# GRANT APPLICATION SUMMARY SHEET

| | |
|---|---|
| **Grant Name:** | Advanced Transportation Technology and Innovation (ATTAIN) Program 24-27 |
| **Department:** | NDOT |
| **Grantor:** | U.S. DEPARTMENT OF TRANSPORTATION |
| **Pass-Through Grantor (If applicable):** | |
| **Total Applied For:** | $10,144,000.00 |
| **Metro Cash Match:** | $2,536,000.00 |
| **Department Contact:** | Casey Hopkins 8801676 |
| **Status:** | NEW |

**Program Description:**
This 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. 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) 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 would improve multimodal traffic operations along Gallatin. Pike by enabling the following real-time operational strategies.

**Plan for continuation of services upon grant expiration:**
N/A - Construction will be complete.

**APPROVED AS TO AVAILABILITY OF FUNDS:**

Kevin Crumbo/mjw 1/29/2024 | 3:42 PM CST
**_Director of Finance Date**

AP GAM

**APPROVED AS TO FORM AND LEGALITY:**

Courtney Mohan 1/29/2024 | 4:23 PM CST
**_Metropolitan Attorney Date**

**APPROVED AS TO RISK AND INSURANCE:**

Balogun Cobb 1/29/2024 | 3:47 PM CST
**Director of Risk Management Date**

Freddie O'Connell 1/29/2024 | 4:30 PM CST
**Metropolitan Mayor Date**
***(This application is contingent upon approval of the application by the Metropolitan Council.)***

**5769**

# Grants Tracking Form

## Part One

**Pre-Application** ○ **Application** ◉ **Award Acceptance** ○ **Contract Amendment** ○

| Department | Dept. No. | Contact | Phone | Fax |
|---|---|---|---|---|
| NDOT | | Casey Hopkins | 8801676 | |

| | | | |
|---|---|---|---|
| **Grant Name:** | Advanced Transportation Technology and Innovation (ATTAIN) Program 24-27 | | |
| **Grantor:** | U.S. DEPARTMENT OF TRANSPORTATION | **Other:** | |
| **Grant Period From:** | 07/01/24 | (applications only) **Anticipated Application Date:** | 02/01/24 |
| **Grant Period To:** | 06/30/27 | (applications only) **Application Deadline:** | 02/02/24 |
| **Funding Type:** | FED DIRECT | **Multi-Department Grant** ☐ → **If yes, list below.** | |
| **Pass-Thru:** | | **Outside Consultant Project:** | ☐ |
| **Award Type:** | COMPETITIVE | **Total Award:** | $10,144,000.00 |
| **Status:** | NEW | **Metro Cash Match:** | $2,536,000.00 |
| **Metro Category:** | New Initiative | **Metro In-Kind Match:** | $0.00 |
| **CFDA #** | 20.200 | **Is Council approval required?** | ☑ |
| | | **Applic. Submitted Electronically?** | ☑ |

**Project Description:**

This 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. 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) 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 would improve multimodal traffic operations along Gallatin Pike by enabling the following real-time operational strategies.

**Plan for continuation of service after expiration of grant/Budgetary Impact:**

N/A - Construction will be complete

**How is Match Determined?**

| | | | | | |
|---|---|---|---|---|---|
| **Fixed Amount of $** | $2,536,000.00 | **or** | 20.0% | **% of Grant** | **Other:** ☐ |

**Explanation for "Other" means of determining match:**

**For this Metro FY, how much of the required local Metro cash match:**

| | | | | | |
|---|---|---|---|---|---|
| **Is already in department budget?** | Yes | | **Fund** | 42021 | **Business Unit** 42409021 |
| **Is not budgeted?** | | | **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:** | $2,387,644.00 | |
| ***Indirect Costs allowed?** ○ Yes ◉ No **% Allow.** | 0.00% | **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:**

Metro Its and WeGo

## 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** | **FY24** | **$1,144,000.00** | $0.00 | $0.00 | $286,000.00 | 42021, 42409021 | $0.00 | $1,430,000.00 | $269,269.00 | $0.00 |
| **Yr 2** | **FY25** | **$3,920,000.00** | $0.00 | $0.00 | $980,000.00 | 42021, 42409021 | $0.00 | $4,900,000.00 | $922,670.00 | $0.00 |
| **Yr 3** | **FY26** | **$4,640,000.00** | $0.00 | $0.00 | $1,160,000.00 | 42021, 42409021 | $0.00 | $5,800,000.00 | $1,092,140.00 | $0.00 |
| **Yr 4** | **FY27** | **$440,000.00** | $0.00 | $0.00 | $110,000.00 | 42021, 42409021 | $0.00 | $550,000.00 | $103,565.00 | $0.00 |
| **Yr 5** | **FY__** | **$0.00** | $0.00 | $0.00 | $0.00 | 42021, 42409021 | $0.00 | $0.00 | $0.00 | $0.00 |
| **Total** | | **$10,144,000.00** | $0.00 | $0.00 | $2,536,000.00 | 42021, 42409021 | $0.00 | $12,680,000.00 | $2,387,644.00 | $0.00 |

| | | | | | |
|---|---|---|---|---|---|
| **Date Awarded:** | | **Tot. Awarded:** | | **Contract#:** | 693JJ324NF00005 |
| (or) **Date Denied:** | | **Reason:** | | | |
| (or) **Date Withdrawn:** | | **Reason:** | | | |

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

JP

Rev. 5/13/13
5769

GCP Received 01/29/2024

GCP Approved 01/29/2024

OMB Number: 4040-0004
Expiration Date: 11/30/2025

## Application for Federal Assistance SF-424

* 1. Type of Submission:
- [ ] Preapplication
- [x] Application
- [ ] Changed/Corrected Application

* 2. Type of Application:
- [x] 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:**

X: Other (specify)

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

Metropolitan Government

*** 10. Name of Federal Agency:**

DOT Federal Highway Administration

**11. Catalog of Federal Domestic Assistance Number:**

20.200

CFDA Title:

Highway Research and Development Program

*** 12. Funding Opportunity Number:**

693JJ324NF00005

* Title:

FY23-FY24 Advanced Transportation Technology and Innovation (ATTAIN) Program

**13. Competition Identification Number:**

693JJ324NF00005

Title:

FY23-FY24 Advanced Transportation Technology and Innovation (ATTAIN) Program

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

Add Attachment | Delete Attachment | View 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 Attachments | Delete Attachments | View Attachments

## Application for Federal Assistance SF-424

**16. Congressional Districts Of:**

* a. Applicant: TN-006 * b. Program/Project: TN-006

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

Add Attachment | Delete Attachment | View Attachment

**17. Proposed Project:**

* a. Start Date: 07/01/2024 * b. End Date: 06/30/2027

**18. Estimated Funding ($):**

| | |
|---|---|
| * a. Federal | 10,144,000.00 |
| * b. Applicant | 2,536,000.00 |
| * c. State | 0.00 |
| * d. Local | 0.00 |
| * e. Other | 0.00 |
| * f. Program Income | 0.00 |
| * g. TOTAL | 12,680,000.00 |

*** 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: Casey

Middle Name:

* Last Name: Hopkins

Suffix:

* Title: Grants Coordinator

* Telephone Number: 6158801676 Fax Number:

* Email: casey.hopkins@nashville.gov

* Signature of Authorized Representative: Completed by Grants.gov upon submission. * Date Signed: Completed by Grants.gov upon submission.

# 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. ATTAIN Year One | 20.200 | $ | $ | $ 1,144,000.00 | $ 286,000.00 | $ 1,430,000.00 |
| 2. ATTAIN Year Two | 20.200 | | | 3,920,000.00 | 980,000.00 | 4,900,000.00 |
| 3. ATTAIN Year Three | 20.200 | | | 4,640,000.00 | 1,160,000.00 | 5,800,000.00 |
| 4. ATTAIN Year Four | 20.200 | | | 440,000.00 | 110,000.00 | 550,000.00 |
| 5. Totals | | $ | $ | $ 10,144,000.00 | $ 2,536,000.00 | $ 12,680,000.00 |

## SECTION B - BUDGET CATEGORIES

| 6. Object Class Categories | GRANT PROGRAM, FUNCTION OR ACTIVITY (1) ATTAIN Year One | (2) ATTAIN Year Two | (3) ATTAIN Year Three | (4) ATTAIN Year Four | Total (5) |
|---|---|---|---|---|---|
| a. Personnel | $ 0.00 | $ 0.00 | $ 0.00 | $ 0.00 | $ 0.00 |
| b. Fringe Benefits | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| c. Travel | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| d. Equipment | 0.00 | 0.00 | 1,000,000.00 | 550,000.00 | 1,550,000.00 |
| e. Supplies | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| f. Contractual | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| g. Construction | 0.00 | 4,062,000.00 | 4,386,000.00 | 0.00 | 8,448,000.00 |
| h. Other | 1,430,000.00 | 838,000.00 | 414,000.00 | 0.00 | 2,682,000.00 |
| i. Total Direct Charges (sum of 6a-6h) | 1,430,000.00 | 4,900,000.00 | 5,800,000.00 | 550,000.00 | $ 12,680,000.00 |
| j. Indirect Charges | 0.00 | 0.00 | 0.00 | 0.00 | $ 0.00 |
| k. TOTALS (sum of 6i and 6j) | $ 1,430,000.00 | $ 4,900,000.00 | $ 5,800,000.00 | $ 550,000.00 | $ 12,680,000.00 |
| | | | | | |
| 7. Program Income | $ 0.00 | $ 0.00 | $ 0.00 | $ 0.00 | $ 0.00 |

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## SECTION C - NON-FEDERAL RESOURCES

| (a) Grant Program | (b) Applicant | (c) State | (d) Other Sources | (e)TOTALS |
|---|---|---|---|---|
| 8. ATTAIN Year One | $ 286,000.00 | $ 0.00 | $ 0.00 | $ 286,000.00 |
| 9. ATTAIN Year Two | 980,000.00 | 0.00 | 0.00 | 980,000.00 |
| 10. ATTAIN Year Three | 1,160,000.00 | 0.00 | 0.00 | 1,160,000.00 |
| 11. ATTAIN Year Four | 110,000.00 | 0.00 | 0.00 | 110,000.00 |
| 12. TOTAL (sum of lines 8-11) | $ 2,536,000.00 | $ 0.00 | $ 0.00 | $ 2,536,000.00 |

## 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. ATTAIN Year One | $ | $ | $ 572,000.00 | $ 572,000.00 |
| 17. ATTAIN Year Two | 980,000.00 | 980,000.00 | 980,000.00 | 980,000.00 |
| 18. ATTAIN Year Three | 1,160,000.00 | 1,160,000.00 | 1,160,000.00 | 1,160,000.00 |
| 19. ATTAIN Year Four | 110,000.00 | 110,000.00 | 110,000.00 | 110,000.00 |
| 20. TOTAL (sum of lines 16 - 19) | $ 2,250,000.00 | $ 2,250,000.00 | $ 2,822,000.00 | $ 2,822,000.00 |

## SECTION F - OTHER BUDGET INFORMATION

**21. Direct Charges:**

**22. Indirect Charges:**

**23. Remarks:** No out of the ordinary direct costs.

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OMB Number: 4040-0007
Expiration Date: 02/28/2025

# ASSURANCES - NON-CONSTRUCTION PROGRAMS



**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.

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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# 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
- [x] b. grant
- [ ] c. cooperative agreement
- [ ] d. loan
- [ ] e. loan guarantee
- [ ] f. loan insurance

**2. * Status of Federal Action:**
- [x] a. bid/offer/application
- [ ] b. initial award
- [ ] c. post-award

**3. * Report Type:**
- [x] a. initial filing
- [ ] b. material change

**4. Name and Address of Reporting Entity:**

[x] Prime [ ] SubAwardee

** Name:* Metropolitan Government of Nashville-Davidson County

** Street 1:* 1 Public Square *Street 2:*

** City:* Nashville *State:* TN: Tennessee *Zip:* 37201-5007

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:**

Highway Research and Development Program

CFDA Number, *if applicable:* 20.200

**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 *Street 2:* Suite #250S

** City:* Washington *State:* DC: District of Columbia *Zip:* 20005

**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 *Street 2:* Suite #250S

** City:* Washington *State:* DC: District of Columbia *Zip:* 20005

**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

**Federal Use Only:**

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**Standard Form - LLL (Rev. 7-97)**

## 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: | Casey |
| Middle Name: | |
| * Last Name: | Hopkins |
| Suffix: | |
| * Title: | Grants Coordinator |
| * SIGNATURE: | Completed on submission to Grants.gov |
| * DATE: | Completed on submission to Grants.gov |

# ATTACHMENTS FORM

**Instructions:** On this form, you will attach the various files that make up your grant application. Please consult with the appropriate Agency Guidelines for more information about each needed file. Please remember that any files you attach must be in the document format and named as specified in the Guidelines.

**Important:** Please attach your files in the proper sequence. See the appropriate Agency Guidelines for details.

| | | | | |
|---|---|---|---|---|
| 1) Please attach Attachment 1 | 2024 Gallatin Pike ATTAIN Gra | Add Attachment | Delete Attachment | View Attachment |
| 2) Please attach Attachment 2 | 2024 Gallatin Pike ATTAIN Gra | Add Attachment | Delete Attachment | View Attachment |
| 3) Please attach Attachment 3 | | Add Attachment | Delete Attachment | View Attachment |
| 4) Please attach Attachment 4 | | Add Attachment | Delete Attachment | View Attachment |
| 5) Please attach Attachment 5 | | Add Attachment | Delete Attachment | View Attachment |
| 6) Please attach Attachment 6 | | Add Attachment | Delete Attachment | View Attachment |
| 7) Please attach Attachment 7 | | Add Attachment | Delete Attachment | View Attachment |
| 8) Please attach Attachment 8 | | Add Attachment | Delete Attachment | View Attachment |
| 9) Please attach Attachment 9 | | Add Attachment | Delete Attachment | View Attachment |
| 10) Please attach Attachment 10 | | Add Attachment | Delete Attachment | View Attachment |
| 11) Please attach Attachment 11 | | Add Attachment | Delete Attachment | View Attachment |
| 12) Please attach Attachment 12 | | Add Attachment | Delete Attachment | View Attachment |
| 13) Please attach Attachment 13 | | Add Attachment | Delete Attachment | View Attachment |
| 14) Please attach Attachment 14 | | Add Attachment | Delete Attachment | View Attachment |
| 15) Please attach Attachment 15 | | Add Attachment | Delete Attachment | View Attachment |

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

## COVER PAGE

| | |
|---|---|
| PROJECT TITLE<br>**Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment** | ELIGIBLE ENTITY APPLYING TO RECEIVE FEDERAL FUNDING<br>**Metropolitan Government of Nashville & Davidson County, Tennessee** |
| TOTAL PROJECT COST (FROM ALL SOURCES)<br>**$12,680,000.00** | ATTAIN REQUEST<br>**$10,144,000.00** |
| ARE MATCHING FUNDS RESTRICTED TO A SPECIFIC PROJECT COMPONENT? IF SO, WHICH ONE? | STATE(S) IN WHICH THE PROJECT IS LOCATED<br>**Tennessee** |
| PROJECT IS CURRENTLY PROGRAMMED IN:<br>**Not Yet Programmed** | PROJECT WILL USE THE FOLLOWING CONNECTED TECHNOLOGIES<br>**BlueTooth®**<br>**Dual-Use DSRC/C-V2X Cellular Component** |
| TECHNOLOGIES PROPOSED TO BE DEPLOYED<br>• **Traffic signal synchronization strategies**<br>• **Automated traffic signal performance measures (ATSPMs)**<br>• **Special event traffic management**<br>• **Traffic Signal Priority (TSP) strategies**<br>• **Updated pedestrian signalization infrastructure**<br>• **Video surveillance via arterial CCTV cameras**<br>• **BlueTooth® travel time units** | |
| WILL THE PROJECT USE AUTOMATED DRIVING SYSTEM TECHNOLOGIES?<br>**No** | LOCATED IN RURAL AREA?<br>**No** |

# Table of Contents

# PROJECT NARRATIVE

## Project Summary

The Metropolitan Government of Nashville and Davidson County (Metro Nashville) is putting forth a proposal to establish a comprehensive Advanced Transportation Management System (ATMS) featuring Transit Signal Priority (TSP) technology along Gallatin Pike in Nashville, Tennessee. Gallatin Pike consistently records some of the highest transit ridership figures in Middle Tennessee and stands as one of Metro Nashville's most congested corridors.

### Description of Project

The Gallatin Pike ATMS and TSP Deployment project is set to encompass the establishment of an Ethernet-based fiber optic communications network along Gallatin Pike. This network will seamlessly connect to a regional Transportation Management Center (TMC), nearing construction notice to proceed (NTP) and funded separately. The proposed enhancements will span from South 5th Street to Riverchase Boulevard, covering an approximate distance of 8.4 miles along Gallatin Pike.

The corridor will be equipped with various Intelligent Transportation Systems (ITS) technology components, including the deployment of Advanced Transportation Controllers (ATC), non-intrusive radar detection, arterial closed-circuit television (CCTV) cameras, and Bluetooth® travel time technology. From a transit perspective, TSP technology will be strategically implemented along the corridor to prioritize bus movements and ensure adherence to 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;

- 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 situated in Nashville, Tennessee. Nashville holds the esteemed status of being the cultural and political capital of Tennessee, while also serving as the epicenter of the country music industry. Notably, the city is home to the country's longest-running radio program, the Grand Ole Opry, which originated in Nashville and continues to be broadcast from this vibrant hub. 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.

In more detail, the Gallatin Pike ATMS and TSP Deployment project is situated along Gallatin Pike, a thoroughfare that stretches for 8.4 miles in a northeasterly direction from downtown Nashville to the Davidson/Sumner County line. Gallatin Pike plays a crucial role in catering to a diverse mix of commuters and local traffic, emphasizing its significance as a multi-modal route.

Adding to the transportation landscape, the Metropolitan Transit Authority’s (WeGo Public Transit) Bus Rapid Transit (BRT) Lite service on Gallatin Pike contributes an additional layer of transit reliability and accessibility to the corridor. Within the scope of the project, Gallatin Pike traverses three distinct community plan areas - Downtown, East Nashville, and Madison.

Gallatin Pike is undergoing growth in each of the plan areas, accompanied by associated operational challenges stemming from heightened congestion. It emerges as a prime candidate for the implementation of advanced ATMS and TSP technologies, designed to enhance mobility. These upgrades are poised to deliver superior congestion management, ensure more predictable trips, including transit journeys, and contribute to an overall enhancement of livability along this crucial corridor in the Nashville region. The envisioned improvements carry the potential to bolster local capacity significantly, paving the way for Nashville to embrace and deploy innovative mobility technology solutions across the broader regional roadway and transit network.

*Downtown*

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

*Source: Downtown Nashville Community Plan*

Downtown Nashville stands as a vibrant cultural, entertainment, tourism, and employment hub for Middle Tennessee. Recent years have witnessed the influx of new and expanding businesses, the preservation of historic sites, investments in civic facilities and open spaces, a growing variety of entertainment options, and the introduction of new residential choices.

This dynamic area boasts a high concentration of cultural attractions that draw a significant number of visitors to Metro Nashville's downtown annually. In 2021, despite the challenges of the COVID-19 pandemic in 2020, Downtown Nashville welcomed 12.6 million tourists, showcasing a swift rebound in tourism. Visitors are particularly drawn to the historic music venues and honky-tonk bars, contributing to over seven billion dollars in direct visitor spending in 2021 alone. These robust tourism figures in recent years have spurred a surge in new hotel rooms and nationally renowned dining experiences, positioning Nashville among the top five U.S. cities with the highest demand for hotel rooms.

*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.


*Source: East Nashville Community Plan*

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.

*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.


*Source: Madison Community Plan*

## Demographics

Nashville has a population of 689,454 (Census 2020) 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 104.01 [15.4%],CT 107.02 [25.7%], CT 117 [14.2%], CT 119 [28.6%], and CT 193 [57.5%]) is greater than the poverty rate (14%) of Davidson County. 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%]).[1]

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

[1] Census Data Viewer - Davidson County, TN (viewed on 1/23/2024)

Transportation Disadvantaged Census Tracts tool identifies that CT as containing historically disadvantaged community. 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, 104.02[2], 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.

[2] 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.

## Real-World Issues and Challenges

With over one (1) million people anticipated to relocate to the Nashville region in the coming decades, the transportation landscape is poised to become an increasingly complex challenge. Downtown Nashville emerges as the region's most concentrated trip destination, with Gallatin Pike playing a pivotal role as a crucial connection between Downtown Nashville and all points to the northeast. Given that more people travel to downtown Nashville than any other location in the region, strategic investment in mobility enhancements along this corridor is deemed essential for the region's overall success.

Gallatin Pike grapples with persistent congestion and currently lacks a reliable central control system for its signals. The repercussions of traffic congestion extend beyond mere inconvenience, impacting the quality of life by leading to longer travel times for both commuters and freight. Projections based on growth and development trends indicate that longer commutes between key destinations are anticipated between now and 2040.

The table below, compiled by the Greater Nashville Regional Council (GNRC), compares travel times for the quickest routing between destinations for three 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. Gallatin Pike, specifically serving the commute from Downtown Gallatin to Nashville, is highlighted in the table. Routes catering to this commute, including Gallatin Pike, are already experiencing travel time delays during the morning rush hour and are anticipated to see a substantial 38% increase in travel time by 2040 – one of the most significant 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.*

Metro Nashville is actively engaged in the design and construction of a TMC as part of a separate initiative. This TMC is intended to serve as a centralized control hub for the signal system. However, to fully support this endeavor and establish the required field

technology infrastructure for implementing traffic signal synchronization strategies along Gallatin Pike, additional improvements proposed by this project are deemed necessary.

Currently, Gallatin Pike lacks the technological capability to accord preferential treatment to transit traffic. A key objective of the Gallatin Pike ATMS and TSP Deployment project is to leverage technological enhancements, such as TSP and queue jump lanes, to provide this preferential treatment. This initiative aims to significantly enhance transit mobility and trip predictability for Metro Nashville's transit users.

Moreover, Gallatin Pike presently offers limited pedestrian accessibility along its corridor. The proposed improvements encompass updates to pedestrian infrastructure to address this issue. This includes the incorporation of PROWAG-compliant pedestrian push buttons and curb ramps, as well as enhanced pedestrian crosswalks to facilitate improved access to bus stops. These enhancements collectively contribute to creating a more pedestrian-friendly environment along Gallatin Pike.

## 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 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)
- 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) were recently completed. The goal of this analysis was 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 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

The comprehensive signal upgrades planned will usher in improved signal operations, yielding a cascade of benefits, including reduced congestion, enhanced transit service, fewer crashes, improved emergency vehicle response times, and an overall optimization of system efficiency. The tangible advantages of these upgrades are measurable, and Metro Nashville is committed to collaborating with the U.S. Department of Transportation (U.S. DOT) to incorporate these metrics as part of the ATTAIN evaluation process. This collaborative effort ensures a robust assessment of the project's impact and effectiveness in achieving its intended goals.

## 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), highlights a substantial overlap between strategies enhancing operations and those enhancing safety. Congestion frequently triggers aggressive driving, and the proposed improvements in the Gallatin Pike ATMS and TSP Deployment project aim to alleviate this congestion, consequently reducing the likelihood of unsafe driving behaviors.

  These enhancements not only contribute to safer driving conditions but also enable more effective traffic management during special events, work zones, and traffic incidents. This, in turn, fosters a more reliable travel time along Gallatin Pike, promoting overall road safety and efficiency. The project aligns with the broader goal of integrating transportation systems management and safety measures for a comprehensive improvement in the roadway experience.

- ***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.
- ***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.

## Vision, Goals, and Objectives

### Vision

The overarching vision for this project is to elevate mobility along the project corridor by leveraging technology, effectively connecting all users to employment, institutional, and cultural destinations. This transformation extends beyond optimizing the operation of a key corridor; it establishes a foundation for future technology investments throughout the rapidly growing region. The ongoing development of the Concept of Operations and Systems Engineering Analysis for the TMC will play a pivotal role in delineating Metro Nashville's vision for county-wide improvements, encompassing the proposed enhancements. Once completed, the Concept of Operations and Systems Engineering Analysis will be submitted to the USDOT, specifically the FHWA Tennessee Division staff, for approval. This ensures alignment with federal standards and underscores the commitment to a well-defined and endorsed vision for advancing transportation infrastructure in the region.

## 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 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 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 Centracs ATMS Software

Econolite Centracs ATMS is currently in use for the majority of the signals within Davidson County and operates the signals within the Gallatin Pike project area. Centracs 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.

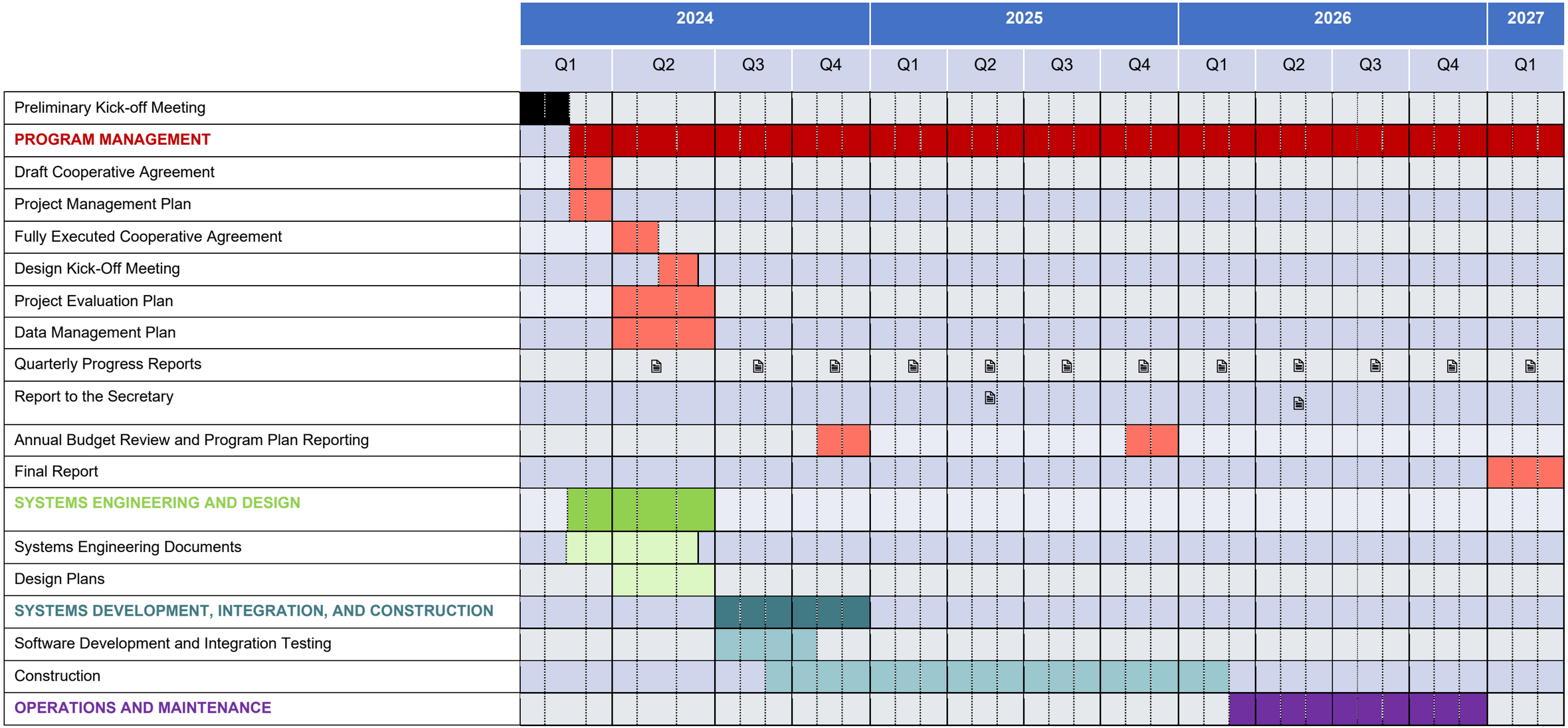
### TransitMaster AVL

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 (Centracs), 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**



## 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.

## 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:

- 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: Significant improvements in overall traffic flow
    - Real-time adjustments to transit routes and schedules, improving the reliability and efficiency of public transit services
    - Contribute to enhanced safety by enabling communication between vehicles and infrastructure

- Reports developed as part of the Smart Columbus demonstration, especially those pertaining to the Connected Vehicle Environment and Enhanced Human Services projects.
- Lessons learned from successful communication between roadside units (RSU's) and standard traffic signal controllers (ATC's):
    - New York City Department of Transportation (NYCDOT)
    - Wyoming Department of Transportation (WYDOT)
    - Tampa Hillsborough Expressway Authority (THEA)

## 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 |
| ☑ | 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 |
| | 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 is designed to enhance the overall operations of Gallatin Pike, introducing improvements that span multiple modes of transportation. The installation of ITS and TSP equipment along the corridor is anticipated to elevate multimodal traffic operations, alleviate congestion, and enhance access for pedestrians, transit users, and standard vehicular traffic. The congestion and unreliable transit service currently experienced along the Gallatin Pike corridor hinder Nashville's citizens from fully engaging in civic life and capitalizing on economic opportunities. These challenges also impact the movement of freight. By implementing various strategies to reduce congestion, the proposed project aims to positively influence freight movement, providing increased reliability for travel time during day-to-day trips and unforeseen events. This reduction in overall congestion, combined with improved travel time and access for single occupant vehicles (SOVs), transit users, and pedestrians, will result in widespread benefits, promoting enhanced access to jobs, retail, and businesses throughout the project area and the region.

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

The Gallatin Pike ATMS and TSP Deployment project aligns with environmental objectives by reducing congestion for vehicular traffic and introducing improvements that support affordable and active transportation options. Smoother traffic flow and reduced congestion contribute to lower vehicle emissions, ultimately leading to cleaner air. Real-time management of the signal system and the utilization of traffic signal synchronization strategies are expected to decrease congestion, thereby reducing idling time and carbon dioxide emissions. This environmental benefit aligns with ongoing efforts to mitigate the harmful effects of climate change.The proposed improvements extend beyond vehicular traffic to prioritize transit and pedestrian users. Updated pedestrian signalization infrastructure enhances safety for pedestrians and provides improved access to bus stops. Coupled with TSP strategies, these enhancements improve the overall transit user experience. Prioritizing affordable, active transportation modes not only aids in emission reduction but also ensures better access for low-income populations relying on the Gallatin Pike corridor for home, job, and essential destination access. The project thus contributes to a more sustainable and resilient transportation ecosystem. 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.

- ***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 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.

### *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;
- 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

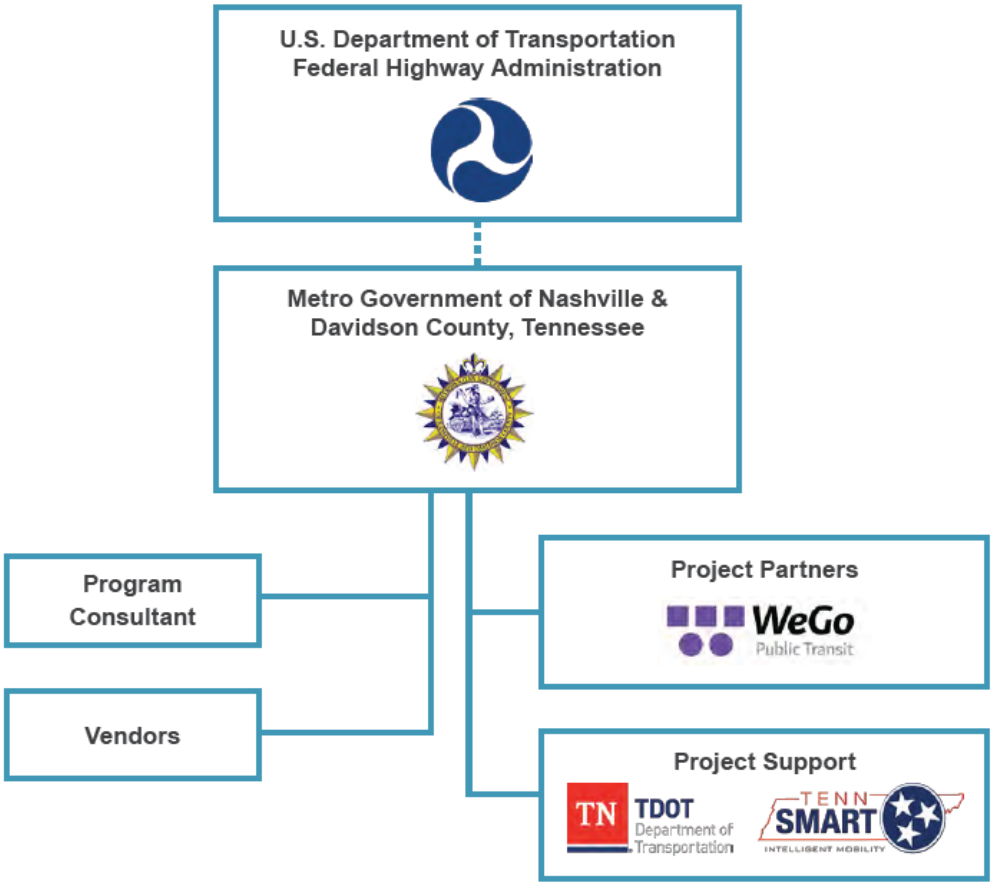
Metro will manage and execute the design, implementation, and operation of the project. Any parties added to the project as sub-recipients will be clearly identified.

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.

### 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):

**Aaron Cushman** **Primary Point of Contact**
**Information System Division Manager | ITS, Nashville Department of Transportation and Multimodal Infrastructure**

Nashville Department of Transportation and Multimodal Infrastructure
750 South 5th Street | Nashville, TN 37206
(615) 862-8645 | mailto:Aaron.Cushman@nashville.gov

Mr. Cushamn 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:

1. Currently managing four ITS grant funded capital projects totaling a combined $14M through the ATCMTD and CMAQ programs.
2. 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.
3. Served as program manager for the Idaho Military Division/ Air Force National Guard where he directed and oversaw all information assurance, program analysis, technical writing, system development and administration, finance and all other functions of the Integrate Engineering Management System (IEMS) Program Office.

### 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:

1. Responsible for a $221.4M budget and over 300 employees that include street maintenance, development services, engineering, permitting, and finance among others.
2. Developed the NDOT Vision Zero action plan and five (5)-year implementation plan through a resolution passed by Metro Council.
3. 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.
4. Established the MoveTucson multimodal masterplan to weave all modes of transportation through a Complete Street lens.
5. 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
**Deputy Director, Nashville Department of Transportation and Multimodal Infrastructure**

Mr. Freeze has served as NDOT's Deputy Director 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:

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

### 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;

1. Provided direct oversight of Region Traffic Engineering, Project Delivery and Operations Maintenance Offices for the Virginia Department of Transportation.
2. Initiated TDOT's first grant program to modernize locally maintained traffic signals.
3. 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:

1. Managed the creation and launch of a same-day, on-demand service option for paratransit customers in 2018 known as Access-on-Demand.
2. 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.
3. 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 A

## Resumes for Key Personnel

### Education:

M.S., Civil Engineering
Clemson University, 2008

Bachelor of Civil Engineering Technology
Southern Polytechnic State University, 1998

### Certifications:

Professional Engineer:
TN – 113630
VA – 402042432
SC – 29441
GA – 33992

# Jason Oldham, PE – Project Point of Contact

**Assistant Chief Engineer,**
**Transportation Systems Management**
**NDOT**

## Professional Experience:

**2022-Present – Nashville Department of Transportation, 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.

**Virginia Department of Transportation (Continued) –**

- 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.
- 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.

# Diana W. Alarcon, CAPP

**NDOT Director**

## Professional 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 meet objectives, performance measures, and robust departmental goals.

### 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/ Registrations:

Lean Six Sigma Yellow Belt

Certified Accredited Parking Professional (CAPP) – June 2019

**City of Fort Lauderdale (Continued) –**

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.

# Phillip “Brad” Freeze, P.E., MSCE

**Deputy Director, NDOT**

## Professional Experience:

**2021-Present –Nashville Department of Transportation and Multimodal Infrastructure (NDOT), Deputy Director -** 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:**

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

B.S., Engineering
Tennessee Technology University, 2002

**Licensing:**

Professional Engineer – TN (2009-Current)

# Professional Experience (Continued):

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

## Professional Experience (Continued):

**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.

# Dan Freudberg

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

**Education:**

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

## 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.

# Professional Experience (Continued):

**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**

# AARON W. CUSHMAN

Dynamic, motivated professional with 20+ years of quantifiable achievement, seeks career advancement with a company that welcomes fresh ideas, initiative, dedication, and experience; demanding excellence in consistently meeting objectives and surpassing established goals. Extremely focused and motivated to achieve in a fast-paced, demanding environment that promotes teamwork but can identify and resolve issues independently.

## EMPLOYMENT HISTORY

### Idaho Military Division/ Air Force National Guard
### iEMS Program Manager

Directs and oversees all information assurance, program analysis, technical writing, system development and administration, finance and all other functions of the Integrate Engineering Management System (IEMS) Program Office. Provides technical assistance through a comprehensive understanding of the iEMS Program Office. Manages and supervises staff support functions. Plans, organizes, and controls all budgeting and fiscal activities Responsible for continued and effective management of all iEMS program functions. Reviews processes and procedures to determine overall effectiveness, efficiency and productivity of personnel and programs managed. Formulates and directs implementation procedures to result in efficiency and savings for administration, operations and maintenance without compromising required standards of readiness, accuracy and/or safety. Determines goals and objectives for the organization. Develops strategies for the hiring, training, and professional development of iEMS personnel. Identifies the need for facility and equipment modernization, improvements and replacements. Coordinates planning activities and resources with other units and higher headquarters (HHQ). Budget Development, Distribution and Management. Monitors and controls the daily expenditure for material and manpower resources in accomplishment of mission goals. Identifies resource shortages or projected shortages. Ensures all support agreements and Memorandums of Understanding (MOUs), are appropriately coordinated and approved. Ensures quality of service issues are clearly identified, prioritized and resolutions pursued for effective mission accomplishment. Develops and oversees IT acquisition processes, which satisfies the provisions of the Information Technology Management Reform Act (ITMRA) while incorporating the Air Force Corporate Process and the DOD Acquisition structure. Establishes controls for data privacy and security in management information systems. Currently maintaining a Secret Security Clearance. Work with SQL, Javascript, C#, Angular, .NET to ensure data is accurate and that the website is functional at all times.

**Washington State Department of Transportation** - August 16 2009 to August 2020
**Traffic Management Center**

**Network Administrator – Journeyman**

Traffic Management Center is 24/7 operation where I ensure that all critical systems stay operational. During full time operation being able to install new equipment and move current equipment. Creating all cables from fiber optic to coax and use the related equipment to test and monitor. Network Administrator for 400+ Ruggedcom network switches/routers as well as several Cisco routers and switches in the Olympic Region network. Monitoring and troubleshooting of all CCTV system equipment, as well as all other traffic monitoring and highway communication devices. Responsible for design of the redundant fiber optic rings that keep our system working at all times. Using several different software packages (Solarwinds/Sinec NMS) to manage this large of a network and ensuring that all parties are informed if there is an outage. Manage several different server platforms Microsoft/Linux. Was the responsible for supporting 25 field staff with their laptops and all computer issues. The use of several ticket creating and tracking software packages, for DOT network/computer issues we use Remedy and for the Intelligent Traffic Systems (ITS) side of the network we use a custom software called Incident. In charge of deciding what products to use for the future growth of the Management Center as well as testing them to unsure reliability. Several great relationships with IT, IT Network Services, Northwest TMC, Southwest TMC, South Central TMC, Tacoma Fire Dispatch, Thurston County 911 dispatch, and many others in DOT as well as outside of DOT. Working with State Design group to ensure that all our ITS equipment and network is in GIS.

**Washington State Department of Transportation**
**Field Specialist**

Perform maintenance and install ITS equipment. Successfully installed and calibrated all 40 Wavetronix units to ensure better information to the flow map. Lead technician on getting AT&T modems installed in the cabinets on I-5 and also the lead tech on swapping from AT&T to Verizon. Currently on the on call rotation and during this time responsible for giving training to the crew. Work with a crew of 5 others to ensure that all equipment is serviced when due and work together to solve issues that may arise.

**United States Naval Reserves - Jul 1999 to Jul 2003**
**NAVCOMTELSTA**
**Damage Controlman 2nd Class / First Responder / Fire Fighter / Fire Marshal**

Subsequent to 4 years of active duty, recalled for Operation Noble Eagle by the President of the United States to serve an 11-month tour of duty in the Reserves. In addition to titled position, also served as Watch Commander for section 1 of 4; supervised 35 diverse

personnel on a daily basis, scheduled watch team effectively and ensured all posts were manned with an appropriate number of qualified watch and emergency personnel at all times for the provision of assistance in any casualties that occurred during each watch. Prepared watch bills and coordinated with other area military bases to ensure proper coverage of personnel and set up mass causality drills for the area in which federal fire department and Navy personnel collaborated as cohesive teams. Provided expert assistance to the unit in the set up and installation of the LAN system at Explosive Ordinance Detection (EOD) system Group 3; configured each workstation to use in the non-classified and top-secret systems for advanced communications. Projected and maintained a positive, professional image that reflected well on the overall organization.

**OTHER SELECTED DUTIES**:

- Watch Commander for watch section 3 of 3 consisting of 35 to 70 people depending on rotation; responsible for scheduling and performance.
- Responsible for the training for current watch shift and to work with other watch commanders to get their units trained up to the current level of readiness.
- Monitored, initiated, and maintained radio and intercom communication with Control Rooms Monitor and operate central security console to detect and dispatch protective services or other personnel to the scene of alarms originating from the access control/intrusion/fire subsystems or in response to activity observed through CCTV.
- Received, analyzed, and coordinated response to telephone calls for all security services (security escorts, lock-outs, general information).
- Observed CRT graphic screens to monitor intrusions and access control and fire alarms.
- Acknowledged events so that alarm was recorded.
- Searched access control, status reports, site design screens, elevator configuration and similar schedules and revised as necessary.
- Recorded and granted entry to students.
- Printed daily and historic reports to permit management to make decisions regarding Medical Area Security status. Issue and control keys for Medical Area complex.
- Maintained logs and journals of activities occurring during shift.
- Recommended and initiate corrective action to security system problems

**United States Navy -** Aug 1995 to Jul 1999
**Damage Controlman 2nd Class**

Supervised and trained crew in the proper use of firefighting equipment and procedures that increased job satisfaction and morale. Served on board ship as the R-Division Leading Petty Officer, a position usually assigned to a 1st Class Petty Officer; provided leadership and direct supervision of 37 sailors. Launched an effective on board mentoring program; ensured professional development of personnel through ongoing hands-on training and expert advice. Counseled personnel on simple to complex personal and work related issues; assisted in identification of positive solutions and outcomes. Appointed Security Manager and LAN System Administrator for the Engineering Department within

the Naval Branch of the U.S. Armed Forces; utilized Windows NT system to issue passwords and limit access according to rank, which significantly improved security. Lead Fire Marshal and Gas Free Engineer for the ship and Visual Boarding Search and Seizure teams that were able to inspect and find contraband onboard ships entering Iraqi waters.

**FORMAL EDUCATION**

**Information Systems Coursework** 2000-2002
Southwestern Community College
Chula Vista, California

**Fire Marshal/ Fire Fighter 1 / Chemical Biological Warfare** 1995-1999
**Computer General Coursework**
United States Navy
San Diego, California

**HS Diploma, Fort Lupton High School** 1991
Fort Lupton, CO

**SPECIALIZED TRAINING**

- Security + CE 2021
- Rugged Com Certified Network Engineer 2019
- **Project Management / SQL Databases / Customer Service Training** 2001
  - Cardinal Health – CTS San Diego, CA
  - Training Lead for the Pacific North West
  - Anti Terrorism 1998, 1999, 2001, 2002
  - Served as a Physical Security / Antiterrorism Expert at the Naval Hospital, San Diego, CA; specialized in chemical / biological warfare.
  - United States Navy – San Diego, CA

**Information Systems Knowledge**

- SQL- multiple versions
- IT project design and IT project manager
- Microsoft Server- all versions
- Remote Access software – Power Shell, SHH, FTP, Putty, Dameware, Remote Desktop
- Desktop OS – All Microsoft and some experience with MAC and Linux
- Network Administrator
  - Network Monitoring Software SolarWinds
  - Active directory, Software center
- Python, HTML5, CSS, Java, Angular

## Section I – Application Standard Forms (SF)

- SF424
- SF424A
- SF424B
- Lobbying disclosure form

## Section II – Summary Budget Information

The table below offers a comprehensive overview of the estimated costs associated with the Gallatin Pike Advanced Transportation Management System (ATMS) and Transit Signal Priority (TSP) Deployment project. This cost estimation has been meticulously crafted to account for all project phases, spanning the entire duration of the initiative.

The budget summary encapsulates the total financial commitment required for the successful execution of the project, encompassing not only the Federal share but also the essential matching non-Federal cost share. This inclusive approach ensures a thorough representation of the financial scope associated with implementing the advanced transportation management and signal priority enhancements along Gallatin Pike.

As part of the diligent planning and financial structuring, the estimate considers various elements critical to the project's success, including the deployment of Intelligent Transportation Systems (ITS) technology, Transit Signal Priority (TSP) equipment, and the necessary infrastructure enhancements. The comprehensive nature of the estimated costs provides stakeholders and decision-makers with a clear understanding of the financial investment required to bring about significant improvements in traffic operations, congestion reduction, and enhanced mobility for all users along the Gallatin Pike corridor.

It is worth noting that the budgetary considerations span the entire timeline of the project, ensuring that financial planning aligns with the phased implementation and completion of key milestones. This transparent breakdown of costs serves as a valuable resource for effective financial management and facilitates informed decision-making throughout the project's lifecycle.

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

| | | Year 1 | Year 2 | Year 3 | Year 4 | |
|---|---|---|---|---|---|---|
| **Item** | **ROM Cost** | | | | | **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 | $1,000,000 | | $350,000 | $650,000 | | 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 | $1,680,000 | | $920,000 | $760,000 | | 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 | | | $1,000,000 | $500,000 | Budget provided for queue jump infrastructure, TSP technology elements, and minor bus stop improvements, etc. |
| Design Phase (NEPA / Preliminary Design / Final Design | $1,300,000 | $1,300,000 | | | | NEPA documentation, final 5 percent design for signal / fiber elements, ADA / sidewalk connection design, survey, TSP technology planning and design. |
| CEI | $1,300,000 | | $600,000 | $700,000 | | Approximately 12.5% of CONST cost |
| Subtotal | $11,480,000 | $1,300,000 | $4,420,000 | $5,260,000 | $500,000 | |
| 10% Contingency | $1,148,000 | $130,000 | $442,000 | $526,000 | $50,000 | |
| Total | $12,628,000 | $1,430,000 | $4,862,000 | $5,786,000 | $550,000 | |
| **Total (Rounded)** | **$12,680,000** | **$1,430,000** | **$4,900,000** | **$5,800,000** | **$550,000** | |

Planned costs are intricately linked to the project scope and are succinctly summarized below according to each project phase. Upon the successful implementation of this project, Metro Nashville is poised to establish three primary corridors, locally referred to as 'Pikes,' as centrally controlled and managed thoroughfares equipped with cutting-edge technology and Intelligent Transportation Systems (ITS) infrastructure, catering to multiple modes of transportation, including transit, vehicles, and pedestrians.

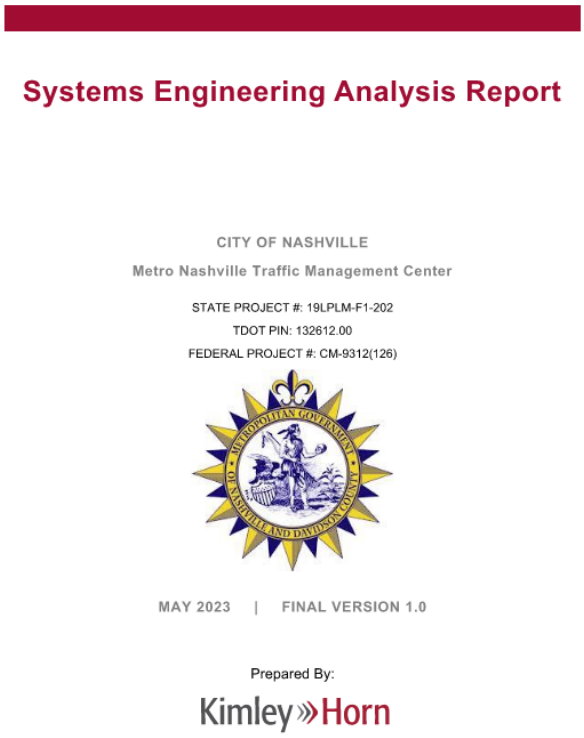
Upon achieving success, this corridor will join the ranks of Murfreesboro Pike—a corridor funded by a 2015 TIGER grant, which implemented Transit Signal Priority (TSP) technology along with significant signal and ADA upgrades—and Charlotte Pike—a corridor currently under design and funded by a 2020 ATCTMD grant. Together, these corridors will form a network of technologically advanced multimodal pathways, positioning Nashville as a regional leader in leveraging innovative solutions to enhance transportation efficiency and accessibility.

## Systems Engineering Analysis

The systems engineering analysis associated with this project included 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 comprises various elements, outlined as follows. The initial phase involves procuring the services of a contractor tasked with executing the necessary infrastructure upgrades and conducting comprehensive systems integration, validation, and testing. To align with the Federal Highway Administration (FHWA) guidelines on System Engineering and Intelligent Transportation Systems (ITS) Architecture Procedures, as detailed in 23 CFR part 940, a Systems Engineering Analysis (SEA) was meticulously performed for the Gallatin Pike ATMS and TSP Deployment. This SEA, conducted in May of 2023, serves as a crucial foundation for the project, ensuring compliance with federal standards and laying the groundwork for a systematic and efficient implementation process.



## 1. Requirements

The requirements phase will focused on:

- **Requirements analysis:** This phase, embedded within system development life cycle models, played a pivotal role in the systematic progression of the system development process. The Systems Engineering Analysis (SEA) initiated by identifying high-level requirements, rooted in the Concept of Operations for the system. This iterative process involved a continuous refinement of requirements descriptions, progressively expanding and detailing them until a mutually agreed-upon set of comprehensive system requirements was formulated. This meticulous approach ensures that the project begins with a well-defined and robust foundation, setting the stage for effective and efficient implementation aligned with the envisioned goals. The process used to define the SEA is defined below:
  - Needs Assessment
  - ConOps
  - Fact gathering
  - Documents requirements
  - Requirements analysis and review
- **Developing a Requirements Traceability Verification Matrix (RTVM):** This document serves as the crucial link connecting User Needs with Detailed Requirements and the System Verification process. The primary objective of a Requirements Traceability and Verification Matrix (RTVM) is to establish a comprehensive association between all specified requirements and the corresponding User Needs. Additionally, the document ensures that any detailed requirements outlined for the system undergo thorough verification through rigorous testing or observation. By maintaining this detailed traceability matrix, the RTVM guarantees that each user need is systematically addressed, and all system requirements are rigorously validated, contributing to the overall reliability and functionality of the system.
- Stakeholder engagement and input: During this phase, direct user and stakeholder input will be integral in assessing whether the appropriate requirements are being effectively tracked for the responsible party. The active involvement of users and stakeholders ensures a dynamic and collaborative approach to requirement tracking, validating that the identified needs align closely with their expectations and objectives. This interactive engagement fosters a more accurate and user-centric representation of requirements, enhancing the likelihood of successful project outcomes by incorporating diverse perspectives and insights.
- Functional requirements development considers:
  - Business needs
  - Performance requirements
  - Interface requirements
  - Human-Machine interface requirements

The NDOT Project Manager – Jason Oldham, PE, 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.

## 2. Implementation and Deployment

Moving forward, following the completion of the Systems Engineering Analysis (SEA), the subsequent steps involve transitioning to the next phase, which is the implementation phase. The detailed design, derived from the SEA, will be instrumental in guiding the project seamlessly into the implementation phase. Upon the conclusion of the final design, the project will progress into the construction phase, marking a significant milestone in the overall project timeline. This strategic progression ensures that the groundwork laid during the SEA and detailed design phases is translated into tangible and executable actions as the project advances towards successful implementation and construction. The construction phase will include:

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

The selected Contractor responsible for executing the project will diligently adhere to the detailed requirements, final plans, and specifications currently under development. As the project progresses, the Contractor will play a crucial role in updating the detailed requirements within the RTVM. This update will be based on the final system design, including equipment, software, and integration components that will be provided. This meticulous adherence to evolving project details ensures that the Contractor aligns their work with the latest specifications, contributing to the successful realization of the project goals.

## 3. 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.

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.

# Section III – Cost Share Information

NDOT has already funded 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 $2,520,00 needed beyond the $10,080,000 grant program request, which represents an approximately 20 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 2023-2024 CSP to fund the $2,250,000 matching funds needed for this grant.

# Section IV – Organizational Information

## 1. 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.

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

DUNS Number: 069301944

UEI Number: LGZLHP6ZHM55

## 3. A-133 Single Audit Statement (Last Completion Date)

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

## 4. 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.

## 5. 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. Please see the results for the Department of Transportation at:

## 6. 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.

## 7. 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.

## 8. Criminal Law Violation Disclosure

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

# APPLICATION FOR FY23-FY24 Advanced Transportation Technology and Innovation (ATTAIN) Program

## METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY

DocuSigned by:
Diana W. Alarcon
CCA6046554B9461...

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

1/26/2024

Date

DocuSign

## Certificate Of Completion

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| Signer Events | Signature | Timestamp |
|---|---|---|
| Greg McClarin<br>Greg.McClarin@nashville.gov<br>Security Level: Email, Account Authentication (None) | GMM<br>Signature Adoption: Pre-selected Style<br>Using IP Address: 170.190.198.190 | Sent: 2/1/2024 10:46:36 AM<br>Viewed: 2/1/2024 10:48:40 AM<br>Signed: 2/1/2024 10:50:55 AM |
| **Electronic Record and Signature Disclosure:**<br>Not Offered via DocuSign | | |
| Aaron Pratt<br>Aaron.Pratt@nashville.gov<br>Security Level: Email, Account Authentication (None) | Aaron Pratt<br>Signature Adoption: Pre-selected Style<br>Using IP Address: 170.190.198.191 | Sent: 2/1/2024 10:50:57 AM<br>Viewed: 2/1/2024 11:00:48 AM<br>Signed: 2/1/2024 11:00:54 AM |
| **Electronic Record and Signature Disclosure:**<br>Not Offered via DocuSign | | |
| Kevin Crumbo/mjw<br>MaryJo.Wiggins@nashville.gov<br>Security Level: Email, Account Authentication (None) | Kevin Crumbo/mjw<br>Signature Adoption: Pre-selected Style<br>Using IP Address: 174.212.166.36<br>Signed using mobile | Sent: 2/1/2024 11:00:56 AM<br>Viewed: 2/1/2024 11:07:15 AM<br>Signed: 2/2/2024 8:06:10 AM |
| **Electronic Record and Signature Disclosure:**<br>Accepted: 2/2/2024 8:06:00 AM<br>ID: e90d50a8-511e-4767-972a-34151ab96e3d | | |
| Courtney Mohan<br>Courtney.Mohan@nashville.gov<br>Security Level: Email, Account Authentication (None) | Courtney Mohan<br>Signature Adoption: Pre-selected Style<br>Using IP Address: 170.190.198.185 | Sent: 2/2/2024 8:06:13 AM<br>Viewed: 2/2/2024 8:26:51 AM<br>Signed: 2/2/2024 9:00:06 AM |
| **Electronic Record and Signature Disclosure:** | | |

| Signer Events | Signature | Timestamp |
|---|---|---|
| Accepted: 2/2/2024 8:26:51 AM<br>ID: a6a20c1d-9041-40cc-837e-66ed9973d830 | | |

| In Person Signer Events | Signature | Timestamp |
|---|---|---|

| Editor Delivery Events | Status | Timestamp |
|---|---|---|

| Agent Delivery Events | Status | Timestamp |
|---|---|---|

| Intermediary Delivery Events | Status | Timestamp |
|---|---|---|

| Certified Delivery Events | Status | Timestamp |
|---|---|---|

| Carbon Copy Events | Status | Timestamp |
|---|---|---|
| Danielle Godin<br>Danielle.Godin@nashville.gov<br>Security Level: Email, Account Authentication (None)<br>**Electronic Record and Signature Disclosure:**<br>Not Offered via DocuSign | COPIED | Sent: 2/2/2024 9:00:09 AM<br>Viewed: 2/2/2024 10:58:36 AM |
| Sally Palmer<br>sally.palmer@nashville.gov<br>Security Level: Email, Account Authentication (None)<br>**Electronic Record and Signature Disclosure:**<br>Accepted: 2/1/2024 7:47:07 AM<br>ID: c7504920-0870-4922-aee8-db03e955f1a6 | COPIED | Sent: 2/2/2024 9:00:10 AM<br>Viewed: 2/2/2024 9:40:52 AM |

| Witness Events | Signature | Timestamp |
|---|---|---|

| Notary Events | Signature | Timestamp |
|---|---|---|

| Envelope Summary Events | Status | Timestamps |
|---|---|---|
| Envelope Sent | Hashed/Encrypted | 2/1/2024 10:46:36 AM |
| Certified Delivered | Security Checked | 2/2/2024 8:26:51 AM |
| Signing Complete | Security Checked | 2/2/2024 9:00:06 AM |
| Completed | Security Checked | 2/2/2024 9:00:10 AM |

| Payment Events | Status | Timestamps |
|---|---|---|

| Electronic Record and Signature Disclosure |
|---|