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations, and Executive Order 14008, Tackling the Climate Crisis at Home and Abroad, would be conducted during the NEPA process.

Multimodal Options

The project aims to create a corridor that uses technology to improve the efficiency of all modes and establishes viable options for transportation. The proposed pedestrian signalization infrastructure improvements will enhance the viability of pedestrian options. The transit signal prioritization and overall anticipated reduction in route congestion are expected to greatly improve the reliability of transit schedules. This coupled with the improved pedestrian access to bus stops will enable transit to become a more attractive and viable choice for the many thousands of residents and workers along the corridor.





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

Quality of life

These improvements are aimed at creating corridor that increases the overall quality of life for the Nashville community along Gallatin Pike and for the many communities it connects, that provides a route with less congestion, better corridor operations, and the basis for future technology improvements.

MANAGEMENT STRUCTURE

Description of Applicant Organization

Metro Nashville's Department of Transportation (Metro), in partnership with the Tennessee Department of Transportation (TDOT) and the Nashville Metropolitan Transit Authority (WeGo Public Transit), is the lead project applicant and would be the designated recipient entering into an agreement with the U.S. DOT if awarded funds under the ATTAIN grant program. The mission of Metro is to enhance safety, equity, and accessibility for the residents, businesses, and visitors of Nashville and Davidson County. In support of this mission Metro delivers a wide range of services in support of multimodal transportation and Complete Streets infrastructure to promote quality of life, environmental sustainability, and create cleaner, beautiful, and more livable neighborhoods. It is Metro's vision to lead, inspire, and motivate a progressive, responsive team, striving to exceed customer expectations.

Nashville Metropolitan Transit Authority (WeGo Public Transit) provides comprehensive transit services to Nashville and Davidson County. WeGo Public Transit is led by the Chief Executive Officer, a Metro government employee, who is responsible for the managerial oversight of the entire system. Metro works closely and collaboratively with WeGo on many projects of shared interest. Consequently, this allows efficient coordination and streamlined execution of the proposed project.

As the applicant and designated recipient of ATTAIN grant funds, Metro will be the lead fiscal agency responsible for organizing, administering, and managing the ATTAIN program grant funds and project delivery through project team contracts, activities, resources, budget, schedules, and collaborative activities with partners along the corridor. Using comprehensive project planning and controls based on the U.S. DOT Systems Engineering "V" Model, Metro will establish a Project Plan within the first month of award. Using a model similar to TDOT's, Metro will:

- Finalize the Project Plan within five weeks of grant award;
- Execute agreements with subrecipient and contractors in accordance with the finalized Project Plan within two months of the grant award;



Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

- Receive, verify and process monthly invoices for payment from the project's subrecipients and contractors in accordance with Tennessee's Prompt Payment Act (TCA, Title 66, Chapter 34);
- In addition to ongoing communication, convene with the Project Team on a weekly basis during duration of project to oversee progress and resolve any performance challenges that may need intervention;
- Manage and convene with project partners and stakeholders on a monthly basis to report out project activities and receive feedback and guidance for ongoing and future tasks; and,
- Prepare and provide quarterly project reports to the U.S. DOT that include task updates and all quarterly activities.

Partnership Plan

The project team, led by Metro, will work with its primary partners, including TDOT and WeGo Public Transit, to initiate a community engagement process to identify other key potential local, regional, and national public and private stakeholders, research institutions, and organizations. Outreach will focus on those that advance multimodal project support and goals and which may broaden the reach and contribute additional resources towards the project. For example, additional resources may include supplementary funds, staff time, technology, ideas, and services.

Partners have indicated a willingness to serve on a project team to identify the needs of stakeholders, develop solutions, and ensure successful project delivery.

Designation of Sub-Recipients

Metro will manage and execute the design, implementation, and operation of the project. Any parties added to the project as sub-recipients will be clearly identified.

Any expenses eligible for reimbursement under the ATTAIN grant program and any expenses eligible for reimbursement under any other federal or state program contributing funds to this project will be programmed by Metro. After the funds are programmed, work will be scheduled and performed. The entity performing the work will submit invoices of its completed work for review and reimbursement. Any vendors contracted to work on this project will coordinate directly with Metro.

Evidence of Memorandum of Understanding

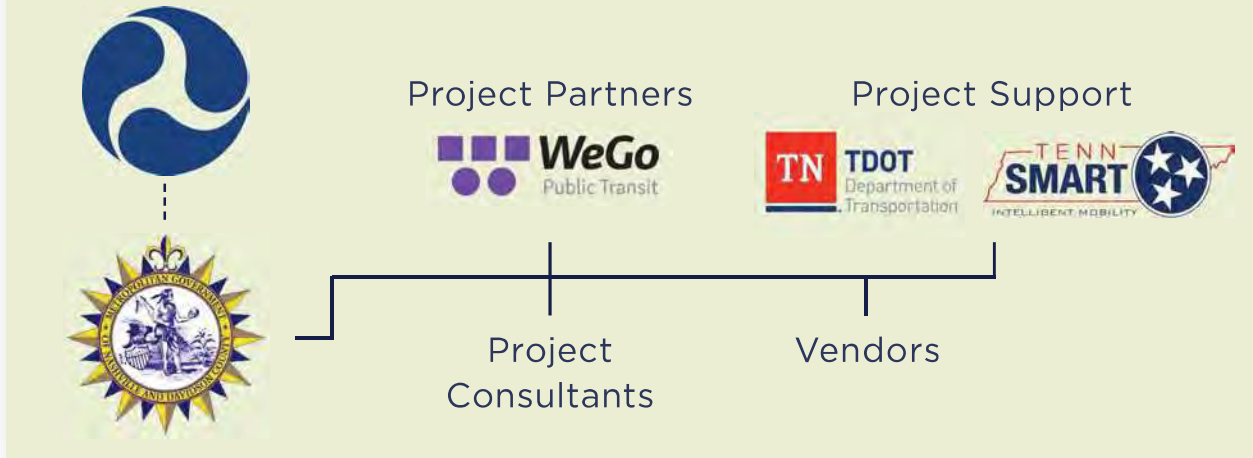
Metro does not anticipate the need for a memorandum of understanding (MOU) for this project. If an MOU is required, Metro will work to secure an MOU. Based on the good working relationship with project partners, no issues are foreseen.





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

Organizational Chart



STAFFING DESCRIPTION

This project will be staffed and managed by a lead Program and Project Manager and a team consisting of staff from Metro, TDOT, and WeGo Public Transit. There will be, however, many other key staff supporting tasks and major activities. Metro will retain the same Program and Project Manager throughout the performance period of the grant. If any changes occur due to unforeseen events, Metro will follow a prescribed contingency approach documented in the Project Plan for staff replacement. If replacement of the Program and Project Manager is needed, Metro will work closely with the U.S. DOT to select a suitable and mutually agreed upon replacement. The following summarizes the qualifications of the key staff for the project team (resumes also found in Appendix A):

Derek Hagerty, PE, PMP (Primary Point of Contact)

Transportation Engineer | ITS
Nashville
Department of Transportation and Multimodal Infrastructure

Mr. Hagerty leads NDOT's Traffic Management section with a focus on safety and efficiency for all users primarily through the application of technology. He is the day-to-day lead on establishing Nashville's first Traffic Management Center to include detection and performance metrics for all transportation modes. Career highlights include:

- Currently managing four ITS grant funded capital projects totaling a combined \$14M through the ATCMTD and CMAQ programs.
- Represented Metro Nashville on state DOT safety projects including those under the Pedestrian Road Safety Initiative to protect Metro Nashville's most vulnerable users on state highways.
- Managed Bagram Airfield's Joint Defense Operations Center responsible for operational oversight on all missions on and around the United Nation's largest base in Afghanistan as an Army Officer.





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

Diana Alarcon, CAPP

Director
Nashville
Department of
Transportation
and Multimodal
Infrastructure

Ms. Alarcon is NDOT's Director and has overseen its transformation from a public works department to a high achieving department of transportation with an emphasis on safety, complete streets, and modernization. She has launched Nashville's Vision Zero Implementation Plan, Parking Modernization, and Traffic Management Center. Prior to arriving in Nashville, Ms. Alarcon served as the Director of Transportation and Mobility for the City of Tucson, Arizona, and Fort Lauderdale, Florida. Career highlights include:

- Responsible for a \$221.4M budget and over 300 employees that include street maintenance, development services, engineering, permitting, and finance among others.
- Developed the NDOT Vision Zero action plan and five (5)-year implementation plan through a resolution passed by Metro Council.
- Partnered with local nonprofits on education initiatives to benefit Metro Nashville Public Schools as well as the region to prepare students for the ever-changing workforce.
- Established the MoveTucson multimodal masterplan to weave all modes of transportation through a Complete Street lens.
- First city leader in Florida to adopt a Vision Zero program towards a goal of zero roadway fatalities during her time with the City of Fort Lauderdale.

Phillip (Brad) Freeze, PE, MSCE

Chief Engineer
Nashville
Department of
Transportation
and Multimodal
Infrastructure

Mr. Freeze has served as NDOT's Chief Engineer for the past year following nearly a decade as the Tennessee Department of Transportation's Director of Traffic Operations. He has extensive experience in managing advanced Intelligent Transportation Projects and extensive ties to both the academic and private sector. Career highlights include:

- Reorganized the NDOT engineering division to function as a safety-first data forward team.
- Established the TDOT Traffic Management Center (TMC) and Traffic Incident Management (TIM) programs.
- Speaks frequently at universities, community colleges, and technical institutions to highlight and encourage careers in the transportation sector.
- Serves as the Technical Advisory Committee Chair for the National Operations Center of Excellence
- Extensive publication history for Intelligent Transportation Systems research through the Transportation Research Record.





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

Jason Oldham, PE

Assistant Chief Engineer,
Transportation Systems Management
Nashville
Department of Transportation and Multimodal Infrastructure

Mr. Oldham serves as NDOT's Assistant Chief Engineer for Transportation Systems Management. In this role, he provides direct oversight of the Traffic Engineering, Traffic Safety, and Traffic Management Offices. He oversees program allocations exceeding \$30 million in safety related improvements. Career highlights include;

- Provided direct oversight of Region Traffic Engineering, Project Delivery and Operations Maintenance Offices for the Virginia Department of Transportation.
- Initiated TDOT's first grant program to modernize locally maintained traffic signals.
- Coordinated development of TDOT's traffic engineering policies for implementation.

Dan Freudberg

Deputy Chief Operating Officer for Operations Systems, Nashville Metropolitan Transit Authority (WeGo Public Transit)

Mr. Freudberg serves as the Nashville Metropolitan Transit Authority's Deputy Chief Operating Officer for Operations Systems. In this capacity, he oversees the Information Technology, performance tracking/reporting, and revenue systems administration functions within the agency while serving as project manager for various technology and innovation-focused initiatives. Career highlights include:

- Managed the creation and launch of a same-day, on-demand service option for paratransit customers in 2018 known as Access-on-Demand.
- Established a safe, dedicated, and fully accessible transportation option to COVID-19 testing centers for those without other transportation options or who would have otherwise relied on public transit.
- Coordinated the launch of WeGo Link, in partnership with Uber, to provide first- and last-mile trips connecting customers to a high frequency bus route in Southeast Nashville.



APPENDIX

Resumes for Key Personnel



Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment



Derek Hagerty, PE, PMP

Primary Point of Contact and Transportation Engineer | ITS, NDOT

Education/ Qualifications:

M.S., Civil Engineering,
University of
Tennessee, 2022

B.S., Civil Engineering,
Iowa State University,
2013

Certifications:

Professional Engineer
in TN

Project Management
Professional

Professional Experience

2022-Present – NDOT

Transportation Engineer - Leads the Nashville Department of Transportation and Multimodal Infrastructure Traffic Management section. Responsible for improving Nashville's transportation network through the use of intelligent transportation systems. Aggressively expanding Nashville's fiber communication network to enable the deployment of advanced safety and monitoring technologies.

2021-2022 – KCI Technologies Inc.

Transportation Engineer - Conducted traffic impact studies for private developments in the greater Nashville metropolitan area. Designed intersections, signals, signal modifications, and multimodal infrastructure projects across the state of Tennessee with private and public clients. Managed a rotation of junior engineers within the organization.

2019-2021 – Metro Nashville Public Works

Transportation Engineer - Managed a wide variety of projects and programs within Nashville/Davidson County including the Metro Neighborhood Traffic Calming Program, Smart Parking Loading Zones, and Intelligent Transportation Systems projects. Managed local, state, and federal contracts while regularly attending public meetings to communicate with residents and local politicians. Worked closely with other Metro agencies to coordinate projects, write legislation, and procure services/materials. Utilized GIS to analyze data, create maps, and deconflict projects. Created design plans in AutoCAD and coordinated with operations staff and contractors to ensure construction was completed to stakeholder satisfaction. Drafted grants to secure state and federal funding.





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

- Project Manager for Metro Nashville's Advanced Transportation and Congestion Management Technologies Deployment Project to implement a connected transit corridor along Charlotte Avenue/Dr Martin L King Jr Blvd.
- Oversaw Nashville's Federal Highway Administration Railway-Highway Crossing (Section 130) contracts and coordinated with TDOT on all Davidson County safety projects. Volunteered to take responsibility for both programs after two years of neglect and recouped over \$2M in reimbursements from outstanding contracts within the first two months.
- Served as Program Manager of the Metro Neighborhood Traffic Calming Program. Worked with 50+ neighborhoods each year to install traffic calming projects aimed at slowing cut-through traffic in residential neighborhoods. Attended ~60 neighborhood meetings each year to develop plans with residents and local politicians. Sought out innovative solutions to increase pedestrian safety.

2018-2019 - S&ME Inc.

Civil Engineer Staff Professional - Specialized in the project management and design of civil projects working under a licensed professional engineer. Coordinated with stakeholders and contractors to resolve project issues in order to meet scope, schedule, and budget. Utilized design software to produce exhibits for review and plan sets for construction. Prepared calculations and reports for federal, state, and local regulatory agencies.

- Aided project manager in the civil design of Nashville International Airport (BNA) Concourse D and Terminal Expansion to include sanitary system, paving, and apron marking plan. Prepared grading and utility permits to submit to Metro Nashville and Stormwater Pollution Prevention Plans (SWPPP) to submit to Tennessee Department of Environment and Conservation (TDEC).
- Coordinated assessment, survey, and negotiations for Campbell Country Airport, TN (JAU) land acquisition resulting in seven purchased acres for a future T-Hangar and potential runway expansion.

2013-2018 - United States Army, Fort Campbell, Kentucky

Regiment Engineer (Program Director - Facilities and Construction) - Provided senior engineer expertise and leadership to the Army's only special operations aviation team. Planned and coordinated over \$300M in large cap military construction projects in support of the master facilities plan in conjunction with the U.S. Army Corps of Engineers. Conducted preliminary design, scoping, and estimates on all small cap projects.





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

- Created designs for 18 small cap projects over a 20-month period ranging in scope from administrative space renovations to static aircraft training aides to roadway replacements using MicroStation.
- Spearheaded the effort to develop an area development execution plan (ADEP) to produce a codified master facilities plan for the first time in the organization's 35-year history. Collected requirements and justifications for the next 20 years of construction. Continuously briefed incoming leadership on the ADEP in order to establish the document as a critical component of the organization's future success.





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment



Diana Alarcon, CAPP

NDOT Director

Education/ Qualifications:

Senior Executive Institute (SEI), ICMA, University of Virginia, 2016

Environmental Sustainable Management System, ISO 14001, Virginia Technology, 2014

B.S., Business Administration, University of Florida, 1986

Certifications:

Certified Accredited Parking Professional

Lean Six Sigma Yellow Belt

Project Experience

2022-Present – Nashville Department of Transportation (NDOT)

Director - Ms. Alarcon is NDOT's Director and has overseen the transformation from a public works department to a high achieving department of transportation with an emphasis on safety, complete streets, and modernization. She has launched Nashville's Vision Zero Implementation Plan, Parking Modernization, and Traffic Management Center.

2018-2022 – City of Tucson, Arizona

Director of Transportation and Mobility – Reorganized the department to meet the expectations of the community to build a balanced, sustainable transportation system. Worked to establish a multimodal masterplan (MoveTucson) to weave all modes of transportation through a Complete Street lens. Rebuilt capital improvement program to maximize dollars to improve pedestrian and bicycle safety. City was awarded the FTA Lo-No Emission grant for 2 years to purchase electric buses as well as the FTA TOD planning grant for future BRT tied for Equitable Mobility Oriented Development. Executed community tax initiative to improve all modes of mobility. Executed sustainable practices for long-term environmental sustainability related to resource conservation, pollution reduction, transportation, and building designs. Developed criteria, application instructions, and contracts for federal and state public transportation programs. Formed strategic partnerships with businesses, education institutes, and unions.

2011-2018 – City of Fort Lauderdale, Florida

Director of Transportation and Mobility - Established a new department prioritizing transportation initiatives for the City's general aviation airport, parking services, transportation, transit operation, and traffic management. Provided continuous analysis and improvement of operations to ensure peak performance to





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

meet objectives, performance measures, and robust departmental goals.

Established an annual Transportation Summit for community members, consultants, engineering firms to highlight City's transportation initiatives. Oversaw local community bus services program through the City's Transportation Management Association. Worked closely with departments, residences, stakeholders, and outside organizations to achieve City's vision. Helped Fort Lauderdale become the first city in Florida to adopt Vision Zero program for goal of zero roadway fatalities. Built relationships with developers, Florida Department of Transportation, Broward Metropolitan Planning Organization, Broward County to fund capital projects.

2009-2011 – City of Fort Lauderdale, Florida

Director of Parking and Fleet Services - Prepared departmental budget to fund operations and maintain appropriate inventory levels while maintaining appropriate reserves. Supervised reports regarding nonconformance of products or processes, daily production quality, root cause analyses, and quality trends. Conferred with City Manager and staff members to discuss issues, coordinate activities, or resolve problems. Evaluated proposals for sustainability projects, considering factors such as cost effectiveness, technical feasibility, and integration with other initiatives. Directed sustainability program operations to ensure compliance with environmental or governmental regulations. Responsible for variety of special projects as required by City Manager and Commission.

2004-2008 – City of Fort Lauderdale, Florida

Assistant Parking Services Manager - Responsible for collection and deposit of money into accounts, billing, accounts payable, maintain records of collections and disbursements, and ensure accounts are balanced. Maintained scheduling for event calendars, manage capital improvement projects and reviewed all development projects in city. Plan, administer and control budget for contracts, equipment, and supplies. Prepared and reviewed operational reports and schedules to ensure accuracy and efficiency. Set goals and deadlines for department. Recommended processes, procedures, and policy changes to improve operations.

1995-2004 - Central Parking Systems

Director of Operations - Managed operations, planning, budgeting, capital acquisitions, public relations, real estate negotiations, professional service contracts and capital planning for \$60 million portfolio made up of Class "A" office buildings and stadiums. Responsible for over 300 union employees in multiple job positions from cashiering to property managers. Evaluated operational trends and made proactive strategy adjustments to maintain alignment between performance and objectives.





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment



Phillip "Brad" Freeze, P.E., MSCE

Chief Engineer, NDOT

Professional Experience

2021-Present – NDOT

Chief Engineer - Provides strategic leadership in communications and works collaboratively with other Metropolitan Government departments and agencies as part of the effort to advance the transportation initiatives. Reorganized the NDOT engineering division to function as a safety-first data forward team.

2013-2021 – Tennessee Department of Transportation (TDOT)

Traffic Operations Division Director - Directed the TDOT Traffic Operations Division, which include the offices of Traffic Engineering, Transportation Management, and Intelligent Transportation Systems (ITS). Key responsibilities included:

- Establishing TMC, TIM, & Traffic Engineering guidelines and procedures.
- Oversight of:
 - TDOT Traffic Management Center (TMC) & Traffic Incident Management (TIM) programs
 - Transportation system performance monitoring and reporting.
 - TDOT's ITS communications network (Including Land Mobile Radio Systems)
 - Research, management, and deployment of ITS projects
 - TSMO focused research projects
- Preparing and reviewing ITS Architectures and System Engineering Analysis
- Facilitating program/project and stakeholder meetings with multiply agencies and partners.
- Preparing applications for federal grant programs for TDOT programs and projects.

Education/ Qualifications:

M.S., Civil Engineering,
University of
Tennessee, 2008

B.S., Engineering,
Tennessee Technology
University, 2002

Registrations/ Certifications:

Professional Engineer
in TN





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

2009-2013 – Tennessee Department of Transportation (TDOT)

ITS Design Engineer/Project Manager – In his role, Mr. Freeze:

- Reviewed and developed ITS design standard guidelines (TDOT Traffic Design Manual) to establish policies and procedures for use on TDOT projects.
- Approved System Engineering Analysis documentation for compliance with federal regulation to allow funding appropriation on locally managed ITS projects.
- Managed the development of ITS project design plans and system maintenance contracts.
- Managed the pre-qualification process for ITS contractors bidding on State projects to insure qualified bidders.
- Instituted and facilitate Transportation Management Center (TMC) Managers meetings to increase coordination and effective resource sharing between Region systems.
- Managed a qualified product list for ITS components used on State projects to establish system wide compatibility and allow physical resource sharing between Region TMCs.
- Oversaw and initiated project level coordination between TDOT and State municipalities for identifying fiber and resource sharing opportunities.
- Provided technical support for all Regional TMCs on ITS project implementations and system maintenance contracts.
- Oversaw assigned TDOT research projects.
- Managed engineering service contracts.

2005-2013 – Tennessee Department of Transportation (TDOT)

Lighting Design Engineer – In his role, Mr. Freeze:

- Managed the development of lighting design projects and specifications.
- Performed photometric analysis.
- Performed voltage drop calculations for conductor and circuit breaker design.
- Prepared lighting design plan; control center diagrams, plan sheets, quantities.
- Provided lighting cost estimates.

2003-2013 – Tennessee Department of Transportation (TDOT)

Signal Design Engineer – In his role, Mr. Freeze:

- Performed traffic signal warrant analysis.
- Prepared traffic signal timing plans.





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

- Generated proposed traffic signal plan sheets.
- Provided proposed traffic signal cost estimates.

1998-1999 – United Technologies Corporation

Carrier – In his role, Mr. Freeze:

- Conducted electrical component research and testing.
- Provided system design support for existing product line.
- Performed cost savings research.
- Supplied client technical support.





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment



Jason Oldham, PE

Assistant Chief Engineer, Transportation Systems Management, NDOT

Education/ Qualifications:

M.S., Civil Engineering,
Clemson University,
2008

Bachelor of Civil
Engineering
Technology, Southern
Polytechnic State
University, 1998

Certifications:

Professional Engineer
in TN, VA, SC, and GA

Professional Experience

2022-Present – NDOT

Assistant Chief Engineer, Transportation Systems Management

- Mr. Oldham serves as NDOT's Assistant Chief Engineer for Transportation Systems Management. In this role, he provides direct oversight of the Traffic Engineering, Traffic Safety, and Traffic Management Offices. He oversees program allocations exceeding \$30 million in safety related improvements.

2020-2022 – Virginia Department of Transportation

Deputy Director, Northern Virginia Regional Operations –

Provided direct oversight of Region Traffic Engineering, Project Delivery and Operations Maintenance Offices. \$27 Million budget oversight, and \$63 Million in active projects. Accomplishments included:

- Responsible for the rapid transition of all Northern Region Operations staff during COVID-19 response to a virtual work environment and field staff to mobile offices during my first 30 days.
- Restructured the Traffic Engineering Office to improve morale and more efficiently manage limited resources to meet demand after coordination and collaboration with key stakeholders.
- Expanded staff cross-assignment efforts to double the pavement marking goals and supplementing traffic control staff for winter maintenance.
- Initiated overhead sign lighting decommissioning in Northern Virginia to reduce power consumption and maintenance costs while applying for energy reduction credits.
- Successfully added sinusoidal rumble strip specification to our District on-call contract for the FY2021 paving season.





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

- Responsible for expanding use of VDOT's Highway Maintenance Management System.
- Active member of statewide committees and working groups related to bike/ped policies, machine learning, utility locate initiative, pavement marking pilots and mobile LiDAR testing.

2015-2020 – Tennessee Department of Transportation

State Traffic Engineer/Civil Engineer Manager II - Managed Headquarters Traffic Engineering Office and its various sections related to traffic control device design policies, projects, safety, research, standards, specifications and programs. Established access management policy. Accomplishments included:

- Initiated TDOT's first grant program to modernize locally maintained traffic signals.
- Justified creation of multiple state funded programs designed for rapid operations related project deployments such as freeway travel time signs for I-40/I-840 junctions.
- Led a multi-discipline effort to initiate creation of the Highway System Access Manual.
- Led a multi-discipline effort to initiate creation of the Work Zone Design Manual.
- Worked with TDOT leadership to create TDOT's first State Work Zone Engineer position under the Road Design Division and promote one of my employees to lead this new endeavor.
- Initiated publication of Traffic Operations Memorandums to improve policy awareness.
- Led major update to TDOT's Work Zone Safety and Mobility Policy Manual, 2017 Edition.
- Secured unanimous votes for new driveway regulation update by Tennessee Legislature in 2016.
- Statewide training on project work zone significance, driveway permitting and traffic signals.
- Numerous national and in-state conference presentations. Instructor for TDOT's adult learning program. Numerous in-house train-the-trainer events.
- Led EDC 3 road diet implementation in partnership with Road Design and Planning Divisions.

2015-2020 – Tennessee Department of Transportation

Civil Engineer Manager I - Provided traffic engineering management oversight and professional and technical expertise to Regional and Headquarters engineering staff, as well as to key stakeholders. Accomplishments included:

- Led the rewrite of state rules governing driveway permitting on state highways.





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

- Coordinated update to TDOT's Traffic Design Manual.
- 2015-2020 – Tennessee Department of Transportation (Continued):
- Provided oversight of SR-386 ramp metering feasibility study and ramp evaluation tool.
- Appointed to TRB Standing Committee on Access Management in 2015.

2012-2013 – SMITH SECKMAN REID, INC. (SSR)

Project Manager - Manage transportation design projects throughout Tennessee. Pursue business opportunities in middle and eastern Tennessee along with expanding services into surrounding states. Accomplishments included:

- Identified a design solution to avoid impacts to historic and ecologic findings that jeopardized the widening of SR-76 near the Obion River crossing.
- Lead company's transportation sustainability training and certification initiative.

2008-2012 – Virginia Department of Transportation

Senior Transportation Engineer – Served as responsible charge engineer managing roadway design and project teams. Managed in-house and consultant design projects to produce quality, on-time, and on-budget construction plans. Accomplishments included:

- Instrumental in the ultimate design scheme to reduce traffic congestion on I-81 at Exit 150, resulting in a long-term solution for ramp queues and saving over \$100 Million as compared to original project costs.
- Managed multiple major projects, including I-81/Exit 150 Access Management Project (\$40 Million), East Main Street Reconstruction Project (\$40 Million), SR-687 RRR Project (\$8.5 Million).

2004-2008 – TRANSYSTEMS, Inc.

Civil Engineer - Planned, designed, and directed components of road and street design projects for various states and municipalities. Designed components of railroad projects and military infrastructure projects. Accomplishments included:

- Designed light rail project in Greenville, SC.
- Expedited delivery of multiple local program projects.





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment



Education/ Qualifications:

B.A., Physics and
Psychology, University
of Virginia, 2008

Dan Freudberg

*Deputy Chief Operating Officer for Operations
Systems, Nashville Metropolitan Transit Authority
(WeGo Public Transit)*

Professional Experience

2021-Present – Nashville Metropolitan Transit Authority (WeGo Public Transit)

Deputy Chief Operating Officer for Operations Systems - Mr. Freudberg oversees the Information Technology, performance tracking/reporting, and revenue systems administration functions within the agency while serving as project manager for various technology and innovation-focused initiatives. In addition to managing capital projects, Mr. Freudberg is responsible for exploring new and innovative approaches to service delivery and operations, including on-demand service options for paratransit customers as well as the general public.

2016-2021 – Nashville Metropolitan Transit Authority (WeGo Public Transit)

Director of Service Quality - Managed the creation and launch of a same-day, on-demand service option for paratransit customers in 2018 known as Access-on-Demand. This program, operated by 3rd party taxi services and specialty transportation companies, now comprises more than 10% of all trips taken by paratransit customers while still remaining cost-neutral for the agency. He also used these same contractor relationships to quickly establish a safe, dedicated, and fully accessible transportation option for those requiring transportation to testing centers for COVID-19, providing a critical connection to testing for those who do not have other transportation options or would generally use public transit. Coordinated the launch of WeGo Link in partnership with Uber to provide first- and last-mile trips connecting customers to a high frequency bus route on Murfreesboro Pike in the Antioch area of Southeast Nashville.





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

2014-2016 – Nashville Metropolitan Transit Authority (WeGo Public Transit)

Scheduling and Service Planning Manager

2010-2011 - Nashville Metropolitan Transit Authority (WeGo Public Transit)

Operations Supervisor

2008-2010 - Charlottesville Area Transit,

Transit Operator, Relief Dispatcher and Trainer

2008-2009 - University Transit Service, University of Virginia,

Operations Supervisor

2005-2008 - University Transit Service, University of Virginia,

Bus Driver and Trainer





Gallatin Pike Advanced Transportation
Management System (ATMS) and Transit
Signal Priority (TSP) Deployment

TABLE OF CONTENTS

Application Standard Forms 2

Summary Budget Information 2

Cost Share Information 6

Organizational Information 6

Appendix: Letters of Support



Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

APPLICATION STANDARD FORMS

All application standard forms have been uploaded individually to the grants.gov website.

SUMMARY BUDGET INFORMATION

Table 1 summarizes the Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment estimated costs. This estimate takes into consideration all project phases spanning the duration of the project. The budget summary represents the total costs incurred for the project, inclusive of both the Federal share and the required matching non-Federal cost share.

Planned costs are connected to the project scope and summarized below by the project phase. With the deployment of this project, Metro Nashville will have established three (3) of the primary corridors (known as 'Pikes' in Nashville) as centrally controlled and managed corridors with technology and ITS infrastructure to benefit multiple modes (transit, vehicles, and pedestrians). If successful, this corridor will join Murfreesboro Pike (a 2015 TIGER grant funded corridor that deployed TSP technology and sizeable signal and ADA upgrades) and Charlotte Pike (a 2020 ATCTMD grant funded corridor currently under design) as technologically advanced multimodal corridors within the region.

Systems Engineering Analysis

The systems engineering analysis associated with this project includes the following tasks:

- Developing Project System Engineering Management Plan Documents
- Develop a Concept of Operations (ConOps)
- Develop a System Validation Plan
- Project Initiation
- Systems Integration
- Testing and Validation
- Project Closeout

The Gallatin Pike ATMS and TSP Deployment includes several elements, as follows. The first step will be to procure the services of a contractor to implement the infrastructure upgrades and perform systems integration, validation, and testing. For the Gallatin Pike ATMS and TSP Deployment a Systems Engineering Analysis (SEA) will be performed in accordance with the Federal Highway Administration (FHWA) System Engineering and Intelligent Transportation Systems (ITS) Architecture Procedures, as outlined in 23 CFR part 940.





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

Table 1: Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment Budget Summary

Item	ROM Cost	Year 1	Year 2	Year 3	Year 4	Notes
Signal Infrastructure	\$3,500,000		\$1,750,000	\$1,750,000		Costs derived from 95 Percent Plans Package / Cost Estimate from TMC / Arterial Fiber Project that has used local Metro funds.
Fiber Infrastructure	\$1,500,000		\$500,000	\$1,000,000		Costs derived from 95 Percent Plans Package / Cost Estimate from TMC / Arterial Fiber Project that has used local Metro funds.
Miscellaneous Const Items	\$1,200,000		\$800,000	\$400,000		Costs derived from 95 Percent Plans Package / Cost Estimate from TMC / Arterial Fiber Project that has used local Metro funds.
ADA Infrastructure	\$2,880,000		\$1,920,000	\$960,000		Costs derived from recent TIGER-funded TSP Contractor Costs with escalation applied (assumed two-thirds of the intersections would require ADA improvements)
TSP Technology	\$1,500,000			\$1,500,000		Budget provided for queue jump infrastructure, TSP technology elements, and minor bus stop improvements, etc.
Design Phase (NEPA / Preliminary Design / Final Design)	\$1,500,000	\$1,500,000				NEPA documentation, final 5 percent design for signal / fiber elements, ADA / sidewalk connection design, survey, TSP technology planning and design.
CEI	\$1,600,000		\$800,000	\$800,000		Approximately 15% of CONST cost
Timing Optimization / TSP Implementation	\$312,000				\$312,000	
Subtotal	\$13,992,000	\$1,500,000	\$5,770,000	\$6,410,000	\$312,000	
10% Contingency	\$1,399,200	\$150,000	\$577,000	\$641,000	\$31,200	
Total	\$15,391,200	\$1,650,000	\$6,347,000	\$7,051,000	\$343,000	
Total (Rounded)	\$15,400,000	\$1,650,000	\$6,350,000	\$7,055,000	\$345,000	





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

Requirements

The Requirements phase will focus on:

- Requirements analysis: A phase within system development life cycle models is a key part of the system development process. Systems engineering starts with high-level requirements, based on the Concept of Operations for the system. This is continually refined to expand on requirements descriptions until an agreed upon set of system requirements are developed. This process is defined below:
 - Needs Assessment
 - ConOps
 - Fact gathering
 - Documents requirements
 - Requirements analysis and review
- Developing a Requirements Traceability Verification Matrix (RTVM): this document links User Needs with Detailed Requirements and the System Verification process. The purpose of an RTVM is to ensure that all requirements are associated with User Needs,. This document also provides any detailed requirements defined for a system are verified through testing or observation.
- Stakeholder engagement and input: This phase will rely on direct user and stakeholder input to determine if the proper requirements are being tracked for the responsible party.
- Functional requirements development considers:
 - Business needs
 - Performance requirements
 - Interface requirements
 - Human-Machine interface requirements

The NDOT Project Manager – Derek Hagerty, PE, PMP, in coordination with all stakeholders, will develop the necessary documentation to state the requirements essential for implementation based on the goals of the project. An RTVM will be developed based on requirements analysis to ensure the objectives of the concept of operations are met by the project.





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

Implementation and Deployment

Once the systems engineering analysis is updated and complete the next steps will be using the detailed design to move into the next phase, implementation. This project will enter the construction phase once the final design is complete. The construction phase will include:

- Infrastructure Improvement
- Systems Deployment
- Integration
- Testing
- Verification
- Burn-in period

The Contractor selected to perform the work will adhere to the detailed requirements, final plans, and specifications that are currently being developed for the project. The contractor will update the detailed requirements to the RTVM based on the final system design, equipment, software, and integration that will be provided.

On-Going Management and Operations

On-Going Management and Operations will focus on operational agreements and predetermined maintenance responsibilities based on:

- Executed agreements for operations
- Executed agreements for maintenance

NDOT currently partners with Metro's Information Technology Services Division, known as Metro ITS, for communications equipment (fiber, switching, etc.) needed for their signal system. Though not formalized in an MOU, there is a distinct division of responsibilities between Metro ITS and NDOT related the countywide signal system. Metro ITS is responsible for communications equipment (fiber optic communications, Ethernet switches, etc.) whereas NDOT operates and maintains the remaining traffic signal infrastructure in the field (signal poles, conduit / pull boxes, detection, signal heads, signal cabinet, etc.).

NDOT and WeGo Public Transit have executed a memorandum of understanding (MOU) for operations and maintenance of the City's first TSP deployment along Murfreesboro Pike. Each agency envisions an expansion of this MOU to include Gallatin Pike's TSP deployment.

System Validation





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

Once the implementation and deployment phases of the project are complete system validation will occur. This process will focus on:

- Develop a detailed lessons learned document based on before and after analysis
- Develop and implement a data collection, sharing, and storage plan
- Perform after action review updates based on the results of the before-after analysis

Beginning with the System Validation Plan, the System Evaluator will develop a detailed before and after evaluation plan; develop and implement a data collection and storage plan; and perform the before-project analysis and perform the after-project analysis.

COST SHARE INFORMATION

NDOT is currently funding the design of the fiber optic communications infrastructure, CCTV camera coverage, and non-intrusive vehicle detection along the project corridor. This design package has been submitted at the 95 percent design phase. Additionally, NDOT will fund the additional \$3,400,00 needed above and beyond the \$12,000,000 grant maximum, which represents an approximately 22 percent local funds grant match. . The match being provided for this application will come from Metro's yearly Capital Spending Plan (CSP). The CSP is programmed in year in the Fall (around October), with the last two (2) years having allocated \$7,000,000 to TMC- / ITS-related programs. NDOT envisions programming the 2022-2023 or 2023-2024 CSP to fund the \$3,400,000 matching funds needed for this grant.

ORGANIZATIONAL INFORMATION

Exceptions to Terms and Conditions

Exceptions: NDOT takes no exception to the anticipated award terms and conditions as contained in Section F, Federal Award Administration Information.

Intellectual Property: NDOT owns and anticipates using Advanced transportation management software (Econolite Control Products, Inc.; Trapeze Software ULC, Transit Master) during the ongoing operations phase of this project.

Dun and Bradstreet (D&B) Data Universal Numbering System (DUNS) Number

DUNS Number: 069301944

UEI Number: LGZLHP6ZHM55





Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment

A-133 Single Audit Statement (Last Completion Date)

Last A-133 Single Audit Completion Date: June 30th, 2021 Confirm: <https://www.oversight.gov/report/state-local/TN/State-Tennessee-Single-Audit-Year-Ended-June-30-2021>

Statement Regarding Conflicts of Interest

NDOT has no known conflicts of interest regarding the past, present, or planned contractual, financial, or other relationships, obligations, commitments, or responsibilities, which may bias NDOT or affect the NDOT's ability to perform the agreement in an impartial and objective manner.

Statement about Federal or State Audit

The State of Tennessee Auditor General completes operational audits of our accounting systems, purchasing systems, and property control system through operational audits.

Terminated Contracts

There are no known contracts or agreements that have been terminated out of convenience for the Government in the past three years or due to default in the past five years.

Title 2 CFR § 170 Understanding

NDOT has reviewed Title 2 CFR §170 dated September 14, 2010, and Appendix A thereto, and acknowledges that it understands the requirement, has the necessary processes and systems in place, and is prepared to fully comply with the reporting described in the term if it receives funding resulting from this Notice.

Criminal Law Violation Disclosure

There are no known violations of Federal criminal law involving fraud, bribery, or gratuity violations.



APPENDIX

Letters of Support



One Public Square,
Suite 204 Nashville,
Tennessee 37201

TONYA HANCOCK
Councilor, District 9

(615) 398-1373
(615) 432-1309
tonya.hancock@nashville.gov

Wednesday, November 16, 2022

Secretary Pete Buttigieg
U.S. Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC, 20590

Subject: Letter of Support 2022 ATTIMD Grant Application:
Gallatin Pike ATMS and TSP Priority Deployment

Dear Secretary Buttigieg,

I writing a letter of support for funding through the United States Department of Transportation's ATTIMD Discretionary Grant Program.

Metro Council, and specifically District 9, wishes to express its full support for the Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment project under the ATTAIN Discretionary Grant Program. Gallatin Pike is a major northbound-southbound arterial roadway in Davidson County running parallel to I-65 connecting downtown Nashville to Sumner County and is of Middle Tennessee's most congested corridors with the region's second highest transit ridership. More importantly, here in Madison, TN, it is our main thoroughfare.

The project will develop a fully instrumented Advanced Transportation System with Transit Signal Priority (TSP) to include vehicle detection, fiber communication, and CCTVs to allow for active management of passenger vehicles, transit, pedestrians, and bicyclists. The completion of this project will enable traffic signal synchronization strategies and signal performance measures to continually manage and optimize traffic operations, manage special events, implement TSP strategies such as queue jumps, early greens, green extensions, and update pedestrian signalization infrastructure to include countdown pedestrian signal heads and PROWAG compliant push buttons. These improvements will make it easier for residents and visitors to move in and around Nashville, improve safety, attract new transit users, provide greater access to jobs, and enhance economic development.

I support the application because this grant will provide the necessary resources to implement both near and long-term safety and efficiency improvements and support the long-term vision of a people-first transportation system. Please select this proposal; it will do a world of good.

Sincerely,

Tonya Hancock
Metro Councilor, District 9



METROPOLITAN COUNCIL

Member of Metro Council

Sean Parker

Councilmember, District 5

One Public Square, Suite 204 • Nashville, TN 37201

615-432-1305 / email: sean.parker@nashville.gov

November 18, 2022

Secretary Pete Buttigieg
U.S. Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590

Subject: Letter of Support 2022 ATTIMD Grant Application: Gallatin Pike ATMS and TSP Priority Deployment

Dear Secretary Buttigieg,

I serve as the Metro Councilmember representing Nashville's 5th district. Our district's Eastern boundary runs along Gallatin Pike. I am grateful for the opportunity to express my support for this grant application. Transit and pedestrian safety are top priorities in our community and I believe this grant would help us make significant progress toward a safer and more connected Nashville.

Gallatin Pike is a major northbound-southbound arterial roadway in Davidson County running parallel to I-65 connecting downtown Nashville to Sumner County and is one of Middle Tennessee's most congested corridors with the region's second highest transit ridership. The project will develop a fully instrumented Advanced Transportation System with Transit Signal Priority (TSP) to include vehicle detection, fiber communication, and CCTVs to allow for active management of passenger vehicles, transit, pedestrians, and bicyclist.

The completion of this project will enable traffic signal synchronization strategies and signal performance measures to continually manage and optimize traffic operations, manage special events including those taking place at Nissan Stadium, implement TSP strategies such as queue jumps, early greens, and green extensions, and update pedestrian signalization infrastructure to include countdown pedestrian signal heads and PROWAG compliant push buttons. These improvements will make it easier for residents and visitors to move in and around Nashville, improve safety, attract new transit users, provide greater access to jobs, and enhance economic development.

I support the application because this grant will provide the necessary resources to implement both near and long-term safety and efficiency improvements and support the long-term vision of a people-first transportation system that works for everyone.

Sincerely,

Councilmember Sean Parker



METROPOLITAN COUNCIL

Member of Metro Council

Hon. Nancy VanReece
Councilmember, District 8
One Public Square, Nashville, TN 37201
Email: nancy.vanreece@nashville.gov – Ph. 615-432-1308

November 14, 2022

Secretary Pete Buttigieg
U.S. Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC, 20590

Re: Letter of Support 2022 ATTIMD Grant Application: Gallatin Pike ATMS and TSP Priority Deployment

Dear Secretary Buttigieg:

As a fellow Victory Fund candidate, it is always my pleasure to reach out to you. We met in Nashville at events several times and the entire LGBTQ Caucus of the Nashville Metro Council celebrates in your success. Indeed, four of the five caucus members represent the Gallatin Pike corridor that seeks ATMS and TSP Priority Deployment.

I am pleased to provide this letter of support for funding through the Advanced Transportation Technologies & Innovative Mobility Deployment (ATTIMD) program for the Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment project.

Gallatin Pike is a major northbound-southbound arterial roadway in Davidson County running parallel to I-65 connecting downtown Nashville to Sumner County and is of Middle Tennessee's most congested corridors with the region's second highest transit ridership. The project will develop a fully instrumented Advanced Transportation System with Transit Signal Priority (TSP) to include vehicle detection, fiber communication, and CCTVs to allow for active management of passenger vehicles, transit, pedestrians, and bicyclists.

I support this grant application and the successful completion of this project because it will make it easier for residents and visitors to easily navigate around Nashville, improve safety, attract new transit users, provide greater access to jobs and enhance Nashville's overall economic development. Additionally, this project will provide the following:

- enable traffic signal synchronization strategies and signal performance measures to continually manage and optimize traffic operations;
- manage special events including those taking place at Nissan Stadium;
- implement TSP strategies such as que jumps, early greens, and green extensions; and
- update pedestrian signalization infrastructure to include countdown pedestrian signal heads and PROWAG compliant push buttons.

Thank you for your attention to this matter.

Sincerely,

Hon. Nancy VanReece (she/her)
Councilmember, District 8 | 2015-2023



METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY

One Public Square, Suite 204
Nashville, Tennessee 37201
Office: (615) 862-6780
Fax: (615) 862-6784

1113 Granada Avenue
Nashville, Tennessee 37206
Cell: (615) 427-5946
Email: brett.withers@nashville.gov

BRETT A. WITHERS
Councilmember, District 6

November 14, 2022

The Honorable Pete Buttigieg
Secretary of Transportation
1200 New Jersey Ave, SE
Washington, DC 20590

**Subject: Letter of Support 2022 ATTIMD Grant Application: Gallatin Pike ATMS
and TSP Priority Deployment**

Dear Secretary Buttigieg,

I am pleased to provide this letter of support for funding through the United States Department of Transportation's ATTIMD Discretionary Grant Program.

I wish to express my full support for the Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment project under the ATTAIN Discretionary Grant Program. Gallatin Pike is a major northbound-southbound arterial roadway in Davidson County running parallel to I-65 connecting downtown Nashville to Sumner County and is of Middle Tennessee's most congested corridors with the region's second highest transit ridership. The project will develop a fully instrumented Advanced Transportation System with Transit Signal Priority (TSP) to include vehicle detection, fiber communication, and CCTVs to allow for active management of passenger vehicles, transit, pedestrians, and bicyclist.

The completion of this project will enable traffic signal synchronization strategies and signal performance measures to continually manage and optimize traffic operations, manage special events including those taking place at Nissan Stadium, implement TSP strategies such as que jumps, early greens, and green extensions, and update pedestrian signalization infrastructure to include countdown pedestrian signal heads and PROWAG compliant push buttons. These improvements will make it easier for residents and visitors to move in and around Nashville, improve safety, attract new transit users, provide greater access to jobs, and enhance economic development.

I support the application because this grant will provide the necessary resources to implement both near and long-term safety and efficiency improvements and support the long-term vision of a people-first transportation system that works for everyone.

Sincerely,

A handwritten signature in blue ink that reads "Brett A. Withers". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Brett A. Withers
Councilmember, District 6



METROPOLITAN COUNCIL

Zach Young

Metro Councilman, District 10

93 French Street • Goodlettsville, TN 37072

Telephone 615-390-6840 • zach.young@nashville.gov

November 18, 2022

Secretary Pete Buttigieg
U.S. Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC, 20590

Subject: Letter of Support 2022 ATTIMD Grant Application: Gallatin Pike ATMS and
TSP Priority Deployment

Dear Secretary Buttigieg,

I am pleased to provide this letter of support for funding through the United States Department of Transportation's ATTIMD Discretionary Grant Program. I express full support for the Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment project under the ATTAIN Discretionary Grant Program. Gallatin Pike is a major northbound-southbound arterial roadway in Davidson County, running parallel to I-65, connecting downtown Nashville to Sumner County. It is Middle Tennessee's most congested corridor, with the region's second-highest transit ridership. The project will develop a fully instrumented Advanced Transportation System with Transit Signal Priority (TSP) to include vehicle detection, fiber communication, and CCTVs to allow for active management of passenger vehicles, transit, pedestrians, and bicyclist.

The completion of this project will enable traffic signal synchronization strategies and signal performance measures to continually manage and optimize traffic operations, organize special events, including those taking place at Nissan Stadium, implement TSP strategies such as que jumps, early greens, and green extensions, and update pedestrian signalization infrastructure to include countdown pedestrian signal heads and PROWAG compliant push buttons. These improvements will make it easier for residents and visitors to move in and around Nashville, improve safety, attract new transit users, provide greater access to jobs, and enhance economic development.

I support the application because this grant will provide the necessary resources to implement both near and long-term safety and efficiency improvements and support the long-term vision of a people-first transportation system that works for everyone.

Sincerely,

Zach Young
Councilmember, District 10



November 10, 2022

The Honorable Pete Buttigieg
Secretary of Transportation
1200 New Jersey Ave, SE
Washington, DC 20590

Subject: Metro Nashville 2022 ATTIMD Grant Application: Gallatin Pike Fiber

Dear Secretary Buttigieg,

I am pleased to offer this letter of support for the Nashville Department of Transportation's (NDOT) Advanced Transportation Technologies & Innovative Mobility Deployment (ATTIMD) program application on behalf of the Greater Nashville Regional Council's Transportation Policy Board. The City's proposal to implement an Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) on Gallatin Pike will mitigate congestion, improve transit reliability, and improve safety on one of the City's most congested and unsafe corridors.

GNRC is recognized by the State of Tennessee Department of Transportation (TDOT) and the United States Department of Transportation Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) as the federally-designated Metropolitan Planning Organization (MPO) for the seven county Nashville metropolitan planning area which includes Davidson, Maury, Robertson, Rutherford, Sumner, Williamson, and Wilson counties.

Gallatin Pike is a major northbound-southbound arterial roadway connecting downtown Nashville to Sumner County. It is in the top 5% of crash hotspots in the region for both motorized and non-motorized users, and is one of the most congested corridors in the region. Signalization improvements, new pedestrian signalization, and the deployment of transit signal priority infrastructure will allow for active management of all modes and better management of special events near Nissan Stadium and downtown Nashville.

The project will be designed to accommodate all users and ensure safe access along the corridor. It will also advance GNRC's Regional Transportation Plan by furthering the goals to improve safety and mitigate congestion. GNRC supports the City's commitment to mitigating congestion and providing better access for all users on Gallatin Pike.

Thank you for your consideration of the Nashville Department of Transportation's grant application.

Sincerely,

A handwritten signature in dark ink, appearing to read "Sean Pfalzer", is positioned above the printed name.

Sean Pfalzer
Transportation Planning Manager

Connecting Communities. Empowering People.

220 Athens Way, Suite 200 • Nashville, TN 37228 • GNRC.org



Metropolitan Government of Nashville and Davidson County

John Cooper, Mayor

Information Technology Services Department

Keith Durbin, CIO/Director of IT Services

November 7, 2022

Secretary Pete Buttigieg
U.S. Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC, 20590

Subject: Letter of Support 2022 ATTIMD Grant Application: Gallatin Pike ATMS and TSP Priority Deployment

Dear Secretary Buttigieg:

I am pleased to provide this letter of support for funding for Metropolitan Nashville & Davidson County, TN, through the United States Department of Transportation's ATTIMD Discretionary Grant Program.

As a partner in the program, Metro Information Technology Services wishes to express its full support for the Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment project under the ATTAIN Discretionary Grant Program. Gallatin Pike is a major northbound-southbound arterial roadway in Davidson County running parallel to I-65 connecting downtown Nashville to Sumner County and is of Middle Tennessee's most congested corridors with the region's second highest transit ridership. The project will develop a fully instrumented Advanced Transportation System with Transit Signal Priority (TSP) to include vehicle detection, fiber communication, and CCTVs to allow for active management of passenger vehicles, transit, pedestrians, and bicyclist.

The completion of this project will enable traffic signal synchronization strategies and signal performance measures to continually manage and optimize traffic operations, manage special events including those taking place at Nissan Stadium, implement TSP strategies such as queue jumps, early greens, and green extensions, and update pedestrian signalization infrastructure to include countdown pedestrian signal heads and PROWAG compliant push buttons. These improvements will make it easier for residents and visitors to move in and around Nashville, improve safety, attract new transit users, provide greater access to jobs, and enhance economic development.

I support the application because this grant will provide the necessary resources to implement both near and long-term safety and efficiency improvements and support the long-term vision of a people-first transportation system that works for everyone.

Sincerely,

A handwritten signature in blue ink, appearing to read "Keith Durbin".

Keith Durbin
Chief Information Officer/Director of IT Services

cc: Diana Alarcon



**METROPOLITAN GOVERNMENT
OF NASHVILLE AND DAVIDSON COUNTY**

Planning Department
Metro Office Building
800 Second Avenue South
Nashville, Tennessee 37201

November 18, 2022

Secretary Pete Buttigieg
U.S. Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC, 20590

Subject: Letter of Support 2022 ATTIMD Grant Application: Gallatin Pike ATMS and TSP
Priority Deployment

Dear Secretary Buttigieg,

I am pleased to provide this letter of support for funding through the United States Department of Transportation's ATTIMD Discretionary Grant Program.

The Metro Planning Department wishes to express its full support for the Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment project under the ATTAIN Discretionary Grant Program. Gallatin Pike is a major northbound-southbound arterial roadway in Davidson County running parallel to I-65 connecting downtown Nashville to Sumner County and is of Middle Tennessee's most congested corridors with the region's second highest transit ridership. The project will develop a fully instrumented Advanced Transportation System with Transit Signal Priority (TSP) to include vehicle detection, fiber communication, and CCTVs to allow for active management of passenger vehicles, transit, pedestrians, and bicyclist.

The completion of this project will enable traffic signal synchronization strategies and signal performance measures to continually manage and optimize traffic operations, manage special events including those taking place at Nissan Stadium, implement TSP strategies such as que jumps, early greens, and green extensions, and update pedestrian signalization infrastructure to include countdown pedestrian signal heads and PROWAG compliant push buttons. These improvements will make it easier for residents and visitors to move in and around Nashville, improve safety, attract new transit users, provide greater access to jobs, and enhance economic development.

I support the application because this grant will provide the necessary resources to implement both near and long-term safety and efficiency improvements and support the long-term vision of a people-first transportation system that works for everyone.

Sincerely,

A handwritten signature in cursive script that reads "Lucy Alden Kempf".

Lucy Kempf
Executive Director, Metro Nashville Planning Department



METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY

**JOHN COOPER
MAYOR**

**NASHVILLE DEPARTMENT OF TRANSPORTATION
AND MULTIMODAL INFRASTRUCTURE**

November 18, 2022

Secretary Pete Buttigieg
U.S. Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC, 20590

Subject: Letter of Support 2022 ATTIMD Grant Application: Gallatin Pike ATMS and TSP
Priority Deployment

Dear Secretary Buttigieg,

I am pleased to provide this letter of support for funding through the United States Department of Transportation's ATTIMD Discretionary Grant Program.

As the Mayor of Nashville I wish to express its full support for the Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment project under the ATTAIN Discretionary Grant Program. Gallatin Pike is a major northbound-southbound arterial roadway in Davidson County running parallel to I-65 connecting downtown Nashville to Sumner County and is of Middle Tennessee's most congested corridors with the region's second highest transit ridership. The project will develop a fully instrumented Advanced Transportation System with Transit Signal Priority (TSP) to include vehicle detection, fiber communication, and CCTVs to allow for active management of passenger vehicles, transit, pedestrians, and bicyclist.

The completion of this project will enable traffic signal synchronization strategies and signal performance measures to continually manage and optimize traffic operations, manage special events including those taking place at Nissan Stadium, implement TSP strategies such as que jumps, early greens, and green extensions, and update pedestrian signalization infrastructure to include countdown pedestrian signal heads and PROWAG compliant push buttons. These improvements will make it easier for residents and visitors to move in and around Nashville, improve safety, attract new transit users, provide greater access to jobs, and enhance economic development.

This grant will provide the necessary resources to implement both near and long-term safety and efficiency improvements and support the long-term vision of a people-first transportation system that works for everyone.

Sincerely,

A handwritten signature in blue ink, appearing to read "John Cooper".

JIM COOPER
5TH DISTRICT, TENNESSEE
HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON STRATEGIC FORCES –
CHAIRMAN
SUBCOMMITTEE ON INTELLIGENCE, EMERGING
THREATS AND CAPABILITIES
SUBCOMMITTEE ON SEAPOWER AND PROJECTION
FORCES
COMMITTEE ON OVERSIGHT
AND REFORM
SUBCOMMITTEE ON NATIONAL SECURITY
COMMITTEE ON THE BUDGET

Congress of the United States
House of Representatives
Washington, DC 20515

PLEASE MAIL TO NASHVILLE OFFICE:
605 CHURCH STREET
NASHVILLE, TN 37219-2314
(615) 736-5295
FAX: (615) 736-7479

WASHINGTON OFFICE:
(202) 225-4311
FAX: (202) 226-1035

WEBSITE: cooper.house.gov

November 16, 2022

The Honorable Pete Buttigieg
Secretary
United States Department of Transportation
1200 New Jersey Avenue SE
Washington, DC 20590

RE: 2022 ATTIMD Grant Application: Gallatin Pike ATMS and TSP Deployment

Dear Secretary Buttigieg,

I am writing in support of the Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment project under the ATTIMD Discretionary Grant Program.

Gallatin Pike is a major northbound-southbound arterial in Davidson County connecting downtown Nashville to Sumner County. It is one of Middle Tennessee's most congested corridors with the region's second-highest transit ridership. The project will develop a fully instrumented Advanced Transportation System with Transit Signal Priority to include vehicle detection, fiber communication, and CCTVs to allow for active management of passenger vehicles, transit, pedestrians, and bicyclists.

When completed, this project will enable traffic signal synchronization strategies and signal performance measures to continually manage and optimize traffic operations, manage special events (including those taking place at Nissan Stadium), implement TSP strategies such as queue jumps, early greens, and green extensions, and update pedestrian signalization infrastructure to include countdown pedestrian signal heads and PROWAG-compliant push buttons.

These improvements will make it easier for residents and visitors to move in and around Nashville, improve safety, attract new transit users, create jobs, and enhance economic development.

Thank you for your consideration of this important project.

Sincerely,


Jim Cooper
Member of Congress

MARSHA BLACKBURN
TENNESSEE
<http://www.blackburn.senate.gov/>

357 DIRKSEN SENATE OFFICE BUILDING
WASHINGTON, DC 20510
(202) 224-3344
FAX: (202) 228-0566

COMMITTEES:
ARMED SERVICES
COMMERCE, SCIENCE, AND
TRANSPORTATION
JUDICIARY
VETERANS' AFFAIRS

United States Senate

November 16, 2022

The Honorable Pete Buttigieg
Secretary
United States Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590

Dear Secretary Buttigieg:

I write to bring your attention to the grant application submitted by the Metropolitan Government of Nashville-Davidson County (Metro Nashville) for funding available through the Advanced Transportation Technology and Innovation (ATTAIN) program.

I understand that Metro Nashville is seeking grant funding for the the Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment project. Metro Nashville informs me that the proposed project would develop a fully instrumented ATMS with TSP to include vehicle detection, fiber communication, and CCTVs to allow for active management of passenger vehicles, transit, pedestrians, and bicyclists.

Please give all due consideration to this request. Should you have any questions or need more information, please contact Alexander Gonzalez on my staff at (202) 224-3344.

Sincerely,



Marsha Blackburn
United States Senator

United States Senate
WASHINGTON, DC 20510

November 18, 2022

U.S. Department of Transportation
1200 New Jersey Avenue, SE
Washington, D.C. 20590

Dear Grant Review Committee,

I write today in support of Metropolitan Government of Nashville-Davidson County's application to secure funding for their project, the Gallatin Pike Advanced Transportation Management System and Transit Signal Priority Deployment.

This project will develop a fully instrumented Advanced Transportation System with Transit Signal Priority along Gallatin Pike, a major northbound-southbound arterial roadway in Davidson County, that will include: vehicle detection, fiber communication, and CCTV's to allow for active management of passenger vehicles, transit, pedestrians, and bicyclists.

The completion of the Gallatin Pike project will enable traffic signal synchronization strategies and signal performance measures to continually manage and optimize traffic operations. These improvements will make it easier for residents and visitors to move in and around Nashville, enhance economic development, provide greater access to jobs, improve safety, and attract new transit users.

I thank you in advance for your careful consideration of Metropolitan Government of Nashville-Davidson County's application. Please contact my office at (202) 224-4944 should you have any questions.

Sincerely,



Bill Hagerty
United States Senator

**APPLICATION FOR Advanced Transportation Technology and Innovation
(ATTAIN) program**

METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY

DocuSigned by:

E81D655F-BC8B-420D-9FA4-FB387D925841

Diana W. Alarcon, Director
Department of Transportation and
Multimodal Infrastructure

11/14/2022

Date