

CENTRAL MASSACHUSETTS
METROPOLITAN PLANNING ORGANIZATION



Oxford & Sutton Sutton Avenue & Central Turnpike Corridor Profile Technical Appendix

December 2021



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Prepared in cooperation with the Massachusetts Department of Transportation and the U.S. Department of Transportation – Federal Highway Administration and the Federal Transit Administration. The views and opinions of the Central Massachusetts Metropolitan Planning Organization expressed herein do not necessarily reflect those of the Massachusetts Department of Transportation or the U.S. Department of Transportation.

Notice of Nondiscrimination Rights and Protections to Beneficiaries

Federal Title VI/Nondiscrimination Protections

The Central Massachusetts Metropolitan Planning Organization (CMMPO) hereby states its policy to operate its programs, services and activities in full compliance with federal nondiscrimination laws including Title VI of the Civil Rights Act of 1964 (Title VI), the Civil Rights Restoration Act of 1987, and related federal and state statutes and regulations. Title VI prohibits discrimination in federally assisted programs and requires that no person in the United States of America shall, on the grounds of race, color, or national origin, including limited English proficiency, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity receiving Federal assistance.

Related federal nondiscrimination laws administered by the Federal Highway Administration, the Federal Transit Administration, or both prohibit discrimination on the basis of age, sex, and disability. These protected categories are contemplated within the CMMPO's Title VI Programs consistent with federal and state interpretation and administration. Additionally, the CMMPO provides meaningful access to its programs, services, and activities to individuals with limited English proficiency, in compliance with US Department of Transportation policy and guidance on federal Executive Order 13166.

State Nondiscrimination Protections

The CMMPO also complies with the Massachusetts Public Accommodation Law, M.G.L. c272 §§ 92a, 98, 98a, prohibiting making any distinction, discrimination, or restriction in admission to or treatment in a place of public accommodation based on race, color, religious creed, national origin, sex, sexual orientation, disability or ancestry. Likewise, CMMPO complies with the Governor's Executive Order 526, section 4, requiring all programs, activities and services provided, performed, licensed, chartered, funded, regulated, or contracted for by the state shall be conducted without unlawful discrimination based on race, color, age, gender, ethnicity, sexual orientation, gender identity or expression, religion, creed, ancestry, national origin, disability, veteran's status (including Vietnam-era veterans), or background.

Filing a Complaint

Individuals who feel they have been discriminated against in violation of Title VI or related Federal nondiscrimination laws, must file a complaint within 180 days of the alleged discriminatory conduct to:

To file a complaint alleging violation of the State's Public Accommodation Law, contact the Massachusetts Commission Against Discrimination within 300 days of the alleged discriminatory conduct at:

Ms. Janet Pierce, Executive Director
Central Massachusetts Regional Planning
Commission
1 Mercantile Street
Suite 520
Worcester, MA 01608
(508) 756-7717

Massachusetts Commission Against
Discrimination (MCAD)
One Ashburton Place, 6th floor
Boston, MA 02109
(617) 994-6000
TTY: (617) 994-6196

Translation

English: If this information is needed in another language, please contact the CMRPC/CMMPO Title VI Specialist at (508) 756-7717.

Spanish: Si necesita esta información en otro lenguaje, favor contactar al especialista de Título VI de CMRPC/CMMPO al (508) 756-7717.

French: Si vous avez besoin d'obtenir une copie de la présente dans une autre langue, veuillez contacter le spécialiste du Titre VI de CMRPC/CMMPO en composant le (508) 756-7717.

Portuguese: Caso esta informação seja necessária em outro idioma, favor contatar o Especialista em Título VI do CMRPC/CMMPO pelo fone (508) 756-7717.

Vietnamese: Nếu bạn cần thông tin bằng ngôn ngữ khác, xin vui lòng liên lạc với Tiêu đề VI Chuyên CMRPC/CMMPO tại (508) 756-7717.

Chinese: 如果用另一种语言需要的信息，请联系第六章专门CMRPC/CMMPO (508) 756-7717。

Afrikaans: As jy inligting nodig het in 'n ander taal, kontak asseblief die Titel VI Spesialis CMRPC/CMMPO by (508) 756-7717.

ADA/ 504 Notice of Nondiscrimination

The CMMPO does not discriminate on the basis of disability in admission to its programs, services, or activities; in access to them; in treatment of individuals with disabilities; or in any aspect of their operations. The CMMPO also does not discriminate on the basis of disability in its hiring or employment practices.

This notice is provided as required by Title II of the American with Disabilities Act of 1990 (ADA) and Section 504 of the Rehabilitation Act of 1973. Questions, complaints, or requests for additional information regarding ADA and Section 504 may be forwarded to:

Ms. Janet Pierce, Executive Director
Central Massachusetts Regional Planning Commission
1 Mercantile Street, Suite 520
Worcester, MA 01608
(508) 756-7717

This notice and document are available from the CMMPO in large print, on audio tape, and in Braille upon request.

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Sutton Avenue & Central Turnpike Stream Crossing Survey Data Forms

Map ID#1 – Located just West of Lovett Road, Oxford (**did not assess**)

Map ID#2 (Local ID - 226-070-02) – Located at Fort Hill Road, Oxford

Map ID#3 (Local ID – 226-071-01) – Located just East of Orchard Hill Drive, Oxford

Map ID#4 (Local ID – 226-073-01) – Located at Oxford/Sutton Town Line, Oxford

Map ID#5 (Local ID – 290-050-01) – Located just to the East of the Oxford/Sutton Town Line, Sutton

Map ID#6 (Local ID – 290-049-01) – Located just East of Manchaug Road, Sutton

Map ID#7 (Local ID – 290-049-02) – Located just West of Old Common Road, Sutton

Map ID#8 (Local ID – 290-049-03) – Located just West of Josefsen Avenue, Sutton

Map ID#9 (Local ID – 290-049-04) – Located just West of Glen Court, Sutton

Map ID#10 (Local ID – 290-047-01) – Located just East of Ray Lane, Sutton

Map ID#11 (Local ID – 290-047-02) – Located just West of Fuller Road, Sutton

Map ID#12 (Local ID – 290-046-01) – Located just West of Uxbridge Road, Sutton

Map ID#13 (Local ID – 290-045-01) – Located just West of Alana Drive, Sutton

Map ID#14 – Located just East of Silverledge Drive, Sutton (**did not assess**)



AQUATIC CONNECTIVITY Stream Crossing Survey DATA FORM

DATABASE ENTRY BY _____ ENTRY DATE _____

DATA ENTRY REVIEWED BY _____ REVIEW DATE _____

CROSSING DATA

Crossing Code xy4211340171841898 Local ID (Optional) 226-070-02

Date Observed (00/00/0000) 6/30/21 Lead Observer EH

Town/County oxford Stream Tributary of Eames Pond

Road sutton ave Type MULTILANE PAVED UNPAVED DRIVEWAY TRAIL RAILROAD

GPS Coordinates (Decimal degrees) 4 2 . 1 1 3 3 8 °N Latitude - 7 1 . 8 4 1 8 0 °W Longitude

Location Description Directly in front of entrance to Fort Hill Road

Crossing Type BRIDGE CULVERT MULTIPLE CULVERT FORD NO CROSSING REMOVED CROSSING
 BURIED STREAM INACCESSIBLE PARTIALLY INACCESSIBLE NO UPSTREAM CHANNEL BRIDGE ADEQUATE

Number of Culverts/ Bridge Cells 1

Photo IDs INLET _____ OUTLET _____ UPSTREAM _____ DOWNSTREAM _____ OTHER _____

Flow Condition NO FLOW TYPICAL-LOW MODERATE HIGH Crossing Condition OK POOR NEW UNKNOWN

Tidal Site YES NO UNKNOWN Alignment FLOW-ALIGNED SKEWED (>45°) Road Fill Height (Top of culvert to road surface; bridge = 0) 4 feet

Bankfull Width (Optional) _____ Confidence HIGH LOW/ESTIMATED Constriction SEVERE MODERATE SPANS ONLY BANKFULL/ ACTIVE CHANNEL
 SPANS FULL CHANNEL & BANKS

Tailwater Scour Pool NONE SMALL LARGE

Crossing Comments _____

STRUCTURE 1

Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION

Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE

Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOWN

Outlet Dimensions A. Width 11 0 B. Height 3 7 C. Substrate/Water Width 11 0 D. Water Depth 0 67

Outlet Drop to Water Surface 0 Outlet Drop to Stream Bottom 0 E. Abutment Height (Type 7 bridges only) _____

L. Structure Length (Overall length from inlet to outlet) 45 0

Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED

Inlet Type PROJECTING HEADWALL WINGWALLS HEADWALL & WINGWALLS MITERED TO SLOPE OTHER NONE

Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGED/COLLAPSED/SUBMERGED UNKNOWN

Inlet Dimensions A. Width 11 0 B. Height 3 7 C. Substrate/Water Width 11 0 D. Water Depth 0 67

Slope % (Optional) _____ Slope Confidence HIGH LOW Internal Structures NONE BAFFLES/WEIRS SUPPORTS OTHER _____

Structure Substrate Matches Stream NONE COMPARABLE CONTRASTING NOT APPROPRIATE UNKNOWN

Structure Substrate Type (Pick one) NONE SILT SAND GRAVEL COBBLE BOULDER BEDROCK UNKNOWN

Structure Substrate Coverage NONE 25% 50% 75% 100% UNKNOWN

Physical Barriers (Pick all that apply) NONE DEBRIS/SEDIMENT/ROCK DEFORMATION FREE FALL FENCING DRY OTHER

Severity (Choose carefully based on barrier type(s) above) NONE MINOR MODERATE SEVERE

Water Depth Matches Stream YES NO-SHALLOWER NO-DEEPER UNKNOWN DRY

Water Velocity Matches Stream YES NO-FASTER NO-SLOWER UNKNOWN DRY

Dry Passage through Structure? YES NO UNKNOWN Height above Dry Passage _____

Comments _____



AQUATIC CONNECTIVITY Stream Crossing Survey DATA FORM

DATABASE ENTRY BY _____ ENTRY DATE _____

DATA ENTRY REVIEWED BY _____ REVIEW DATE _____

CROSSING DATA

Crossing Code xy4211126471835155 Local ID (Optional) 226-071-01

Date Observed (00/00/0000) 6/24/21 Lead Observer Eric Harris

Town/County Oxford Stream _____

Road Sutton Ave Type MULTILANE PAVED UNPAVED DRIVEWAY TRAIL RAILROAD

GPS Coordinates (Decimal degrees) 4 2 . 1 1 1 3 0 °N Latitude - 7 1 . 8 3 5 2 1 °W Longitude

Location Description Immediately east of orchard hill road

Crossing Type BRIDGE CULVERT MULTIPLE CULVERT FORD NO CROSSING REMOVED CROSSING BURIED STREAM INACCESSIBLE PARTIALLY INACCESSIBLE NO UPSTREAM CHANNEL BRIDGE ADEQUATE

Number of Culverts/ Bridge Cells 1

Photo IDs INLET _____ OUTLET _____ UPSTREAM _____ DOWNSTREAM _____ OTHER _____

Flow Condition NO FLOW TYPICAL-LOW MODERATE HIGH Crossing Condition OK POOR NEW UNKNOWN

Tidal Site YES NO UNKNOWN Alignment FLOW-ALIGNED SKEWED (>45°) Road Fill Height (Top of culvert to road surface; bridge = 0) 3 ft

Bankfull Width (Optional) _____ Confidence HIGH LOW/ESTIMATED

Tailwater Scour Pool NONE SMALL LARGE

Constriction SEVERE MODERATE SPANS ONLY BANKFULL/ ACTIVE CHANNEL SPANS FULL CHANNEL & BANKS

Crossing Comments _____

STRUCTURE 1

Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION

Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE

Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOWN

Outlet Dimensions A. Width 4 3 B. Height 4 5 C. Substrate/Water Width 3 2 D. Water Depth 0 8

Outlet Drop to Water Surface 0 7 Outlet Drop to Stream Bottom 0 17 E. Abutment Height (Type 7 bridges only) _____

L. Structure Length (Overall length from inlet to outlet) 20 0

Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED

Inlet Type PROJECTING HEADWALL WINGWALLS HEADWALL & WINGWALLS MITERED TO SLOPE OTHER NONE

Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGED/COLLAPSED/SUBMERGED UNKNOWN

Inlet Dimensions A. Width 4 3 B. Height 3 3 C. Substrate/Water Width 3 2 D. Water Depth 0 8

Slope % (Optional) _____ Slope Confidence HIGH LOW Internal Structures NONE BAFFLES/WEIRS SUPPORTS OTHER _____

Structure Substrate Matches Stream NONE COMPARABLE CONTRASTING NOT APPROPRIATE UNKNOWN

Structure Substrate Type (Pick one) NONE SILT SAND GRAVEL COBBLE BOULDER BEDROCK UNKNOWN

Structure Substrate Coverage NONE 25% 50% 75% 100% UNKNOWN

Physical Barriers (Pick all that apply) NONE DEBRIS/SEDIMENT/ROCK DEFORMATION FREE FALL FENCING DRY OTHER

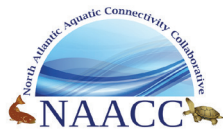
Severity (Choose carefully based on barrier type(s) above) NONE MINOR MODERATE SEVERE

Water Depth Matches Stream YES NO-SHALLOWER NO-DEEPER UNKNOWN DRY

Water Velocity Matches Stream YES NO-FASTER NO-SLOWER UNKNOWN DRY

Dry Passage through Structure? YES NO UNKNOWN Height above Dry Passage _____

Comments _____



AQUATIC CONNECTIVITY Stream Crossing Survey DATA FORM

DATABASE ENTRY BY _____ ENTRY DATE _____

DATA ENTRY REVIEWED BY _____ REVIEW DATE _____

CROSSING DATA

Crossing Code xy4211204071805026 Local ID (Optional) 226-073-01

Date Observed (00/00/0000) 6/30/21 Lead Observer EH

Town/County Oxford Stream _____

Road sutton ave Type MULTILANE PAVED UNPAVED DRIVEWAY TRAIL RAILROAD

GPS Coordinates (Decimal degrees) 4 2 . 1 1 6 4 6 °N Latitude - 7 1 . 8 0 5 9 3 °W Longitude

Location Description On Oxford side of sutton/oxford townline.

Crossing Type BRIDGE CULVERT MULTIPLE CULVERT FORD NO CROSSING REMOVED CROSSING
 BURIED STREAM INACCESSIBLE PARTIALLY INACCESSIBLE NO UPSTREAM CHANNEL BRIDGE ADEQUATE

Number of Culverts/ Bridge Cells 1

Photo IDs INLET _____ OUTLET _____ UPSTREAM _____ DOWNSTREAM _____ OTHER _____

Flow Condition NO FLOW TYPICAL-LOW MODERATE HIGH Crossing Condition OK POOR NEW UNKNOWN

Tidal Site YES NO UNKNOWN Alignment FLOW-ALIGNED SKEWED (>45°) Road Fill Height (Top of culvert to road surface; bridge = 0) 3 feet

Bankfull Width (Optional) 4 ft Confidence HIGH LOW/ESTIMATED Constriction SEVERE MODERATE SPANS ONLY BANKFULL/ ACTIVE CHANNEL
 SPANS FULL CHANNEL & BANKS

Tailwater Scour Pool NONE SMALL LARGE

Crossing Comments Inlet side in cracked and in poor condition.

STRUCTURE 1

Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION

Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE

Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOWN

Outlet Dimensions A. Width 2 0 B. Height 2 0 C. Substrate/Water Width 0 67 D. Water Depth 0 032

Outlet Drop to Water Surface 0 Outlet Drop to Stream Bottom 0 E. Abutment Height (Type 7 bridges only) _____

L. Structure Length (Overall length from inlet to outlet) 40 0

Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED

Inlet Type PROJECTING HEADWALL WINGWALLS HEADWALL & WINGWALLS MITERED TO SLOPE OTHER NONE

Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGED/COLLAPSED/SUBMERGED UNKNOWN

Inlet Dimensions A. Width 2 0 B. Height 2 0 C. Substrate/Water Width 0 33 D. Water Depth 0 032

Slope % (Optional) _____ Slope Confidence HIGH LOW Internal Structures NONE BAFFLES/WEIRS SUPPORTS OTHER _____

Structure Substrate Matches Stream NONE COMPARABLE CONTRASTING NOT APPROPRIATE UNKNOWN

Structure Substrate Type (Pick one) NONE SILT SAND GRAVEL COBBLE BOULDER BEDROCK UNKNOWN

Structure Substrate Coverage NONE 25% 50% 75% 100% UNKNOWN

Physical Barriers (Pick all that apply) NONE DEBRIS/SEDIMENT/ROCK DEFORMATION FREE FALL FENCING DRY OTHER

Severity (Choose carefully based on barrier type(s) above) NONE MINOR MODERATE SEVERE

Water Depth Matches Stream YES NO-SHALLOWER NO-DEEPER UNKNOWN DRY

Water Velocity Matches Stream YES NO-FASTER NO-SLOWER UNKNOWN DRY

Dry Passage through Structure? YES NO UNKNOWN Height above Dry Passage _____

Comments _____



AQUATIC CONNECTIVITY Stream Crossing Survey DATA FORM

DATABASE ENTRY BY _____ ENTRY DATE _____

DATA ENTRY REVIEWED BY _____ REVIEW DATE _____

CROSSING DATA

Crossing Code xy4211304071802764 Local ID (Optional) 290-050-01

Date Observed (00/00/0000) 6/30/21 Lead Observer EH

Town/County Sutton Stream _____

Road central Turnpike Type MULTILANE PAVED UNPAVED DRIVEWAY TRAIL RAILROAD

GPS Coordinates (Decimal degrees) 4 2 . 1 1 3 0 4 °N Latitude - 7 1 . 8 0 2 7 6 °W Longitude

Location Description At the sutton "welcome to" sign in the field next to wagon

Crossing Type BRIDGE CULVERT MULTIPLE CULVERT FORD NO CROSSING REMOVED CROSSING
 BURIED STREAM INACCESSIBLE PARTIALLY INACCESSIBLE NO UPSTREAM CHANNEL BRIDGE ADEQUATE

Number of Culverts/ Bridge Cells 1

Photo IDs INLET _____ OUTLET _____ UPSTREAM _____ DOWNSTREAM _____ OTHER _____

Flow Condition NO FLOW TYPICAL-LOW MODERATE HIGH Crossing Condition OK POOR NEW UNKNOWN

Tidal Site YES NO UNKNOWN Alignment FLOW-ALIGNED SKEWED (>45°) Road Fill Height (Top of culvert to road surface; bridge = 0) 4 feet

Bankfull Width (Optional) _____ Confidence HIGH LOW/ESTIMATED Constriction SEVERE MODERATE SPANS ONLY BANKFULL/ ACTIVE CHANNEL
 SPANS FULL CHANNEL & BANKS

Tailwater Scour Pool NONE SMALL LARGE

Crossing Comments Inlet side is clogged/submerged with sediment

STRUCTURE 1

Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION

Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE

Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOWN

Outlet Dimensions A. Width 2 0 B. Height 2 0 C. Substrate/Water Width 2 0 D. Water Depth 0 42

Outlet Drop to Water Surface 0 Outlet Drop to Stream Bottom 0 E. Abutment Height (Type 7 bridges only) _____

L. Structure Length (Overall length from inlet to outlet) 40 0

Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED

Inlet Type PROJECTING HEADWALL WINGWALLS HEADWALL & WINGWALLS MITERED TO SLOPE OTHER NONE

Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGED/COLLAPSED/SUBMERGED UNKNOWN

Inlet Dimensions A. Width 2 0 B. Height 2 0 C. Substrate/Water Width 2 0 D. Water Depth 0 42

Slope % (Optional) _____ Slope Confidence HIGH LOW Internal Structures NONE BAFFLES/WEIRS SUPPORTS OTHER _____

Structure Substrate Matches Stream NONE COMPARABLE CONTRASTING NOT APPROPRIATE UNKNOWN

Structure Substrate Type (Pick one) NONE SILT SAND GRAVEL COBBLE BOULDER BEDROCK UNKNOWN

Structure Substrate Coverage NONE 25% 50% 75% 100% UNKNOWN

Physical Barriers (Pick all that apply) NONE DEBRIS/SEDIMENT/ROCK DEFORMATION FREE FALL FENCING DRY OTHER

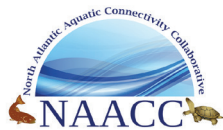
Severity (Choose carefully based on barrier type(s) above) NONE MINOR MODERATE SEVERE

Water Depth Matches Stream YES NO-SHALLOWER NO-DEEPER UNKNOWN DRY

Water Velocity Matches Stream YES NO-FASTER NO-SLOWER UNKNOWN DRY

Dry Passage through Structure? YES NO UNKNOWN Height above Dry Passage _____

Comments _____



AQUATIC CONNECTIVITY
Stream Crossing Survey
DATA FORM

Eric Harris 10/22/20
 DATABASE ENTRY BY ENTRY DATE
 Zachary Blais 11/3/20
 DATA ENTRY REVIEWED BY REVIEW DATE

CROSSING DATA

Crossing Code xy4211745371793806 Local ID (Optional) 290-049-01 (Culvert 1
 Date Observed (00/00/0000) 10/22/20 Lead Observer Eric Harris in NAACC)
 Town/County Sutton, MA Stream Mumford River
 Road Central Turnpike Type MULTILANE PAVED UNPAVED DRIVEWAY TRAIL RAILROAD
 GPS Coordinates (Decimal degrees) 4 2 . 1 1 7 4 °N Latitude - 7 1 . 7 9 3 9 °W Longitude
 Location Description 1st culvert from Legacy Church to Route 146

Crossing Type BRIDGE CULVERT MULTIPLE CULVERT FORD NO CROSSING REMOVED CROSSING
 BURIED STREAM INACCESSIBLE PARTIALLY INACCESSIBLE NO UPSTREAM CHANNEL BRIDGE ADEQUATE
 Number of Culverts/ Bridge Cells 1

Photo IDs INLET _____ OUTLET _____ UPSTREAM _____ DOWNSTREAM _____ OTHER _____

Flow Condition NO FLOW TYPICAL-LOW MODERATE HIGH Crossing Condition OK POOR NEW UNKNOWN

Tidal Site YES NO UNKNOWN Alignment FLOW-ALIGNED SKEWED (>45°) Road Fill Height (Top of culvert to road surface; bridge = 0) 4'

Bankfull Width (Optional) 14.5' Confidence HIGH LOW/ESTIMATED Constriction SEVERE MODERATE SPANS ONLY BANKFULL/ ACTIVE CHANNEL
 SPANS FULL CHANNEL & BANKS

Tailwater Scour Pool NONE SMALL LARGE

Crossing Comments n/a

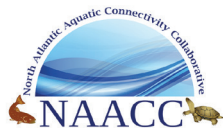
STRUCTURE 1

Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION

OUTLET
 Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE
 Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOWN
 Outlet Dimensions A. Width 4' B. Height 5' 11" C. Substrate/Water Width 4' D. Water Depth 6"
 Outlet Drop to Water Surface 0 Outlet Drop to Stream Bottom 0' E. Abutment Height (Type 7 bridges only) _____
 L. Structure Length (Overall length from inlet to outlet) 38' 10"

INLET
 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED
 Inlet Type PROJECTING HEADWALL WINGWALLS HEADWALL & WINGWALLS MITERED TO SLOPE OTHER NONE
 Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGED/COLLAPSED/SUBMERGED UNKNOWN
 Inlet Dimensions A. Width 4' B. Height 5' 11" C. Substrate/Water Width 4' D. Water Depth 6"

ADDITIONAL CONDITIONS
 Slope % (Optional) _____ Slope Confidence HIGH LOW Internal Structures NONE BAFFLES/WEIRS SUPPORTS OTHER _____
 Structure Substrate Matches Stream NONE COMPARABLE CONTRASTING NOT APPROPRIATE UNKNOWN
 Structure Substrate Type (Pick one) NONE SILT SAND GRAVEL COBBLE BOULDER BEDROCK UNKNOWN
 Structure Substrate Coverage NONE 25% 50% 75% 100% UNKNOWN
 Physical Barriers (Pick all that apply) NONE DEBRIS/SEDIMENT/ROCK DEFORMATION FREE FALL FENCING DRY OTHER
 Severity (Choose carefully based on barrier type(s) above) NONE MINOR MODERATE SEVERE
 Water Depth Matches Stream YES NO-SHALLOWER NO-DEEPER UNKNOWN DRY
 Water Velocity Matches Stream YES NO-FASTER NO-SLOWER UNKNOWN DRY
 Dry Passage through Structure? YES NO UNKNOWN Height above Dry Passage n/a
 Comments n/a



AQUATIC CONNECTIVITY
Stream Crossing Survey
DATA FORM

Robert Raymond 10/22/20
DATABASE ENTRY BY ENTRY DATE
 Zachary Blais 11/3/20
DATA ENTRY REVIEWED BY REVIEW DATE

CROSSING DATA

Crossing Code xy4211826871792162 Local ID (Optional) 290-049-02 (2nd
 Date Observed (00/00/0000) 10/22/20 Lead Observer Robert Raymond Culvert in NAACC)
 Town/County Sutton Stream Mumford River
 Road Central Turnpike Type MULTILANE PAVED UNPAVED DRIVEWAY TRAIL RAILROAD
 GPS Coordinates (Decimal degrees) 42.11830 °N Latitude -71.79147 °W Longitude
 Location Description 2nd culvert from Legacy Church to Route 146, by Old Common Road

Crossing Type BRIDGE CULVERT MULTIPLE CULVERT FORD NO CROSSING REMOVED CROSSING BURIED STREAM INACCESSIBLE PARTIALLY INACCESSIBLE NO UPSTREAM CHANNEL BRIDGE ADEQUATE **Number of Culverts/ Bridge Cells** _____

Photo IDs INLET _____ OUTLET _____ UPSTREAM _____ DOWNSTREAM _____ OTHER _____

Flow Condition NO FLOW TYPICAL-LOW MODERATE HIGH **Crossing Condition** OK POOR NEW UNKNOWN

Tidal Site YES NO UNKNOWN **Alignment** FLOW-ALIGNED SKEWED (>45°) **Road Fill Height** (Top of culvert to road surface; bridge = 0) 2'

Bankfull Width (Optional) 4' **Confidence** HIGH LOW/ESTIMATED **Constriction** SEVERE MODERATE SPANS ONLY BANKFULL/ ACTIVE CHANNEL SPANS FULL CHANNEL & BANKS

Tailwater Scour Pool NONE SMALL LARGE

Crossing Comments n/a

STRUCTURE 1

OUTLET Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION

Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED **Outlet Armoring** NONE NOT EXTENSIVE EXTENSIVE

Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOWN

Outlet Dimensions A. Width 3' 2" B. Height 3' 2" C. Substrate/Water Width 2' 6" D. Water Depth 2.4"

Outlet Drop to Water Surface 0 Outlet Drop to Stream Bottom 0 E. Abutment Height (Type 7 bridges only) _____

L. Structure Length (Overall length from inlet to outlet) 47'

INLET Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED

Inlet Type PROJECTING HEADWALL WINGWALLS HEADWALL & WINGWALLS MITERED TO SLOPE OTHER NONE

Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGED/COLLAPSED/SUBMERGED UNKNOWN

Inlet Dimensions A. Width 3' 2" B. Height 3' 2" C. Substrate/Water Width 2' 6" D. Water Depth 1' 7"

ADDITIONAL CONDITIONS Slope % (Optional) _____ Slope Confidence HIGH LOW **Internal Structures** NONE BAFFLES/WEIRS SUPPORTS OTHER _____

Structure Substrate Matches Stream NONE COMPARABLE CONTRASTING NOT APPROPRIATE UNKNOWN

Structure Substrate Type (Pick one) NONE SILT SAND GRAVEL COBBLE BOULDER BEDROCK UNKNOWN

Structure Substrate Coverage NONE 25% 50% 75% 100% UNKNOWN

Physical Barriers (Pick all that apply) NONE DEBRIS/SEDIMENT/ROCK DEFORMATION FREE FALL FENCING DRY OTHER

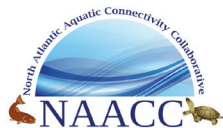
Severity (Choose carefully based on barrier type(s) above) NONE MINOR MODERATE SEVERE

Water Depth Matches Stream YES NO-SHALLOWER NO-DEEPER UNKNOWN DRY

Water Velocity Matches Stream YES NO-FASTER NO-SLOWER UNKNOWN DRY

Dry Passage through Structure? YES NO UNKNOWN **Height above Dry Passage** n/a

Comments n/a



AQUATIC CONNECTIVITY
Stream Crossing Survey
DATA FORM

Eric Harris 10/22/20
 DATABASE ENTRY BY ENTRY DATE
 Zachary Blais 11/4/20
 DATA ENTRY REVIEWED BY REVIEW DATE

CROSSING DATA

Crossing Code xy4212007971788535 Local ID (Optional) 290-049-03 (No ID in NAACC)

Date Observed (00/00/0000) 10/22/20 Lead Observer Eric Harris

Town/County Sutton, MA Stream _____

Road Central Turnpike Type MULTILANE PAVED UNPAVED DRIVEWAY TRAIL RAILROAD

GPS Coordinates (Decimal degrees) 42.12009 °N Latitude - 71.7884 °W Longitude

Location Description 3rd culvert from Legacy Church, near Josephson Road

Crossing Type BRIDGE CULVERT MULTIPLE CULVERT FORD NO CROSSING REMOVED CROSSING
 BURIED STREAM INACCESSIBLE PARTIALLY INACCESSIBLE NO UPSTREAM CHANNEL BRIDGE ADEQUATE

Number of Culverts/ Bridge Cells 1

Photo IDs INLET _____ OUTLET _____ UPSTREAM _____ DOWNSTREAM _____ OTHER _____

Flow Condition NO FLOW TYPICAL-LOW MODERATE HIGH Crossing Condition OK POOR NEW UNKNOWN

Tidal Site YES NO UNKNOWN Alignment FLOW-ALIGNED SKEWED (>45°) Road Fill Height (Top of culvert to road surface; bridge = 0) 1'

Bankfull Width (Optional) _____ Confidence HIGH LOW/ESTIMATED Constriction SEVERE MODERATE SPANS ONLY BANKFULL/ ACTIVE CHANNEL
 SPANS FULL CHANNEL & BANKS

Tailwater Scour Pool NONE SMALL LARGE

Crossing Comments very poor condition; rebar showing; concrete chunks missing; large wetland on inlet side, no stream; two inlet structures, one outlet structure

STRUCTURE 1

Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION

OUTLET

Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE

Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOWN

Outlet Dimensions A. Width 7'10" B. Height 4'7" C. Substrate/Water Width 7'10" D. Water Depth 22"

Outlet Drop to Water Surface 0 Outlet Drop to Stream Bottom 0 E. Abutment Height (Type 7 bridges only) _____

L. Structure Length (Overall length from inlet to outlet) 43'10"

INLET

Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED

Inlet Type PROJECTING HEADWALL WINGWALLS HEADWALL & WINGWALLS MITERED TO SLOPE OTHER NONE

Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGED/COLLAPSED/SUBMERGED UNKNOWN

Inlet Dimensions A. Width 7'10" B. Height 4'7" C. Substrate/Water Width 7'10" D. Water Depth 22"

ADDITIONAL CONDITIONS

Slope % (Optional) _____ Slope Confidence HIGH LOW Internal Structures NONE BAFFLES/WEIRS SUPPORTS OTHER _____

Structure Substrate Matches Stream NONE COMPARABLE CONTRASTING NOT APPROPRIATE UNKNOWN

Structure Substrate Type (Pick one) NONE SILT SAND GRAVEL COBBLE BOULDER BEDROCK UNKNOWN

Structure Substrate Coverage NONE 25% 50% 75% 100% UNKNOWN

Physical Barriers (Pick all that apply) NONE DEBRIS/SEDIMENT/ROCK DEFORMATION FREE FALL FENCING DRY OTHER

Severity (Choose carefully based on barrier type(s) above) NONE MINOR MODERATE SEVERE

Water Depth Matches Stream YES NO-SHALLOWER NO-DEEPER UNKNOWN DRY

Water Velocity Matches Stream YES NO-FASTER NO-SLOWER UNKNOWN DRY

Dry Passage through Structure? YES NO UNKNOWN Height above Dry Passage _____

Comments n/a



AQUATIC CONNECTIVITY
Stream Crossing Survey
DATA FORM

Eric Harris 10/22/20
DATABASE ENTRY BY ENTRY DATE
 Zachary Blais 11/3/20
DATA ENTRY REVIEWED BY REVIEW DATE

CROSSING DATA

Crossing Code New Crossing: xy4212130071786010 Local ID (Optional) 290-049-04

Date Observed (00/00/0000) 10/22/20 Lead Observer Eric Harris

Town/County Sutton, MA Stream _____

Road Central Turnpike Type MULTILANE PAVED UNPAVED DRIVEWAY TRAIL RAILROAD

GPS Coordinates (Decimal degrees) 4 2 . 1 2 1 3 0 °N Latitude - 7 1 . 7 8 6 0 1 °W Longitude

Location Description 4th culvert from Legacy Church to 146; @ house #572

Crossing Type BRIDGE CULVERT MULTIPLE CULVERT FORD NO CROSSING REMOVED CROSSING
 BURIED STREAM INACCESSIBLE PARTIALLY INACCESSIBLE NO UPSTREAM CHANNEL BRIDGE ADEQUATE

Number of Culverts/ Bridge Cells 1

Photo IDs INLET _____ OUTLET _____ UPSTREAM _____ DOWNSTREAM _____ OTHER _____

Flow Condition NO FLOW TYPICAL-LOW MODERATE HIGH Crossing Condition OK POOR NEW UNKNOWN

Tidal Site YES NO UNKNOWN Alignment FLOW-ALIGNED SKEWED (>45°) Road Fill Height (Top of culvert to road surface; bridge = 0) 2' 4"

Bankfull Width (Optional) _____ Confidence HIGH LOW/ESTIMATED Constriction SEVERE MODERATE SPANS ONLY BANKFULL/ ACTIVE CHANNEL
 SPANS FULL CHANNEL & BANKS

Tailwater Scour Pool NONE SMALL LARGE

Crossing Comments dry; poor condition

STRUCTURE 1

Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION

OUTLET

Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE

Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOWN

Outlet Dimensions A. Width 40" B. Height 15" C. Substrate/Water Width 0 D. Water Depth 0

Outlet Drop to Water Surface 0 Outlet Drop to Stream Bottom 0 E. Abutment Height (Type 7 bridges only) _____

L. Structure Length (Overall length from inlet to outlet) 40' 3"

INLET

Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED

Inlet Type PROJECTING HEADWALL WINGWALLS HEADWALL & WINGWALLS MITERED TO SLOPE OTHER NONE

Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGED/COLLAPSED/SUBMERGED UNKNOWN

Inlet Dimensions A. Width 40" B. Height 15" C. Substrate/Water Width 0 D. Water Depth 0

ADDITIONAL CONDITIONS

Slope % (Optional) _____ Slope Confidence HIGH LOW Internal Structures NONE BAFFLES/WEIRS SUPPORTS OTHER _____

Structure Substrate Matches Stream NONE COMPARABLE CONTRASTING NOT APPROPRIATE UNKNOWN

Structure Substrate Type (Pick one) NONE SILT SAND GRAVEL COBBLE BOULDER BEDROCK UNKNOWN

Structure Substrate Coverage NONE 25% 50% 75% 100% UNKNOWN

Physical Barriers (Pick all that apply) NONE DEBRIS/SEDIMENT/ROCK DEFORMATION FREE FALL FENCING DRY OTHER

Severity (Choose carefully based on barrier type(s) above) NONE MINOR MODERATE SEVERE

Water Depth Matches Stream YES NO-SHALLOWER NO-DEEPER UNKNOWN DRY

Water Velocity Matches Stream YES NO-FASTER NO-SLOWER UNKNOWN DRY

Dry Passage through Structure? YES NO UNKNOWN Height above Dry Passage 18"

Comments n/a



AQUATIC CONNECTIVITY
Stream Crossing Survey
DATA FORM

Robert Raymond 10/22/20
DATABASE ENTRY BY ENTRY DATE
 Zachary Blais 11/4/20
DATA ENTRY REVIEWED BY REVIEW DATE

CROSSING DATA

Crossing Code NEW CROSSING: xy421301271766300 Local ID (Optional) 290-047-01 (NEW XY in

Date Observed (00/00/0000) 10/22/20 Lead Observer Robert Raymond NAACC

Town/County Sutton, MA Stream Dark Brook

Road Central Turnpike Type MULTILANE PAVED UNPAVED DRIVEWAY TRAIL RAILROAD

GPS Coordinates (Decimal degrees) 4 2 . 1 3 0 1 2 °N Latitude - 71 . 7 6 6 3 0 °W Longitude

Location Description 5th culvert from Legacy Church to 146, near 448 Central Turnpike

Crossing Type BRIDGE CULVERT MULTIPLE CULVERT FORD NO CROSSING REMOVED CROSSING BURIED STREAM INACCESSIBLE PARTIALLY INACCESSIBLE NO UPSTREAM CHANNEL BRIDGE ADEQUATE

Number of Culverts/ Bridge Cells 1

Photo IDs INLET _____ OUTLET _____ UPSTREAM _____ DOWNSTREAM _____ OTHER _____

Flow Condition NO FLOW TYPICAL-LOW MODERATE HIGH Crossing Condition OK POOR NEW UNKNOWN

Tidal Site YES NO UNKNOWN Alignment FLOW-ALIGNED SKEWED (>45°) Road Fill Height (Top of culvert to road surface; bridge = 0) 4'

Bankfull Width (Optional) _____ Confidence HIGH LOW/ESTIMATED Constriction SEVERE MODERATE SPANS ONLY BANKFULL/ ACTIVE CHANNEL

Tailwater Scour Pool NONE SMALL LARGE SPANS FULL CHANNEL & BANKS

Crossing Comments dry; buried culvert; fully covered by leaves on one side; completely submerged

STRUCTURE 1

Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION

Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE

Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOWN

Outlet Dimensions A. Width n/a B. Height n/a C. Substrate/Water Width n/a D. Water Depth 0

Outlet Drop to Water Surface 0 Outlet Drop to Stream Bottom 0 E. Abutment Height (Type 7 bridges only) _____

L. Structure Length (Overall length from inlet to outlet) _____

Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED

Inlet Type PROJECTING HEADWALL WINGWALLS HEADWALL & WINGWALLS MITERED TO SLOPE OTHER NONE

Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGED/COLLAPSED/SUBMERGED UNKNOWN

Inlet Dimensions A. Width n/a B. Height n/a C. Substrate/Water Width n/a D. Water Depth 0

Slope % (Optional) _____ Slope Confidence HIGH LOW Internal Structures NONE BAFFLES/WEIRS SUPPORTS OTHER _____

Structure Substrate Matches Stream NONE COMPARABLE CONTRASTING NOT APPROPRIATE UNKNOWN

Structure Substrate Type (Pick one) NONE SILT SAND GRAVEL COBBLE BOULDER BEDROCK UNKNOWN

Structure Substrate Coverage NONE 25% 50% 75% 100% UNKNOWN

Physical Barriers (Pick all that apply) NONE DEBRIS/SEDIMENT/ROCK DEFORMATION FREE FALL FENCING DRY OTHER

Severity (Choose carefully based on barrier type(s) above) NONE MINOR MODERATE SEVERE

Water Depth Matches Stream YES NO-SHALLOWER NO-DEEPER UNKNOWN DRY

Water Velocity Matches Stream YES NO-FASTER NO-SLOWER UNKNOWN DRY

Dry Passage through Structure? YES NO UNKNOWN Height above Dry Passage _____

Comments almost fully buried both side; dry conditions



AQUATIC CONNECTIVITY
Stream Crossing Survey
DATA FORM

Eric Harris 10/22/20
 DATABASE ENTRY BY ENTRY DATE
 Zachary Blais 11/4/20
 DATA ENTRY REVIEWED BY REVIEW DATE

CROSSING DATA

Crossing Code New Crossing: xy421335171757520 Local ID (Optional) 290-047-02 (NEW XY in NAACC)

Date Observed (00/00/0000) 10/22/20 Lead Observer Eric Harris

Town/County Sutton, MA Stream _____

Road Central Turnpike Type MULTILANE PAVED UNPAVED DRIVEWAY TRAIL RAILROAD

GPS Coordinates (Decimal degrees) 4 2 . 1 3 3 5 1 °N Latitude - 7 1 . 7 5 7 5 2 °W Longitude

Location Description 6th culvert from Legacy Church to Route 146, near House 383

Crossing Type BRIDGE CULVERT MULTIPLE CULVERT FORD NO CROSSING REMOVED CROSSING
 BURIED STREAM INACCESSIBLE PARTIALLY INACCESSIBLE NO UPSTREAM CHANNEL BRIDGE ADEQUATE

Number of Culverts/ Bridge Cells 1

Photo IDs INLET _____ OUTLET _____ UPSTREAM _____ DOWNSTREAM _____ OTHER _____

Flow Condition NO FLOW TYPICAL-LOW MODERATE HIGH Crossing Condition OK POOR NEW UNKNOWN

Tidal Site YES NO UNKNOWN Alignment FLOW-ALIGNED SKEWED (>45°) Road Fill Height (Top of culvert to road surface; bridge = 0) 6'

Bankfull Width (Optional) 8' 6" Confidence HIGH LOW/ESTIMATED Constriction SEVERE MODERATE SPANS ONLY BANKFULL/ ACTIVE CHANNEL
 SPANS FULL CHANNEL & BANKS

Tailwater Scour Pool NONE SMALL LARGE

Crossing Comments Inlet side clogged

STRUCTURE 1

Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION

Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE

Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOWN

Outlet Dimensions A. Width 20" B. Height 20" C. Substrate/Water Width 3" D. Water Depth 0.1"

Outlet Drop to Water Surface 25" Outlet Drop to Stream Bottom 27" E. Abutment Height (Type 7 bridges only) _____

L. Structure Length (Overall length from inlet to outlet) 47' 4"

Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED

Inlet Type PROJECTING HEADWALL WINGWALLS HEADWALL & WINGWALLS MITERED TO SLOPE OTHER NONE

Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGED/COLLAPSED/SUBMERGED UNKNOWN

Inlet Dimensions A. Width 12" B. Height 12" C. Substrate/Water Width 3" D. Water Depth 0.1"

Slope % (Optional) _____ Slope Confidence HIGH LOW Internal Structures NONE BAFFLES/WEIRS SUPPORTS OTHER _____

Structure Substrate Matches Stream NONE COMPARABLE CONTRASTING NOT APPROPRIATE UNKNOWN

Structure Substrate Type (Pick one) NONE SILT SAND GRAVEL COBBLE BOULDER BEDROCK UNKNOWN

Structure Substrate Coverage NONE 25% 50% 75% 100% UNKNOWN

Physical Barriers (Pick all that apply) NONE DEBRIS/SEDIMENT/ROCK DEFORMATION FREE FALL FENCING DRY OTHER

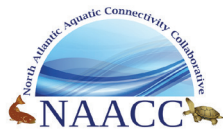
Severity (Choose carefully based on barrier type(s) above) NONE MINOR MODERATE SEVERE

Water Depth Matches Stream YES NO-SHALLOWER NO-DEEPER UNKNOWN DRY

Water Velocity Matches Stream YES NO-FASTER NO-SLOWER UNKNOWN DRY

Dry Passage through Structure? YES NO UNKNOWN Height above Dry Passage _____

Comments n/a



AQUATIC CONNECTIVITY Stream Crossing Survey DATA FORM

DATABASE ENTRY BY _____ ENTRY DATE _____

DATA ENTRY REVIEWED BY _____ REVIEW DATE _____

CROSSING DATA

Crossing Code xy4213749371747529 Local ID (Optional) 290-046-01 (Culvert 7 in NAACC)

Date Observed (00/00/0000) 11/5/20 Lead Observer Eric Harris

Town/County Sutton, MA Stream _____

Road Central Turnpike Type MULTILANE PAVED UNPAVED DRIVEWAY TRAIL RAILROAD

GPS Coordinates (Decimal degrees) 42.13749 °N Latitude -71.74752 °W Longitude

Location Description between Sovereign Heights and Uxbridge Road

Crossing Type BRIDGE CULVERT MULTIPLE CULVERT FORD NO CROSSING REMOVED CROSSING
 BURIED STREAM INACCESSIBLE PARTIALLY INACCESSIBLE NO UPSTREAM CHANNEL BRIDGE ADEQUATE

Number of Culverts/ Bridge Cells 1

Photo IDs INLET _____ OUTLET _____ UPSTREAM _____ DOWNSTREAM _____ OTHER _____

Flow Condition NO FLOW TYPICAL-LOW MODERATE HIGH Crossing Condition OK POOR NEW UNKNOWN

Tidal Site YES NO UNKNOWN Alignment FLOW-ALIGNED SKEWED (>45°) Road Fill Height (Top of culvert to road surface; bridge = 0) 3'

Bankfull Width (Optional) 3' Confidence HIGH LOW/ESTIMATED Constriction SEVERE MODERATE SPANS ONLY BANKFULL/ ACTIVE CHANNEL
 SPANS FULL CHANNEL & BANKS

Tailwater Scour Pool NONE SMALL LARGE

Crossing Comments drainage outflow into inlet side

STRUCTURE 1

Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION

Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE

Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOWN

Outlet Dimensions A. Width 1'5" B. Height 1'5" C. Substrate/Water Width 6" D. Water Depth 0'1"

Outlet Drop to Water Surface 2" Outlet Drop to Stream Bottom 4" E. Abutment Height (Type 7 bridges only) _____

L. Structure Length (Overall length from inlet to outlet) 55'

Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED

Inlet Type PROJECTING HEADWALL WINGWALLS HEADWALL & WINGWALLS MITERED TO SLOPE OTHER NONE

Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGED/COLLAPSED/SUBMERGED UNKNOWN

Inlet Dimensions A. Width 1.5" B. Height 1'5" C. Substrate/Water Width 6" D. Water Depth 1"

Slope % (Optional) _____ Slope Confidence HIGH LOW Internal Structures NONE BAFFLES/WEIRS SUPPORTS OTHER _____

Structure Substrate Matches Stream NONE COMPARABLE CONTRASTING NOT APPROPRIATE UNKNOWN

Structure Substrate Type (Pick one) NONE SILT SAND GRAVEL COBBLE BOULDER BEDROCK UNKNOWN

Structure Substrate Coverage NONE 25% 50% 75% 100% UNKNOWN

Physical Barriers (Pick all that apply) NONE DEBRIS/SEDIMENT/ROCK DEFORMATION FREE FALL FENCING DRY OTHER

Severity (Choose carefully based on barrier type(s) above) NONE MINOR MODERATE SEVERE

Water Depth Matches Stream YES NO-SHALLOWER NO-DEEPER UNKNOWN DRY

Water Velocity Matches Stream YES NO-FASTER NO-SLOWER UNKNOWN DRY

Dry Passage through Structure? YES NO UNKNOWN Height above Dry Passage _____

Comments n/a



AQUATIC CONNECTIVITY Stream Crossing Survey DATA FORM

DATABASE ENTRY BY _____ ENTRY DATE _____

DATA ENTRY REVIEWED BY _____ REVIEW DATE _____

CROSSING DATA

Crossing Code xy4214174871738659 Local ID (Optional) 290-045-01 (Culvert 8
 Date Observed (00/00/0000) 11/5/20 Lead Observer Eric Harris in NAACC)
 Town/County Sutton, MA Stream _____
 Road Central Turnpike Type MULTILANE PAVED UNPAVED DRIVEWAY TRAIL RAILROAD
 GPS Coordinates (Decimal degrees) 4 2 . 1 4 1 7 4 °N Latitude - 7 1 . 7 3 8 6 5 °W Longitude
 Location Description between Purgatory Road and Aland Drive (right next to Alan Dr)
 Crossing Type BRIDGE CULVERT MULTIPLE CULVERT FORD NO CROSSING REMOVED CROSSING
 BURIED STREAM INACCESSIBLE PARTIALLY INACCESSIBLE NO UPSTREAM CHANNEL BRIDGE ADEQUATE
 Number of Culverts/ Bridge Cells 1
 Photo IDs INLET _____ OUTLET _____ UPSTREAM _____ DOWNSTREAM _____ OTHER _____
 Flow Condition NO FLOW TYPICAL-LOW MODERATE HIGH Crossing Condition OK POOR NEW UNKNOWN
 Tidal Site YES NO UNKNOWN Alignment FLOW-ALIGNED SKEWED (>45°) Road Fill Height (Top of culvert to road surface; bridge = 0) 1' 3"
 Bankfull Width (Optional) _____ Confidence HIGH LOW/ESTIMATED Constriction SEVERE MODERATE SPANS ONLY BANKFULL/
 SPANS FULL CHANNEL & BANKS ACTIVE CHANNEL
 Tailwater Scour Pool NONE SMALL LARGE
 Crossing Comments large inlet with drop and two outlet structures

STRUCTURE 1

Structure Material METAL CONCRETE PLASTIC WOOD ROCK/STONE FIBERGLASS COMBINATION
OUTLET
 Outlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED Outlet Armoring NONE NOT EXTENSIVE EXTENSIVE
 Outlet Grade (Pick one) AT STREAM GRADE FREE FALL CASCADE FREE FALL ONTO CASCADE CLOGGED/COLLAPSED/SUBMERGED UNKNOWN
 Outlet Dimensions A. Width 2' B. Height 2' C. Substrate/Water Width 0 D. Water Depth 0
 Outlet Drop to Water Surface 2' Outlet Drop to Stream Bottom 2' 4" E. Abutment Height (Type 7 bridges only) _____
 L. Structure Length (Overall length from inlet to outlet) 60'
INLET
 Inlet Shape 1 2 3 4 5 6 7 FORD UNKNOWN REMOVED
 Inlet Type PROJECTING HEADWALL WINGWALLS HEADWALL & WINGWALLS MITERED TO SLOPE OTHER NONE
 Inlet Grade (Pick one) AT STREAM GRADE INLET DROP PERCHED CLOGGED/COLLAPSED/SUBMERGED UNKNOWN
 Inlet Dimensions A. Width 2' 8" B. Height 1' 8" C. Substrate/Water Width 0 D. Water Depth 0
ADDITIONAL CONDITIONS
 Slope % (Optional) _____ Slope Confidence HIGH LOW Internal Structures NONE BAFFLES/WEIRS SUPPORTS OTHER _____
 Structure Substrate Matches Stream NONE COMPARABLE CONTRASTING NOT APPROPRIATE UNKNOWN
 Structure Substrate Type (Pick one) NONE SILT SAND GRAVEL COBBLE BOULDER BEDROCK UNKNOWN
 Structure Substrate Coverage NONE 25% 50% 75% 100% UNKNOWN
 Physical Barriers (Pick all that apply) NONE DEBRIS/SEDIMENT/ROCK DEFORMATION FREE FALL FENCING DRY OTHER
 Severity (Choose carefully based on barrier type(s) above) NONE MINOR MODERATE SEVERE
 Water Depth Matches Stream YES NO-SHALLOWER NO-DEEPER UNKNOWN DRY
 Water Velocity Matches Stream YES NO-FASTER NO-SLOWER UNKNOWN DRY
 Dry Passage through Structure? YES NO UNKNOWN Height above Dry Passage _____
 Comments _____

Traffic Counts

Sutton Avenue west of Fort Hill Road, **6/10/21**

Sutton Avenue west of Joe Jenny Road, **7/15/21**

Sutton Avenue at Sutton Town Line, **6/10/21**

Central Turnpike west of Putnam Hill Road, **6/23/21**

Central Turnpike east of Putnam Hill Road, **6/23/21**

Central Turnpike west of Route 146, **6/29/21**

CMRPC
2 Washington Square, Union Station
Worcester, MA 01604-4016

Town : Oxford
 Street : Sutton Avenue
 Location : Sutton Avenue West of Fort Hill Road

Site: 2021051

Seven Day Volume

Interval Start	Tue 6/8/2021		Wed 6/9/2021		Thu 6/10/2021		Fri 6/11/2021		Sat 6/12/2021		Sun 6/13/2021		Mon 6/14/2021		Mon - Fri Average		7 Day Average	
	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	-	-	13	11	16	16	13	22	-	-	-	-	-	-	14.0	16.3	14.0	16.3
1:00 AM	-	-	15	5	13	6	14	13	-	-	-	-	-	-	14.0	8.0	14.0	8.0
2:00 AM	-	-	9	12	7	7	4	6	-	-	-	-	-	-	6.7	8.3	6.7	8.3
3:00 AM	-	-	11	12	11	12	14	11	-	-	-	-	-	-	12.0	11.7	12.0	11.7
4:00 AM	-	-	26	52	25	44	25	43	-	-	-	-	-	-	25.3	46.3	25.3	46.3
5:00 AM	-	-	116	97	106	104	106	96	-	-	-	-	-	-	109.3	99.0	109.3	99.0
6:00 AM	-	-	202	259	190	268	205	232	-	-	-	-	-	-	199.0	253.0	199.0	253.0
7:00 AM	-	-	334	333	320	335	321	347	-	-	-	-	-	-	325.0	338.3	325.0	338.3
8:00 AM	-	-	272	349	305	314	334	304	-	-	-	-	-	-	303.7	322.3	303.7	322.3
9:00 AM	-	-	225	253	272	281	-	-	-	-	-	-	-	-	248.5	267.0	248.5	267.0
10:00 AM	248	249	276	255	270	284	-	-	-	-	-	-	-	-	264.7	262.7	264.7	262.7
11:00 AM	259	285	301	277	307	280	-	-	-	-	-	-	-	-	289.0	280.7	289.0	280.7
12:00 PM	298	288	280	285	303	278	-	-	-	-	-	-	-	-	293.7	283.7	293.7	283.7
1:00 PM	308	277	328	280	316	323	-	-	-	-	-	-	-	-	317.3	293.3	317.3	293.3
2:00 PM	335	386	340	347	381	343	-	-	-	-	-	-	-	-	352.0	358.7	352.0	358.7
3:00 PM	419	419	418	400	448	473	-	-	-	-	-	-	-	-	428.3	430.7	428.3	430.7
4:00 PM	396	381	450	360	474	394	-	-	-	-	-	-	-	-	440.0	378.3	440.0	378.3
5:00 PM	399	347	379	425	451	407	-	-	-	-	-	-	-	-	409.7	393.0	409.7	393.0
6:00 PM	246	231	307	297	310	293	-	-	-	-	-	-	-	-	287.7	273.7	287.7	273.7
7:00 PM	192	156	257	205	235	243	-	-	-	-	-	-	-	-	228.0	201.3	228.0	201.3
8:00 PM	160	114	196	159	221	219	-	-	-	-	-	-	-	-	192.3	164.0	192.3	164.0
9:00 PM	110	76	121	102	153	139	-	-	-	-	-	-	-	-	128.0	105.7	128.0	105.7
10:00 PM	50	56	70	73	60	73	-	-	-	-	-	-	-	-	60.0	67.3	60.0	67.3
11:00 PM	32	25	36	31	37	30	-	-	-	-	-	-	-	-	35.0	28.7	35.0	28.7
Totals	3452	3290	4982	4879	5231	5166	1036	1074	0	0	0	0	0	0	4983.2	4892.0	4983.2	4892.0
Combined	6742		9861		10397		2110		0		0		0		9875.2		9875.2	
Split (%)	51.2	48.8	50.5	49.5	50.3	49.7	49.1	50.9	-	-	-	-	-	-	50.5	49.5	50.5	49.5

Peak Hours

12:00 AM - 12:00 PM	11:00 AM	11:00 AM	7:00 AM	8:00 AM	7:00 AM	7:00 AM	8:00 AM	7:00 AM	-	-	-	-	-	-	7:00 AM	7:00 AM	7:00 AM	7:00 AM
Volume	259	285	334	349	320	335	334	347	-	-	-	-	-	-	325.0	338.3	325.0	338.3
12:00 PM - 12:00 AM	3:00 PM	3:00 PM	4:00 PM	5:00 PM	4:00 PM	3:00 PM	-	-	-	-	-	-	-	-	4:00 PM	3:00 PM	4:00 PM	3:00 PM
Volume	419	419	450	425	474	473	-	-	-	-	-	-	-	-	440.0	430.7	440.0	430.7

Site Code: 12345678

2021052 Oxford
Sutton Ave West of Joe Jenny Road

Start Time	12-Jul-21		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	16	14	16	11	13	11	*	*	*	*	*	*	15	12
01:00	*	*	11	5	14	10	9	8	*	*	*	*	*	*	11	8
02:00	*	*	5	8	4	9	6	5	*	*	*	*	*	*	5	7
03:00	*	*	20	12	14	8	14	12	*	*	*	*	*	*	16	11
04:00	*	*	29	28	27	29	28	33	*	*	*	*	*	*	28	30
05:00	*	*	95	71	99	88	93	64	*	*	*	*	*	*	96	74
06:00	*	*	197	160	201	193	175	176	*	*	*	*	*	*	191	176
07:00	*	*	266	247	261	250	244	216	*	*	*	*	*	*	257	238
08:00	*	*	252	257	262	281	257	253	*	*	*	*	*	*	257	264
09:00	188	244	246	235	246	286	*	*	*	*	*	*	*	*	227	255
10:00	222	197	219	235	252	242	*	*	*	*	*	*	*	*	231	225
11:00	233	266	265	238	269	259	*	*	*	*	*	*	*	*	256	254
12:00 PM	230	224	228	266	265	284	*	*	*	*	*	*	*	*	241	258
01:00	232	263	259	254	255	258	*	*	*	*	*	*	*	*	249	258
02:00	284	305	296	343	269	287	*	*	*	*	*	*	*	*	283	312
03:00	292	319	332	373	333	339	*	*	*	*	*	*	*	*	319	344
04:00	377	402	317	361	332	402	*	*	*	*	*	*	*	*	342	388
05:00	325	367	343	346	325	373	*	*	*	*	*	*	*	*	331	362
06:00	218	217	221	261	226	245	*	*	*	*	*	*	*	*	222	241
07:00	178	184	203	184	172	240	*	*	*	*	*	*	*	*	184	203
08:00	100	98	116	120	131	159	*	*	*	*	*	*	*	*	116	126
09:00	90	67	75	90	116	95	*	*	*	*	*	*	*	*	94	84
10:00	61	37	65	51	62	54	*	*	*	*	*	*	*	*	63	47
11:00	18	29	28	24	26	27	*	*	*	*	*	*	*	*	24	27
Lane	3048	3219	4104	4183	4177	4429	839	778	0	0	0	0	0	0	4058	4204
Day	6267		8287		8606		1617		0	0	0	0	0	0	8262	
AM Peak	11:00	11:00	07:00	08:00	11:00	09:00	08:00	08:00	-	-	-	-	-	-	07:00	08:00
Vol.	233	266	266	257	269	286	257	253	-	-	-	-	-	-	257	264
PM Peak	16:00	16:00	17:00	15:00	15:00	16:00	-	-	-	-	-	-	-	-	16:00	16:00
Vol.	377	402	343	373	333	402	-	-	-	-	-	-	-	-	342	388

Comb. Total 6267 8287 8606 1617 0 0 0 8262

ADT ADT 8,260 AADT 8,260

CMRPC
2 Washington Square, Union Station
Worcester, MA 01604-4016

Town : Oxford
 Street : Sutton Avenue
 Location : Sutton Avenue at Sutton Town Line

Site: 2021001

Seven Day Volume

Interval Start	Tue 6/8/2021		Wed 6/9/2021		Thu 6/10/2021		Fri 6/11/2021		Sat 6/12/2021		Sun 6/13/2021		Mon 6/14/2021		Mon - Fri Average		7 Day Average	
	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB
12:00 AM	-	-	12	9	16	8	23	13	-	-	-	-	-	-	17.0	10.0	17.0	10.0
1:00 AM	-	-	7	10	4	9	13	18	-	-	-	-	-	-	8.0	12.3	8.0	12.3
2:00 AM	-	-	10	5	5	8	7	4	-	-	-	-	-	-	7.3	5.7	7.3	5.7
3:00 AM	-	-	13	19	16	17	11	19	-	-	-	-	-	-	13.3	18.3	13.3	18.3
4:00 AM	-	-	39	28	32	26	38	37	-	-	-	-	-	-	36.3	30.3	36.3	30.3
5:00 AM	-	-	76	153	80	142	82	132	-	-	-	-	-	-	79.3	142.3	79.3	142.3
6:00 AM	-	-	268	251	255	248	251	242	-	-	-	-	-	-	258.0	247.0	258.0	247.0
7:00 AM	-	-	307	372	322	358	309	342	-	-	-	-	-	-	312.7	357.3	312.7	357.3
8:00 AM	-	-	349	257	312	272	303	310	-	-	-	-	-	-	321.3	279.7	321.3	279.7
9:00 AM	-	-	234	195	261	245	-	-	-	-	-	-	-	-	247.5	220.0	247.5	220.0
10:00 AM	-	-	243	246	258	192	-	-	-	-	-	-	-	-	250.5	219.0	250.5	219.0
11:00 AM	255	197	265	219	252	237	-	-	-	-	-	-	-	-	257.3	217.7	257.3	217.7
12:00 PM	300	222	263	246	261	240	-	-	-	-	-	-	-	-	274.7	236.0	274.7	236.0
1:00 PM	247	246	269	267	299	271	-	-	-	-	-	-	-	-	271.7	261.3	271.7	261.3
2:00 PM	381	282	381	238	412	286	-	-	-	-	-	-	-	-	391.3	268.7	391.3	268.7
3:00 PM	524	316	435	326	537	324	-	-	-	-	-	-	-	-	498.7	322.0	498.7	322.0
4:00 PM	462	294	458	332	500	381	-	-	-	-	-	-	-	-	473.3	335.7	473.3	335.7
5:00 PM	421	316	500	327	574	352	-	-	-	-	-	-	-	-	498.3	331.7	498.3	331.7
6:00 PM	266	185	340	223	315	218	-	-	-	-	-	-	-	-	307.0	208.7	307.0	208.7
7:00 PM	158	142	231	197	281	174	-	-	-	-	-	-	-	-	223.3	171.0	223.3	171.0
8:00 PM	110	110	155	141	232	172	-	-	-	-	-	-	-	-	165.7	141.0	165.7	141.0
9:00 PM	68	74	106	94	146	100	-	-	-	-	-	-	-	-	106.7	89.3	106.7	89.3
10:00 PM	61	31	88	60	85	51	-	-	-	-	-	-	-	-	78.0	47.3	78.0	47.3
11:00 PM	33	20	36	18	45	24	-	-	-	-	-	-	-	-	38.0	20.7	38.0	20.7
Totals	3286	2435	5085	4233	5500	4355	1037	1117	0	0	0	0	0	0	5135.3	4193.0	5135.3	4193.0
Combined	5721		9318		9855		2154		0		0		0		9328.3		9328.3	
Split (%)	57.4	42.6	54.6	45.4	55.8	44.2	48.1	51.9	-	-	-	-	-	-	55.1	44.9	55.1	44.9

Peak Hours

12:00 AM - 12:00 PM	11:00 AM	11:00 AM	8:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	-	-	-	-	-	-	8:00 AM	7:00 AM	8:00 AM	7:00 AM
Volume	255	197	349	372	322	358	309	342	-	-	-	-	-	-	-	321.3	357.3	321.3	357.3
12:00 PM - 12:00 AM	3:00 PM	3:00 PM	5:00 PM	4:00 PM	5:00 PM	4:00 PM	-	-	-	-	-	-	-	-	-	3:00 PM	4:00 PM	3:00 PM	4:00 PM
Volume	524	316	500	332	574	381	-	-	-	-	-	-	-	-	-	498.7	335.7	498.7	335.7

CMRPC
2 Washington Square, Union Station
Worcester, MA 01604-4016

Town : Sutton
 Street : Central Turnpike
 Location : West of Putnum Hill Road

Site: 2021050

Seven Day Volume

Interval Start	Mon 6/21/2021		Tue 6/22/2021		Wed 6/23/2021		Thu 6/24/2021		Fri 6/25/2021		Sat 6/26/2021		Sun 6/27/2021		Mon - Fri Average		7 Day Average	
	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB
12:00 AM	-	-	10	9	11	2	8	3	6	12	-	-	-	-	8.8	6.5	8.8	6.5
1:00 AM	-	-	4	5	5	10	5	7	11	13	-	-	-	-	6.3	8.8	6.3	8.8
2:00 AM	-	-	3	5	4	6	6	6	5	3	-	-	-	-	4.5	5.0	4.5	5.0
3:00 AM	-	-	6	8	5	14	3	5	6	13	-	-	-	-	5.0	10.0	5.0	10.0
4:00 AM	-	-	12	27	10	19	12	23	9	23	-	-	-	-	10.8	23.0	10.8	23.0
5:00 AM	-	-	28	92	34	102	37	103	32	88	-	-	-	-	32.8	96.3	32.8	96.3
6:00 AM	-	-	91	164	95	147	98	170	94	148	-	-	-	-	94.5	157.3	94.5	157.3
7:00 AM	-	-	126	191	152	211	126	222	129	185	-	-	-	-	133.3	202.3	133.3	202.3
8:00 AM	-	-	146	188	158	185	142	167	141	145	-	-	-	-	146.8	171.3	146.8	171.3
9:00 AM	-	-	135	148	126	158	137	156	139	141	-	-	-	-	134.3	150.8	134.3	150.8
10:00 AM	-	-	132	137	161	147	144	150	-	-	-	-	-	-	145.7	144.7	145.7	144.7
11:00 AM	-	-	130	166	131	159	144	142	-	-	-	-	-	-	135.0	155.7	135.0	155.7
12:00 PM	-	-	142	141	181	170	145	140	-	-	-	-	-	-	156.0	150.3	156.0	150.3
1:00 PM	174	177	165	177	165	170	147	168	-	-	-	-	-	-	162.8	173.0	162.8	173.0
2:00 PM	167	173	196	180	202	185	219	192	-	-	-	-	-	-	196.0	182.5	196.0	182.5
3:00 PM	219	188	234	171	253	174	243	218	-	-	-	-	-	-	237.3	187.8	237.3	187.8
4:00 PM	256	225	235	183	286	217	292	247	-	-	-	-	-	-	267.3	218.0	267.3	218.0
5:00 PM	261	172	256	170	290	230	273	210	-	-	-	-	-	-	270.0	195.5	270.0	195.5
6:00 PM	167	130	156	133	176	161	188	163	-	-	-	-	-	-	171.8	146.8	171.8	146.8
7:00 PM	101	99	75	75	119	97	133	112	-	-	-	-	-	-	107.0	95.8	107.0	95.8
8:00 PM	84	79	51	55	81	92	85	90	-	-	-	-	-	-	75.3	79.0	75.3	79.0
9:00 PM	47	73	32	57	65	69	69	61	-	-	-	-	-	-	53.3	65.0	53.3	65.0
10:00 PM	30	36	25	21	47	31	53	42	-	-	-	-	-	-	38.8	32.5	38.8	32.5
11:00 PM	35	14	23	14	36	8	31	17	-	-	-	-	-	-	31.3	13.3	31.3	13.3
Totals	1541	1366	2413	2517	2793	2764	2740	2814	572	771	0	0	0	0	2623.9	2670.7	2623.9	2670.7
Combined	2907		4930		5557		5554		1343		0		0		5294.6		5294.6	
Split (%)	53.0	47.0	48.9	51.1	50.3	49.7	49.3	50.7	42.6	57.4	-	-	-	-	49.6	50.4	49.6	50.4

Peak Hours

12:00 AM - 12:00 PM	-	-	8:00 AM	7:00 AM	10:00 AM	7:00 AM	10:00 AM	7:00 AM	8:00 AM	7:00 AM	-	-	-	-	8:00 AM	7:00 AM	8:00 AM	7:00 AM
Volume	-	-	146	191	161	211	144	222	141	185	-	-	-	-	146.8	202.3	146.8	202.3
12:00 PM - 12:00 AM	5:00 PM	4:00 PM	5:00 PM	4:00 PM	5:00 PM	5:00 PM	4:00 PM	4:00 PM	-	-	-	-	-	-	5:00 PM	4:00 PM	5:00 PM	4:00 PM
Volume	261	225	256	183	290	230	292	247	-	-	-	-	-	-	270.0	218.0	270.0	218.0

CMRPC
2 Washington Square, Union Station
Worcester, MA 01604-4016

Town : Sutton
 Street : Central Turnpike
 Location : Central Turnpike East of Putnam Hill Road

Site: 2021002

Seven Day Volume

Interval Start	Mon 6/21/2021		Tue 6/22/2021		Wed 6/23/2021		Thu 6/24/2021		Fri 6/25/2021		Sat 6/26/2021		Sun 6/27/2021		Mon - Fri Average		7 Day Average	
	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	-	-	8	7	4	10	4	10	11	5	-	-	-	-	6.8	8.0	6.8	8.0
1:00 AM	-	-	6	4	10	4	8	4	13	11	-	-	-	-	9.3	5.8	9.3	5.8
2:00 AM	-	-	3	5	5	4	5	6	3	5	-	-	-	-	4.0	5.0	4.0	5.0
3:00 AM	-	-	6	5	11	4	4	2	11	7	-	-	-	-	8.0	4.5	8.0	4.5
4:00 AM	-	-	28	12	19	14	21	13	24	9	-	-	-	-	23.0	12.0	23.0	12.0
5:00 AM	-	-	95	26	104	31	98	34	85	28	-	-	-	-	95.5	29.8	95.5	29.8
6:00 AM	-	-	162	82	147	86	170	97	150	83	-	-	-	-	157.3	87.0	157.3	87.0
7:00 AM	-	-	183	121	198	140	215	142	164	124	-	-	-	-	190.0	131.8	190.0	131.8
8:00 AM	-	-	172	143	168	153	163	149	136	139	-	-	-	-	159.8	146.0	159.8	146.0
9:00 AM	-	-	138	129	145	108	151	135	133	125	-	-	-	-	141.8	124.3	141.8	124.3
10:00 AM	-	-	131	128	145	145	135	125	-	-	-	-	-	-	137.0	132.7	137.0	132.7
11:00 AM	-	-	157	133	149	136	137	135	-	-	-	-	-	-	147.7	134.7	147.7	134.7
12:00 PM	-	-	139	147	179	173	134	124	-	-	-	-	-	-	150.7	148.0	150.7	148.0
1:00 PM	174	167	166	153	171	155	156	136	-	-	-	-	-	-	166.8	152.8	166.8	152.8
2:00 PM	169	147	180	177	192	184	203	198	-	-	-	-	-	-	186.0	176.5	186.0	176.5
3:00 PM	193	223	159	206	174	229	227	231	-	-	-	-	-	-	188.3	222.3	188.3	222.3
4:00 PM	221	243	176	219	211	260	244	269	-	-	-	-	-	-	213.0	247.8	213.0	247.8
5:00 PM	164	249	176	243	232	260	218	265	-	-	-	-	-	-	197.5	254.3	197.5	254.3
6:00 PM	132	143	129	146	157	156	168	173	-	-	-	-	-	-	146.5	154.5	146.5	154.5
7:00 PM	101	88	77	63	102	107	120	118	-	-	-	-	-	-	100.0	94.0	100.0	94.0
8:00 PM	82	74	64	41	93	71	103	77	-	-	-	-	-	-	85.5	65.8	85.5	65.8
9:00 PM	74	36	55	32	65	73	63	58	-	-	-	-	-	-	64.3	49.8	64.3	49.8
10:00 PM	30	30	28	29	33	41	43	45	-	-	-	-	-	-	33.5	36.3	33.5	36.3
11:00 PM	15	27	15	21	8	30	14	27	-	-	-	-	-	-	13.0	26.3	13.0	26.3
Totals	1355	1427	2453	2272	2722	2574	2804	2573	730	536	0	0	0	0	2624.8	2449.3	2624.8	2449.3
Combined	2782		4725		5296		5377		1266		0		0		5074.2		5074.2	
Split (%)	48.7	51.3	51.9	48.1	51.4	48.6	52.1	47.9	57.7	42.3	-	-	-	-	51.7	48.3	51.7	48.3

Peak Hours

12:00 AM - 12:00 PM	-	-	7:00 AM	8:00 AM	7:00 AM	8:00 AM	7:00 AM	8:00 AM	7:00 AM	8:00 AM	-	-	-	-	7:00 AM	8:00 AM	7:00 AM	8:00 AM
Volume	-	-	183	143	198	153	215	149	164	139	-	-	-	-	190.0	146.0	190.0	146.0
12:00 PM - 12:00 AM	4:00 PM	5:00 PM	2:00 PM	5:00 PM	5:00 PM	4:00 PM	4:00 PM	4:00 PM	-	-	-	-	-	-	4:00 PM	5:00 PM	4:00 PM	5:00 PM
Volume	221	249	180	243	232	260	244	269	-	-	-	-	-	-	213.0	254.3	213.0	254.3

CMRPC
2 Washington Square, Union Station
Worcester, MA 01604-4016

Town : Sutton
 Street : Central Turnpike
 Location : Central Turnpike West of Route 146

Site: 2021003

Seven Day Volume

Interval Start	Mon 6/28/2021		Tue 6/29/2021		Wed 6/30/2021		Thu 7/1/2021		Fri 7/2/2021		Sat 7/3/2021		Sun 7/4/2021		Mon - Fri Average		7 Day Average	
	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB
12:00 AM	-	-	16	10	13	14	11	7	14	9	-	-	-	-	13.5	10.0	13.5	10.0
1:00 AM	-	-	2	2	7	3	7	3	12	9	-	-	-	-	7.0	4.3	7.0	4.3
2:00 AM	-	-	6	5	5	5	13	6	1	6	-	-	-	-	6.3	5.5	6.3	5.5
3:00 AM	-	-	4	14	5	10	3	7	5	5	-	-	-	-	4.3	9.0	4.3	9.0
4:00 AM	-	-	8	34	5	25	10	26	7	18	-	-	-	-	7.5	25.8	7.5	25.8
5:00 AM	-	-	32	101	35	107	37	98	24	92	-	-	-	-	32.0	99.5	32.0	99.5
6:00 AM	-	-	89	181	82	173	85	183	72	141	-	-	-	-	82.0	169.5	82.0	169.5
7:00 AM	-	-	163	218	181	198	139	191	103	160	-	-	-	-	146.5	191.8	146.5	191.8
8:00 AM	-	-	178	147	175	191	169	199	136	158	-	-	-	-	164.5	173.8	164.5	173.8
9:00 AM	-	-	149	179	160	158	165	147	133	159	-	-	-	-	151.8	160.8	151.8	160.8
10:00 AM	173	136	173	145	153	159	154	158	-	-	-	-	-	-	163.3	149.5	163.3	149.5
11:00 AM	175	162	175	129	187	146	161	165	-	-	-	-	-	-	174.5	150.5	174.5	150.5
12:00 PM	183	150	176	165	169	138	166	163	-	-	-	-	-	-	173.5	154.0	173.5	154.0
1:00 PM	175	158	213	163	147	171	199	134	-	-	-	-	-	-	183.5	156.5	183.5	156.5
2:00 PM	231	147	206	204	218	159	227	181	-	-	-	-	-	-	220.5	172.8	220.5	172.8
3:00 PM	254	173	277	162	258	162	272	176	-	-	-	-	-	-	265.3	168.3	265.3	168.3
4:00 PM	304	189	309	188	259	199	272	195	-	-	-	-	-	-	286.0	192.8	286.0	192.8
5:00 PM	292	201	294	207	284	175	279	189	-	-	-	-	-	-	287.3	193.0	287.3	193.0
6:00 PM	163	142	194	175	219	140	162	131	-	-	-	-	-	-	184.5	147.0	184.5	147.0
7:00 PM	122	119	115	106	110	110	143	96	-	-	-	-	-	-	122.5	107.8	122.5	107.8
8:00 PM	90	92	87	95	83	86	112	84	-	-	-	-	-	-	93.0	89.3	93.0	89.3
9:00 PM	55	72	50	93	65	73	60	70	-	-	-	-	-	-	57.5	77.0	57.5	77.0
10:00 PM	40	47	54	45	37	37	41	27	-	-	-	-	-	-	43.0	39.0	43.0	39.0
11:00 PM	34	21	37	18	33	9	25	21	-	-	-	-	-	-	32.3	17.3	32.3	17.3
Totals	2291	1809	3007	2786	2890	2648	2912	2657	507	757	0	0	0	0	2901.8	2664.3	2901.8	2664.3
Combined	4100		5793		5538		5569		1264		0		0		5566.0		5566.0	
Split (%)	55.9	44.1	51.9	48.1	52.2	47.8	52.3	47.7	40.1	59.9	-	-	-	-	52.1	47.9	52.1	47.9

Peak Hours

12:00 AM - 12:00 PM	11:00 AM	11:00 AM	8:00 AM	7:00 AM	11:00 AM	7:00 AM	8:00 AM	8:00 AM	8:00 AM	7:00 AM	-	-	-	-	11:00 AM	7:00 AM	11:00 AM	7:00 AM
Volume	175	162	178	218	187	198	169	199	136	160	-	-	-	-	174.5	191.8	174.5	191.8
12:00 PM - 12:00 AM	4:00 PM	5:00 PM	4:00 PM	5:00 PM	5:00 PM	4:00 PM	5:00 PM	4:00 PM	-	-	-	-	-	-	5:00 PM	5:00 PM	5:00 PM	5:00 PM
Volume	304	201	309	207	284	199	279	195	-	-	-	-	-	-	287.3	193.0	287.3	193.0

Turning Movement Counts (TMCs)

Sutton Avenue @ Lovett Road & Plaza, **6/16/21**

Sutton Avenue @ Joe Jenny Road, **6/2/21**

Central Turnpike @ West Sutton Road, **5/19/21**

Central Turnpike @ Putnam Hill Road, **6/9/21**

Central Turnpike @ Purgatory Road, **5/13/21**

TURNING MOVEMENT COUNT WORKSHEET

CMRPC

MUNICIPALITY: Town of Oxford

DATE: 6/16/2021

LOCATION: Sutton Avenue / Lovett Road / Plaza

DAY OF WEEK: Wednesday

WEATHER: AM: Clear PM: Clear

TECHNICIAN: EG

Time Period	Sutton Ave EB				Sutton Ave WB				Plaza NB				Lovett Rd SB				Total	Peak
	L	S	R	HV	L	S	R	HV	L	S	R	HV	L	S	R	HV		
7:00 - 7:15	4	51	59	4	17	67	1	4	44	0	5	3	0	3	6	1	257	
7:15 - 7:30	4	78	52	6	18	57	0	1	36	3	2	0	1	1	10	1	262	
7:30 - 7:45	13	68	57	3	16	50	0	3	66	1	4	3	2	4	13	1	294	
7:45 - 8:00	14	76	75	7	12	57	1	1	58	5	4	3	2	2	2	0	308	1121
8:00 - 8:15	7	65	54	10	18	55	2	5	59	3	5	6	3	4	5	0	280	1144
8:15 - 8:30	11	60	47	5	26	48	1	6	74	2	8	3	0	3	6	0	286	1168
8:30 - 8:45	5	68	68	10	20	67	0	4	64	0	10	5	2	0	6	1	310	1184
8:45 - 9:00	9	74	83	4	26	38	1	3	53	1	5	3	0	3	8	0	301	1177
TOTAL	67	540	495	49	153	439	6	27	454	15	43	26	10	20	56	4	2298	

EBPct 46.5 WBPct 25.9 NBPct 24.7 SBPct 3.0

Peak Sums: 37 269 244 32 76 227 4 16 255 10 27 17 7 9 19 1 1184

Total Trucks 66 TrkPct 5.57 PHF 0.95

Time Period	Sutton Ave EB				Sutton Ave WB				Plaza NB				Lovett Rd SB				Total	Peak
	L	S	R	HV	L	S	R	HV	L	S	R	HV	L	S	R	HV		
4:00 - 4:15	7	84	58	1	35	90	1	4	96	4	30	2	1	3	4	1	413	
4:15 - 4:30	10	76	61	5	33	97	2	4	116	1	20	1	1	0	8	0	425	
4:30 - 4:45	7	103	77	3	19	74	4	2	94	2	16	1	4	2	6	0	408	
4:45 - 5:00	10	84	60	3	32	88	2	3	89	1	10	1	0	0	9	0	385	1631
5:00 - 5:15	14	112	75	1	36	86	1	4	110	1	15	0	1	0	4	1	455	1673
5:15 - 5:30	12	100	73	2	25	88	1	1	99	3	15	1	2	2	4	0	424	1672
5:30 - 5:45	11	83	65	4	27	81	2	0	96	0	19	1	0	1	8	0	393	1657
5:45 - 6:00	8	78	59	0	27	66	2	3	95	0	20	2	3	0	8	0	366	1638
TOTAL	79	720	528	19	234	670	15	21	795	12	145	9	12	8	51	2	3269	

EBPct 41.2 WBPct 28.3 NBPct 28.4 SBPct 2.1

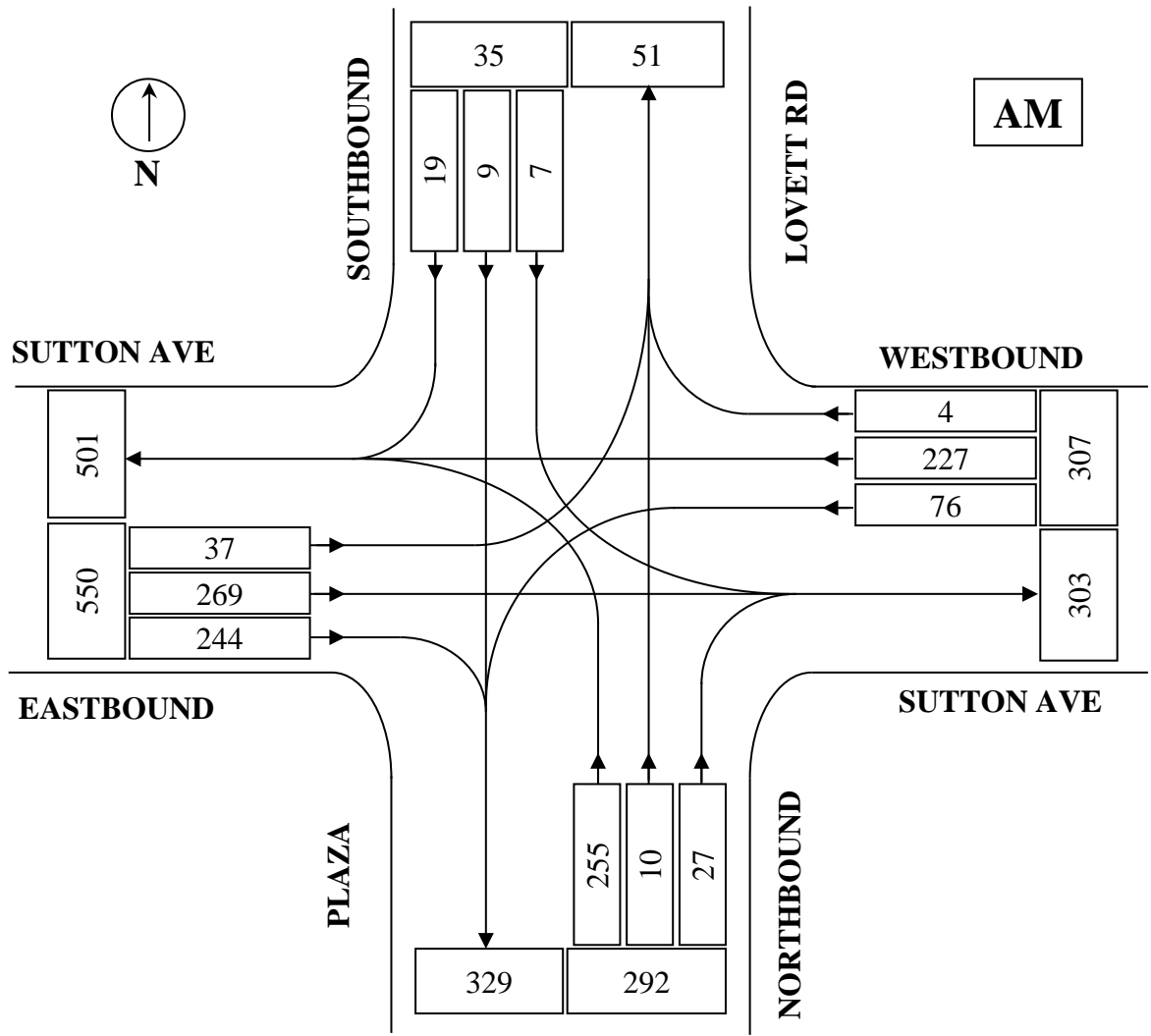
Peak Sums: 41 375 273 12 120 345 9 13 409 5 61 3 6 2 27 1 1673

Total Trucks 29 TrkPct 1.73 PHF 0.92

CMRPC

INTERSECTION TURNING MOVEMENT COUNT

CITY: Oxford DATE: 6/16/21 DAY OF WEEK: Wednesday
 INTERSECTION: Sutton Avenue / Lovett Road / Plaza

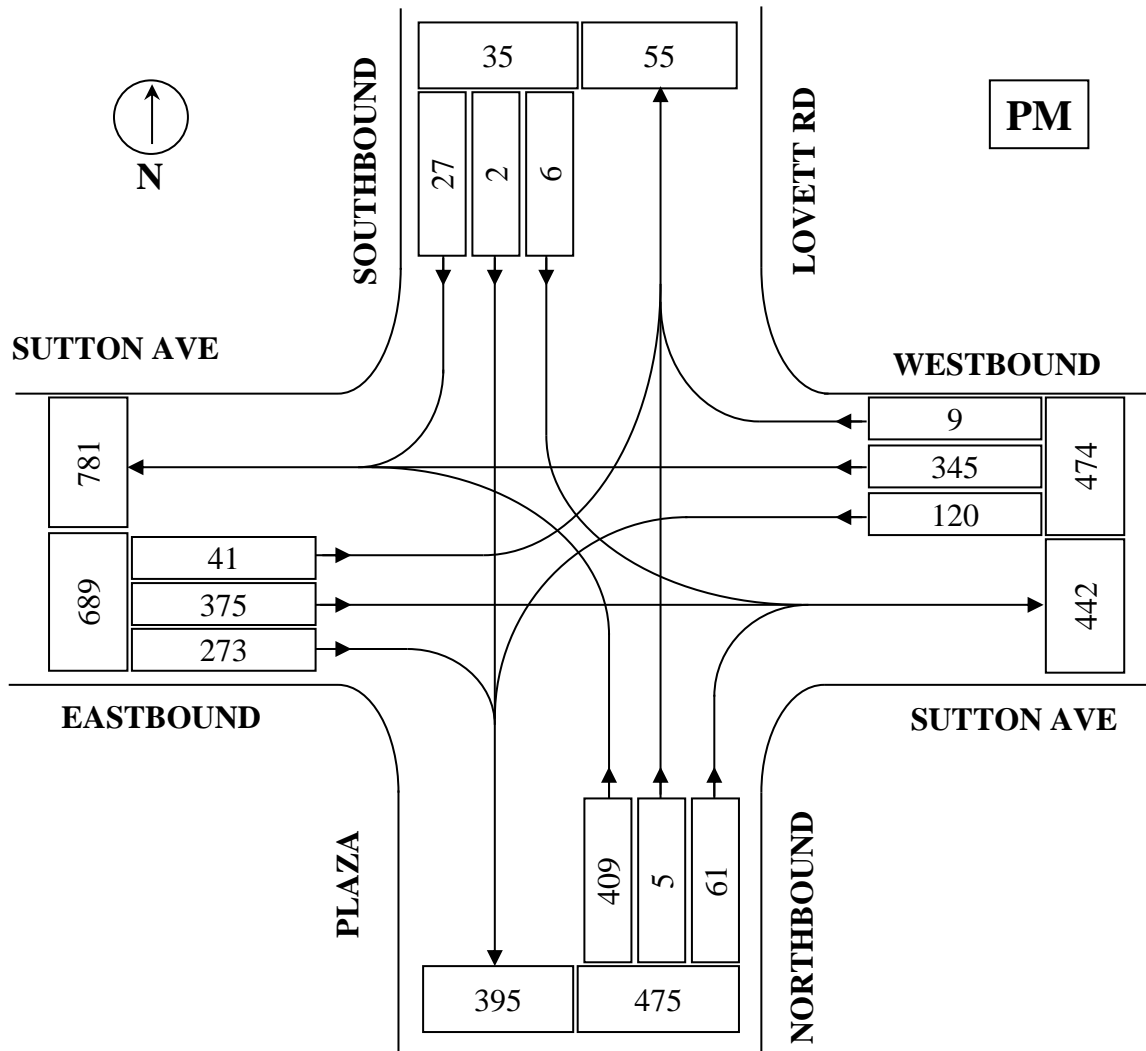


STREET	ENTERING VOLUMES	PERCENT OF FLOW	TIME OF COUNT
Sutton Ave EB	550	46.5%	7:45 - 8:45 AM
Sutton Ave WB	307	25.8%	
Plaza NB	292	24.7%	PHF = .95
Lovett Rd SB	35	3.0%	
TOTAL	1184	100.0%	VEHICLES COUNTED
			ALL VEHICLES: 1184
			TRUCKS: 66
			PERCENT TRUCKS: 5.57%

CMRPC

INTERSECTION TURNING MOVEMENT COUNT

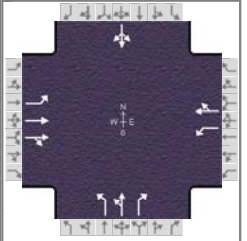
CITY: Oxford DATE: 6/16/21 DAY OF WEEK: Wednesday
 INTERSECTION: Sutton Avenue / Lovett Road / Plaza



STREET	ENTERING VOLUMES	PERCENT OF FLOW	TIME OF COUNT
Sutton Ave EB	689	41.2%	4:15 - 5:15 PM
Sutton Ave WB	474	28.3%	
Plaza NB	475	28.4%	PHF = .92
Lovett Rd SB	35	2.1%	
TOTAL	1673	100.0%	VEHICLES COUNTED
			ALL VEHICLES: 1673
			TRUCKS: 29
			PERCENT TRUCKS: 1.73%

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	CMRPC			Duration, h	0.250		
Analyst	KK	Analysis Date	Jul 1, 2021	Area Type	Other		
Jurisdiction	Oxford	Time Period	7:45 - 8:45 AM	PHF	0.95		
Urban Street	Sutton Ave	Analysis Year	2021	Analysis Period	1 > 7:45		
Intersection	Sutton Ave/Lovett Rd	File Name	21_Sutton Ave & Lovett Rd_AM-BAL.xus				
Project Description	Corridor Profile - Balanced						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	37	269	244	76	227	4	255	10	27	7	9	19

Signal Information				Signal Timing (s)											
Cycle, s	91.0	Reference Phase	2	EB			WB			NB			SB		
Offset, s	0	Reference Point	End	Green	19.0	8.0	19.0	5.0	15.0	0.0	0.0	0.0	0.0	0.0	
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	3.0	3.0	3.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	Off	Red	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	

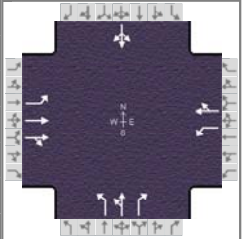
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	2.0	4.0	1.1	4.0		9.0		12.0
Phase Duration, s	37.0	37.0	24.0	24.0		20.0		10.0
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0		5.0		5.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.0		3.1		3.2
Queue Clearance Time (g_s), s	3.3	9.5	4.6	13.2		16.0		3.9
Green Extension Time (g_e), s	0.0	0.7	0.1	0.2		0.0		0.0
Phase Call Probability	1.00	1.00	1.00	1.00		1.00		1.00
Max Out Probability	0.00	0.00	0.00	0.07		1.00		1.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	39	197	185	80	243		268	11	23		37	
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1811	1652	1725	1805		1725	1811	1535		1702	
Queue Service Time (g_s), s	1.3	7.2	7.5	2.6	11.2		14.0	0.4	1.2		1.9	
Cycle Queue Clearance Time (g_c), s	1.3	7.2	7.5	2.6	11.2		14.0	0.4	1.2		1.9	
Green Ratio (g/C)	0.35	0.35	0.35	0.42	0.21		0.16	0.16	0.16		0.05	
Capacity (c), veh/h	636	637	581	642	377		284	299	253		94	
Volume-to-Capacity Ratio (X)	0.061	0.309	0.319	0.125	0.645		0.944	0.035	0.092		0.394	
Back of Queue (Q), ft/ln (95 th percentile)	23.9	138.9	125.5	46.1	228.9		355.7	9	20.1		36.6	
Back of Queue (Q), veh/ln (95 th percentile)	1.0	5.3	5.0	1.8	8.7		13.6	0.3	0.8		1.5	
Queue Storage Ratio (RQ) (95 th percentile)	0.48	0.00	0.00	0.16	0.00		0.00	0.00	0.00		0.00	
Uniform Delay (d_1), s/veh	19.5	21.5	21.5	16.2	32.9		37.6	31.9	32.2		41.5	
Incremental Delay (d_2), s/veh	0.0	0.1	0.1	0.0	3.0		38.1	0.0	0.1		1.0	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Control Delay (d), s/veh	19.6	21.6	21.7	16.2	35.9		75.7	31.9	32.3		42.5	
Level of Service (LOS)	B	C	C	B	D		E	C	C		D	
Approach Delay, s/veh / LOS	21.4	C		31.0	C		70.9	E		42.5	D	
Intersection Delay, s/veh / LOS	38.8						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.11	B	1.71	B	2.15	B	2.34	B
Bicycle LOS Score / LOS	0.83	A	1.02	A	0.99	A	0.55	A

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	CMRPC			Duration, h	0.250
Analyst	KK	Analysis Date	Jul 1, 2021	Area Type	Other
Jurisdiction	Oxford	Time Period	4:15 - 5:15 PM	PHF	0.92
Urban Street	Sutton Ave	Analysis Year	2021	Analysis Period	1 > 4:15
Intersection	Sutton Ave/Lovett Rd	File Name	21_Sutton Ave & Lovett Rd_PM-BAL.xus		
Project Description	Corridor Profile - Balanced				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	41	375	273	120	345	9	409	5	61	6	2	27

Signal Information				Signal Timing (s)									
Cycle, s	111.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	On	Green	27.0	4.0	27.0	6.0	27.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	Off	Yellow	3.0	0.0	3.0	3.0	3.0	0.0			
				Red	2.0	0.0	2.0	2.0	2.0	0.0			

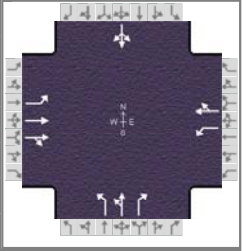
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	2.0	4.0	1.1	4.0		9.0		12.0
Phase Duration, s	36.0	36.0	32.0	32.0		32.0		11.0
Change Period, (Y+R _c), s	5.0	5.0	5.0	5.0		5.0		5.0
Max Allow Headway (MAH), s	3.1	3.2	3.1	3.0		3.1		3.3
Queue Clearance Time (g _s), s	4.1	20.4	6.5	23.9		29.0		4.3
Green Extension Time (g _e), s	0.1	1.1	0.2	0.3		0.0		0.0
Phase Call Probability	1.00	1.00	1.00	1.00		1.00		1.00
Max Out Probability	0.00	0.03	0.00	0.94		1.00		1.00

Movement Group Results	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14	
Adjusted Flow Rate (v), veh/h	45	344	306	130	385		445	5	61		35		
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1870	1637	1781	1862		1795	1885	1598		1647		
Queue Service Time (g _s), s	2.1	18.1	18.4	4.5	21.9		27.0	0.2	3.3		2.3		
Cycle Queue Clearance Time (g _c), s	2.1	18.1	18.4	4.5	21.9		27.0	0.2	3.3		2.3		
Green Ratio (g/C)	0.28	0.28	0.28	0.49	0.24		0.24	0.24	0.24		0.05		
Capacity (c), veh/h	497	522	457	573	453		437	459	389		89		
Volume-to-Capacity Ratio (X)	0.090	0.659	0.669	0.228	0.850		1.018	0.012	0.157		0.391		
Back of Queue (Q), ft/ln (95 th percentile)	40.1	334.8	301.7	82.2	433.5		619.1	5	58.3		43.1		
Back of Queue (Q), veh/ln (95 th percentile)	1.6	13.2	12.1	3.2	17.1		24.6	0.2	2.3		1.7		
Queue Storage Ratio (RQ) (95 th percentile)	0.80	0.00	0.00	0.29	0.00		0.00	0.00	0.00		0.00		
Uniform Delay (d ₁), s/veh	29.6	35.3	35.4	17.2	40.1		42.0	31.9	33.0		50.7		
Incremental Delay (d ₂), s/veh	0.0	2.5	3.0	0.1	13.5		47.7	0.0	0.1		1.0		
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0		
Control Delay (d), s/veh	29.6	37.8	38.5	17.3	53.6		89.7	31.9	33.1		51.8		
Level of Service (LOS)	C	D	D	B	D		F	C	C		D		
Approach Delay, s/veh / LOS	37.6		D	44.4		D	82.3		F		51.8		D
Intersection Delay, s/veh / LOS	52.9						D						

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.13	B	1.72	B	2.15	B	2.20	B
Bicycle LOS Score / LOS	1.06	A	1.34	A	1.33	A	0.54	A

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	CMRPC			Duration, h	0.250		
Analyst	KK	Analysis Date	Jul 1, 2021	Area Type	Other		
Jurisdiction	Oxford	Time Period	7:45 - 8:45 AM	PHF	0.95		
Urban Street	Sutton Ave	Analysis Year	2021	Analysis Period	1 > 7:45		
Intersection	Sutton Ave/Lovett Rd	File Name	21_Sutton Ave & Lovett Rd_AM-PROJ.xus				
Project Description	Corridor Profile - Projected 2031						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	42	312	283	88	263	5	295	11	31	8	10	22

Signal Information				Signal Phases													
Cycle, s	91.0	Reference Phase	2														
Offset, s	0	Reference Point	End	Green	19.0	8.0	19.0	5.0	15.0	0.0							
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	3.0	3.0	3.0	3.0	3.0	0.0							
Force Mode	Fixed	Simult. Gap N/S	Off	Red	2.0	2.0	2.0	2.0	2.0	0.0							

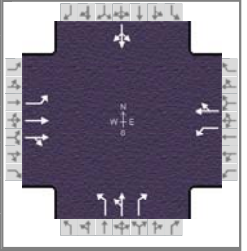
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	2.0	4.0	1.1	4.0		9.0		12.0
Phase Duration, s	37.0	37.0	24.0	24.0		20.0		10.0
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0		5.0		5.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.0		3.1		3.2
Queue Clearance Time (g_s), s	3.5	11.5	5.0	15.3		17.0		4.2
Green Extension Time (g_e), s	0.1	0.9	0.1	0.2		0.0		0.0
Phase Call Probability	1.00	1.00	1.00	1.00		1.00		1.00
Max Out Probability	0.00	0.00	0.00	0.58		1.00		1.00

Movement Group Results	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Approach Movement													
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14	
Adjusted Flow Rate (v), veh/h	44	243	225	93	282		311	12	27		42		
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1811	1629	1725	1805		1725	1811	1535		1700		
Queue Service Time (g_s), s	1.5	9.2	9.5	3.0	13.3		15.0	0.5	1.4		2.2		
Cycle Queue Clearance Time (g_c), s	1.5	9.2	9.5	3.0	13.3		15.0	0.5	1.4		2.2		
Green Ratio (g/C)	0.35	0.35	0.35	0.42	0.21		0.16	0.16	0.16		0.05		
Capacity (c), veh/h	636	637	573	626	377		284	299	253		93		
Volume-to-Capacity Ratio (X)	0.069	0.382	0.393	0.148	0.749		1.092	0.039	0.108		0.451		
Back of Queue (Q), ft/ln (95 th percentile)	27.2	177.2	157	53.7	276.2		498.6	10	23.9		42.2		
Back of Queue (Q), veh/ln (95 th percentile)	1.1	6.8	6.3	2.1	10.5		19.0	0.4	0.9		1.7		
Queue Storage Ratio (RQ) (95 th percentile)	0.54	0.00	0.00	0.19	0.00		0.00	0.00	0.00		0.00		
Uniform Delay (d_1), s/veh	19.6	22.1	22.2	16.3	33.8		38.0	31.9	32.3		41.7		
Incremental Delay (d_2), s/veh	0.0	0.1	0.2	0.0	7.2		80.3	0.0	0.1		1.3		
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0		
Control Delay (d), s/veh	19.6	22.2	22.4	16.4	40.9		118.3	32.0	32.4		42.9		
Level of Service (LOS)	B	C	C	B	D		F	C	C		D		
Approach Delay, s/veh / LOS	22.1		C	34.9		C	108.7		F		42.9		D
Intersection Delay, s/veh / LOS	50.2						D						

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.11	B	1.71	B	2.15	B	2.34	B
Bicycle LOS Score / LOS	0.91	A	1.11	A	1.06	A	0.56	A

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	CMRPC			Duration, h	0.250		
Analyst	KK	Analysis Date	Jul 1, 2021	Area Type	Other		
Jurisdiction	Oxford	Time Period	4:15 - 5:15 PM	PHF	0.92		
Urban Street	Sutton Ave	Analysis Year	2021	Analysis Period	1> 4:15		
Intersection	Sutton Ave/Lovett Rd	File Name	21_Sutton Ave & Lovett Rd_PM-PROJ.xus				
Project Description	Corridor Profile - Projected 2031						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	47	435	316	139	400	10	474	6	70	7	3	31

Signal Information				Signal Phases								
Cycle, s	111.0	Reference Phase	2									
Offset, s	0	Reference Point	End	Green	27.0	4.0	27.0	6.0	27.0	0.0		
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	3.0	0.0	3.0	3.0	3.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	Off	Red	2.0	0.0	2.0	2.0	2.0	0.0		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	2.0	4.0	1.1	4.0		9.0		12.0
Phase Duration, s	36.0	36.0	32.0	32.0		32.0		11.0
Change Period, (Y+R _c), s	5.0	5.0	5.0	5.0		5.0		5.0
Max Allow Headway (MAH), s	3.1	3.2	3.1	3.0		3.1		3.3
Queue Clearance Time (g _s), s	4.4	24.3	7.3	28.4		29.0		4.7
Green Extension Time (g _e), s	0.1	1.1	0.2	0.0		0.0		0.0
Phase Call Probability	1.00	1.00	1.00	1.00		1.00		1.00
Max Out Probability	0.00	0.23	0.00	1.00		1.00		1.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	51	406	356	151	446		515	7	71		41	
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1870	1632	1781	1862		1795	1885	1598		1651	
Queue Service Time (g _s), s	2.4	22.2	22.3	5.3	26.4		27.0	0.3	3.9		2.7	
Cycle Queue Clearance Time (g _c), s	2.4	22.2	22.3	5.3	26.4		27.0	0.3	3.9		2.7	
Green Ratio (g/C)	0.28	0.28	0.28	0.49	0.24		0.24	0.24	0.24		0.05	
Capacity (c), veh/h	497	522	456	540	453		437	459	389		89	
Volume-to-Capacity Ratio (X)	0.103	0.777	0.781	0.280	0.984		1.180	0.014	0.182		0.463	
Back of Queue (Q), ft/ln (95 th percentile)	46.1	413.1	370.1	96.5	591.6		887.2	6	68.1		51.6	
Back of Queue (Q), veh/ln (95 th percentile)	1.8	16.3	14.8	3.8	23.3		35.2	0.2	2.7		2.0	
Queue Storage Ratio (RQ) (95 th percentile)	0.92	0.00	0.00	0.33	0.00		0.00	0.00	0.00		0.00	
Uniform Delay (d ₁), s/veh	29.7	36.8	36.9	18.4	41.8		42.0	31.9	33.3		50.9	
Incremental Delay (d ₂), s/veh	0.0	6.6	7.8	0.1	37.8		102.3	0.0	0.1		1.4	
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Control Delay (d), s/veh	29.7	43.4	44.7	18.5	79.6		144.3	31.9	33.3		52.3	
Level of Service (LOS)	C	D	D	B	E		F	C	C		D	
Approach Delay, s/veh / LOS	43.1		D	64.1		E	129.8		F		52.3	
Intersection Delay, s/veh / LOS	74.6						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.13	B	1.72	B	2.15	B	2.20	B
Bicycle LOS Score / LOS	1.16	A	1.47	A	1.47	A	0.56	A

TURNING MOVEMENT COUNT WORKSHEET

CMRPC

MUNICIPALITY: Town of Oxford
 LOCATION: Sutton Avenue / Joe Jenny Road
 WEATHER: AM: Clear PM: Clear

DATE: 6/2/2021
 DAY OF WEEK: Wednesday
 TECHNICIAN: EG

Time Period	Sutton Ave EB				Sutton Ave WB				Joe Jenny Rd NB								Total	Peak
	L	S	R	HV	L	S	R	HV	L	S	R	HV	L	S	R	HV		
7:00 - 7:15	0	75	8	3	14	51	0	2	3	0	29	1					180	
7:15 - 7:30	0	78	2	4	10	68	0	3	8	0	20	1					186	
7:30 - 7:45	0	88	3	2	24	54	0	3	5	0	19	1					193	
7:45 - 8:00	0	60	3	2	33	74	0	4	5	0	25	1					200	759
8:00 - 8:15	0	63	1	4	14	74	0	8	7	0	17	2					176	755
8:15 - 8:30	0	58	3	3	13	66	0	3	6	0	13	0					159	728
8:30 - 8:45	0	65	1	4	8	58	0	2	7	0	9	1					148	683
8:45 - 9:00	0	62	2	3	10	50	0	4	3	0	14	0					141	624
TOTAL	0	549	23	25	126	495	0	29	44	0	146	7	0	0	0	0	1383	

EBPct 41.8 **WBPct** 43.2 **NBPct** 15.0 **SBPct** 0.0

Peak Sums: 0 301 16 11 81 247 0 12 21 0 93 4 0 0 0 0 759
Total Trucks 27 **TrkPct** 3.56 **PHF** 0.95

Time Period	Sutton Ave EB				Sutton Ave WB				Joe Jenny Rd NB								Total	Peak
	L	S	R	HV	L	S	R	HV	L	S	R	HV	L	S	R	HV		
4:00 - 4:15	0	79	7	2	19	79	0	0	9	0	20	2					213	
4:15 - 4:30	0	99	4	4	27	95	0	1	5	0	16	0					246	
4:30 - 4:45	0	85	7	0	21	83	0	3	8	0	12	0					216	
4:45 - 5:00	0	88	7	3	23	82	0	3	1	0	27	0					228	903
5:00 - 5:15	0	95	8	0	27	103	0	2	8	0	19	0					260	950
5:15 - 5:30	0	98	6	0	38	111	0	2	2	0	27	0					282	986
5:30 - 5:45	0	85	4	1	36	87	0	0	1	0	24	2					237	1007
5:45 - 6:00	0	76	2	2	25	77	0	1	1	0	18	2					199	978
TOTAL	0	705	45	12	216	717	0	12	35	0	163	6	0	0	0	0	1881	

EBPct 38.8 **WBPct** 50.3 **NBPct** 10.8 **SBPct** 0.0

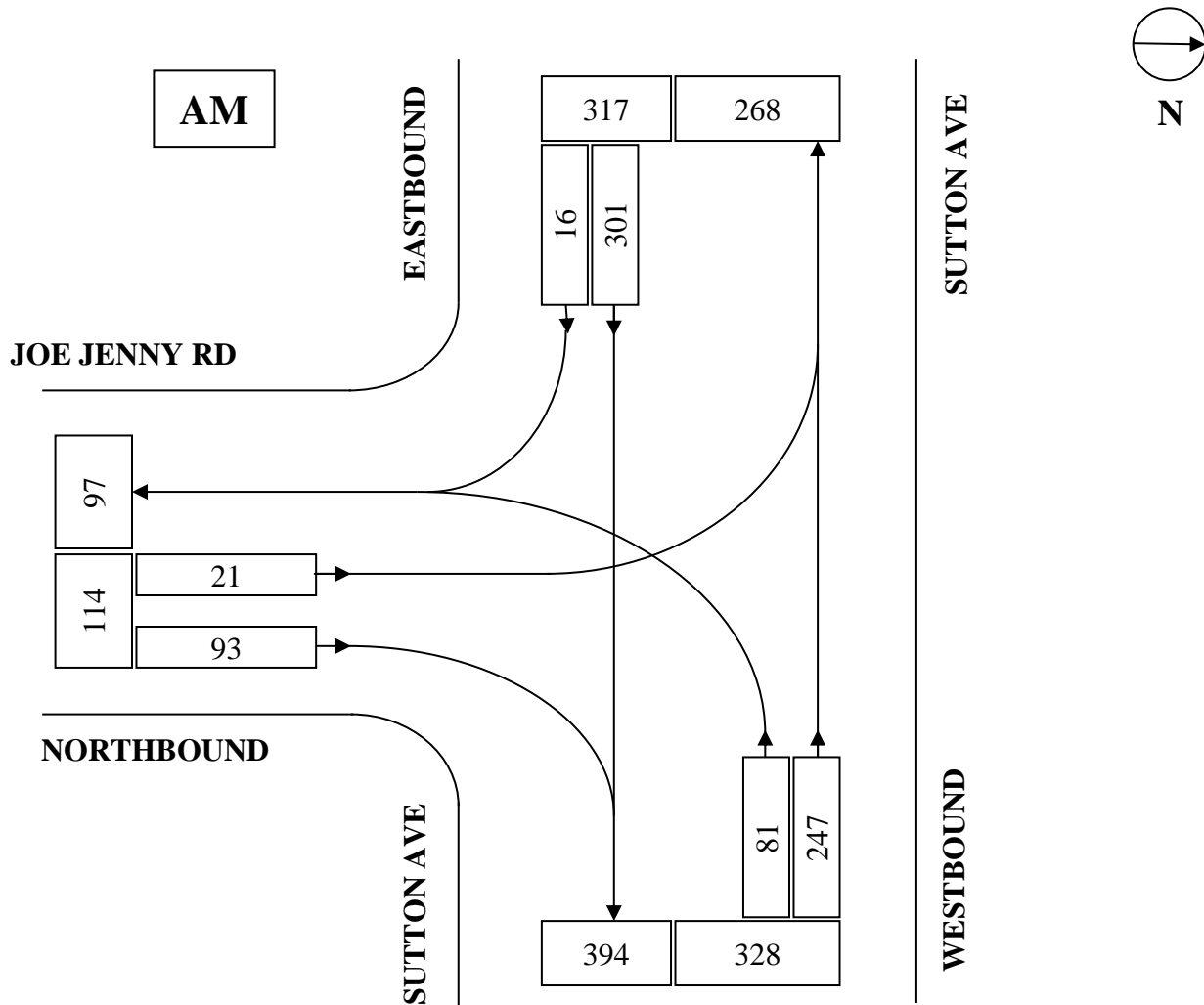
Peak Sums: 0 366 25 4 124 383 0 7 12 0 97 2 0 0 0 0 1007
Total Trucks 13 **TrkPct** 1.29 **PHF** 0.89

CMRPC

INTERSECTION TURNING MOVEMENT COUNT

CITY: Oxford DATE: 6/2/21 DAY OF WEEK: Wednesday

INTERSECTION: Sutton Avenue & Joe Jenny Road



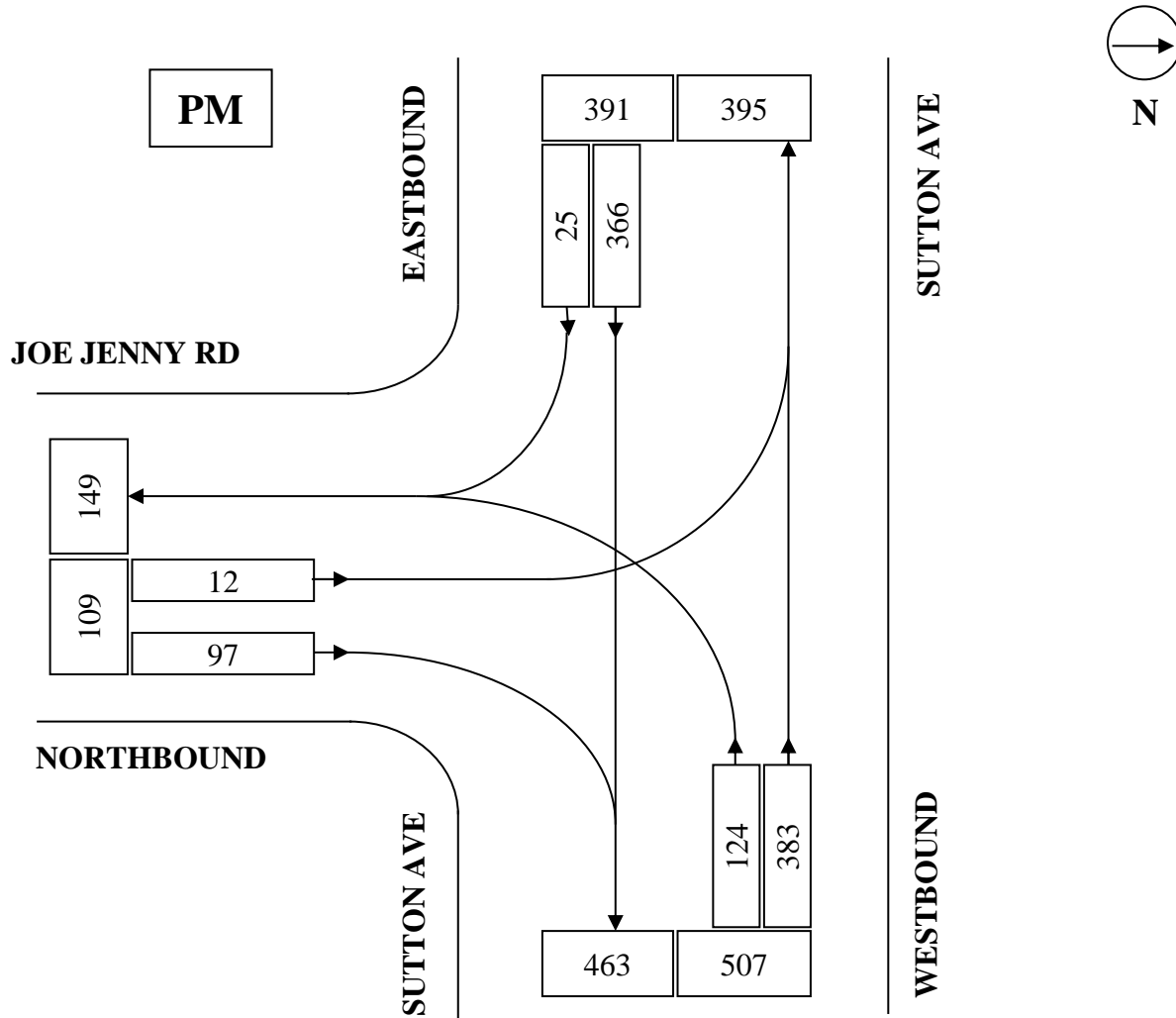
STREET	ENTERING VOLUMES	PERCENT OF FLOW	TIME OF COUNT
Sutton Ave EB	317	41.8%	7:00 - 8:00 AM
Sutton Ave WB	328	43.2%	PHF = .95
Joe Jenny Rd NB	114	15.0%	VEHICLES COUNTED
TOTAL	759	100.0%	ALL VEHICLES: 759
			TRUCKS: 27
			PERCENT TRUCKS: 3.56%

CMRPC

INTERSECTION TURNING MOVEMENT COUNT

CITY: Oxford DATE: 6/2/21 DAY OF WEEK: Wednesday

INTERSECTION: Sutton Avenue & Joe Jenny Road

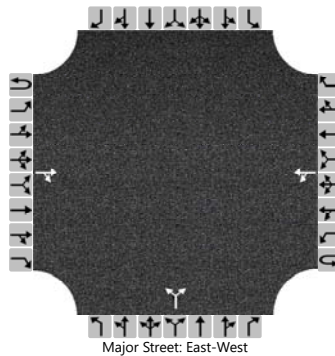


STREET	ENTERING VOLUMES	PERCENT OF FLOW	TIME OF COUNT
Sutton Ave EB	391	38.8%	4:45 - 5:45 PM
Sutton Ave WB	507	50.4%	
Joe Jenny Rd NB	109	10.8%	VEHICLES COUNTED
TOTAL	1007	100.0%	
			TRUCKS: 13
			PERCENT TRUCKS: 1.29%

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	KK			Intersection	Sutton Ave/Joe Jenny Rd		
Agency/Co.	CMRPC			Jurisdiction	Oxford		
Date Performed	6/4/2021			East/West Street	Sutton Ave		
Analysis Year	2021			North/South Street	Joe Jenny Rd		
Time Analyzed	7:00 - 8:00 AM			Peak Hour Factor	0.95		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Corridor Profile - Balanced						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			301	16		81	247			21		93				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.13					6.43		6.23			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.23					3.53		3.33			

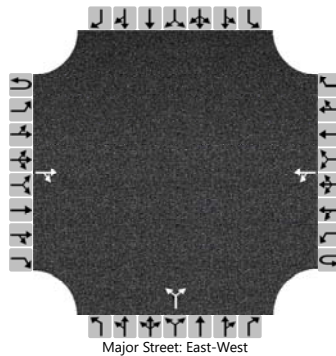
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)					85						120					
Capacity, c (veh/h)					1220						596					
v/c Ratio					0.07						0.20					
95% Queue Length, Q ₉₅ (veh)					0.2						0.7					
Control Delay (s/veh)					8.2						12.6					
Level of Service (LOS)					A						B					
Approach Delay (s/veh)					2.5				12.6							
Approach LOS									B							

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	KK			Intersection	Sutton Ave/Joe Jenny Rd		
Agency/Co.	CMRPC			Jurisdiction	Oxford		
Date Performed	6/4/2021			East/West Street	Sutton Ave		
Analysis Year	2021			North/South Street	Joe Jenny Rd		
Time Analyzed	4:45 - 5:45 PM			Peak Hour Factor	0.89		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Corridor Profile - Balanced						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			379	27		133	409			12		97				
Percent Heavy Vehicles (%)						1				1		1				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.11					6.41		6.21			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.21					3.51		3.31			

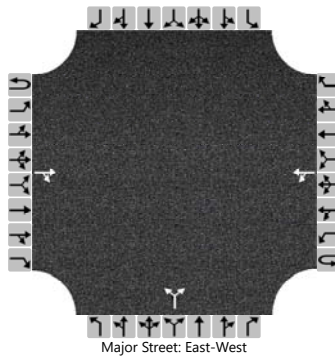
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						149						122				
Capacity, c (veh/h)						1110						478				
v/c Ratio						0.13						0.26				
95% Queue Length, Q ₉₅ (veh)						0.5						1.0				
Control Delay (s/veh)						8.7						15.1				
Level of Service (LOS)						A						C				
Approach Delay (s/veh)					3.3				15.1							
Approach LOS									C							

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	KK			Intersection	Sutton Ave/Joe Jenny Rd		
Agency/Co.	CMRPC			Jurisdiction	Oxford		
Date Performed	6/4/2021			East/West Street	Sutton Ave		
Analysis Year	2021			North/South Street	Joe Jenny Rd		
Time Analyzed	7:00 - 8:00 AM			Peak Hour Factor	0.95		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Corridor Profile - Projected 2031						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			349	18		94	286			24		107				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.13					6.43		6.23			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.23					3.53		3.33			

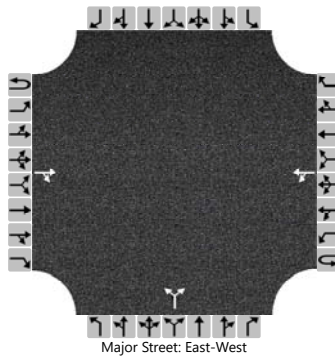
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)					99						138					
Capacity, c (veh/h)					1167						536					
v/c Ratio					0.08						0.26					
95% Queue Length, Q ₉₅ (veh)					0.3						1.0					
Control Delay (s/veh)					8.4						14.0					
Level of Service (LOS)					A						B					
Approach Delay (s/veh)					2.7				14.0							
Approach LOS									B							

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	KK			Intersection	Sutton Ave/Joe Jenny Rd		
Agency/Co.	CMRPC			Jurisdiction	Oxford		
Date Performed	6/4/2021			East/West Street	Sutton Ave		
Analysis Year	2021			North/South Street	Joe Jenny Rd		
Time Analyzed	4:45 - 5:45 PM			Peak Hour Factor	0.89		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Corridor Profile - Projected 2031						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			439	31		154	474			13		112				
Percent Heavy Vehicles (%)						1				1		1				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.11					6.41		6.21			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.21					3.51		3.31			

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						173						140				
Capacity, c (veh/h)						1044						409				
v/c Ratio						0.17						0.34				
95% Queue Length, Q ₉₅ (veh)						0.6						1.5				
Control Delay (s/veh)						9.1						18.4				
Level of Service (LOS)						A						C				
Approach Delay (s/veh)					3.9				18.4							
Approach LOS									C							

TURNING MOVEMENT COUNT WORKSHEET

CMRPC

MUNICIPALITY: Town of Sutton

DATE: 5/19/2021

LOCATION: Central Turnpike / West Sutton Road

DAY OF WEEK: Wednesday

WEATHER: AM: Clear PM: Clear

TECHNICIAN: EG

Time Period	Central Tnpk EB				Central Tnpk WB								West Sutton Rd SB				Total	Peak
	L	S	R	HV	L	S	R	HV	L	S	R	HV	L	S	R	HV		
7:00 - 7:15	25	79	0	0	0	36	4	0					1	0	13	0	158	
7:15 - 7:30	24	69	0	9	0	38	2	3					1	0	20	2	154	
7:30 - 7:45	22	65	0	2	0	68	5	3					1	0	15	0	176	
7:45 - 8:00	24	57	0	6	0	73	3	6					5	0	18	1	180	668
8:00 - 8:15	24	51	0	9	0	53	3	4					2	0	16	4	149	659
8:15 - 8:30	29	59	0	5	0	45	3	5					6	0	23	4	165	670
8:30 - 8:45	11	51	0	4	0	59	0	6					1	0	19	2	141	635
8:45 - 9:00	15	59	0	9	0	45	1	0					3	0	16	1	139	594
TOTAL	174	490	0	44	0	417	21	27	0	0	0	0	20	0	140	14	1262	

EBPct 49.4 WBPct 37.8 NBPct 0.0 SBPct 12.8

Peak Sums: 99 232 0 22 0 239 14 18 0 0 0 0 14 0 72 9 670

Total Trucks 49 TrkPct 7.31 PHF 0.93

Time Period	Central Tnpk EB				Central Tnpk WB								West Sutton Rd SB				Total	Peak
	L	S	R	HV	L	S	R	HV	L	S	R	HV	L	S	R	HV		
4:00 - 4:15	33	76	0	4	0	76	6	1					6	0	33	1	230	
4:15 - 4:30	18	83	0	0	0	75	8	2					7	0	28	0	219	
4:30 - 4:45	26	72	0	0	0	91	3	2					7	0	23	0	222	
4:45 - 5:00	25	80	0	4	0	100	1	4					3	0	33	0	242	913
5:00 - 5:15	19	82	0	2	0	95	1	2					7	0	45	1	249	932
5:15 - 5:30	22	72	0	4	0	94	3	3					4	0	44	1	239	952
5:30 - 5:45	17	58	0	3	0	68	2	3					0	0	33	0	178	908
5:45 - 6:00	25	56	0	0	0	76	1	1					3	0	24	1	185	851
TOTAL	185	579	0	17	0	675	25	18	0	0	0	0	37	0	263	4	1764	

EBPct 41.8 WBPct 40.8 NBPct 0.0 SBPct 17.4

Peak Sums: 92 306 0 10 0 380 8 11 0 0 0 0 21 0 145 2 952

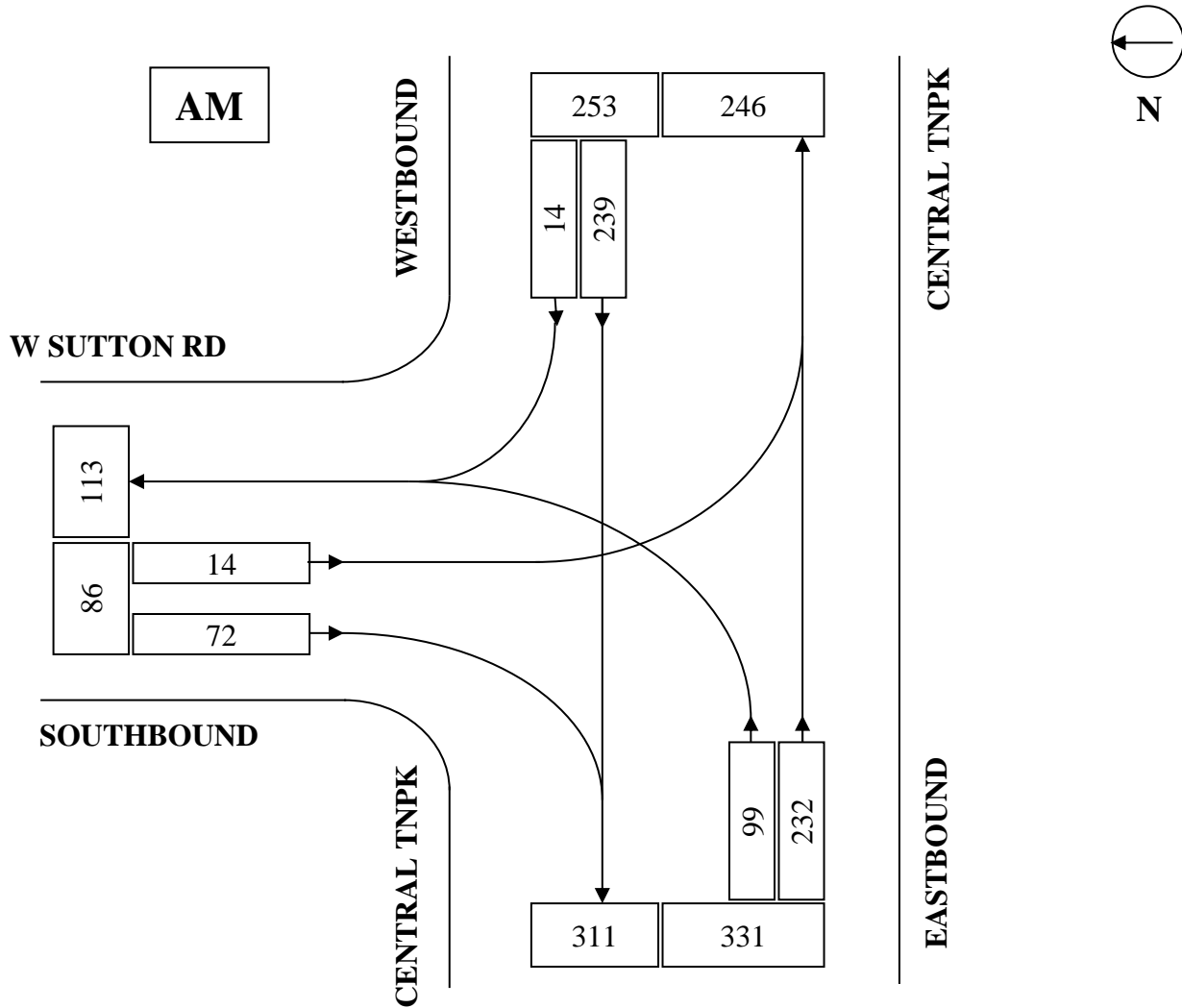
Total Trucks 23 TrkPct 2.42 PHF 0.96

CMRPC

INTERSECTION TURNING MOVEMENT COUNT

CITY: Sutton DATE: 5/19/21 DAY OF WEEK: Wednesday

INTERSECTION: Central Turnpike & West Sutton Road



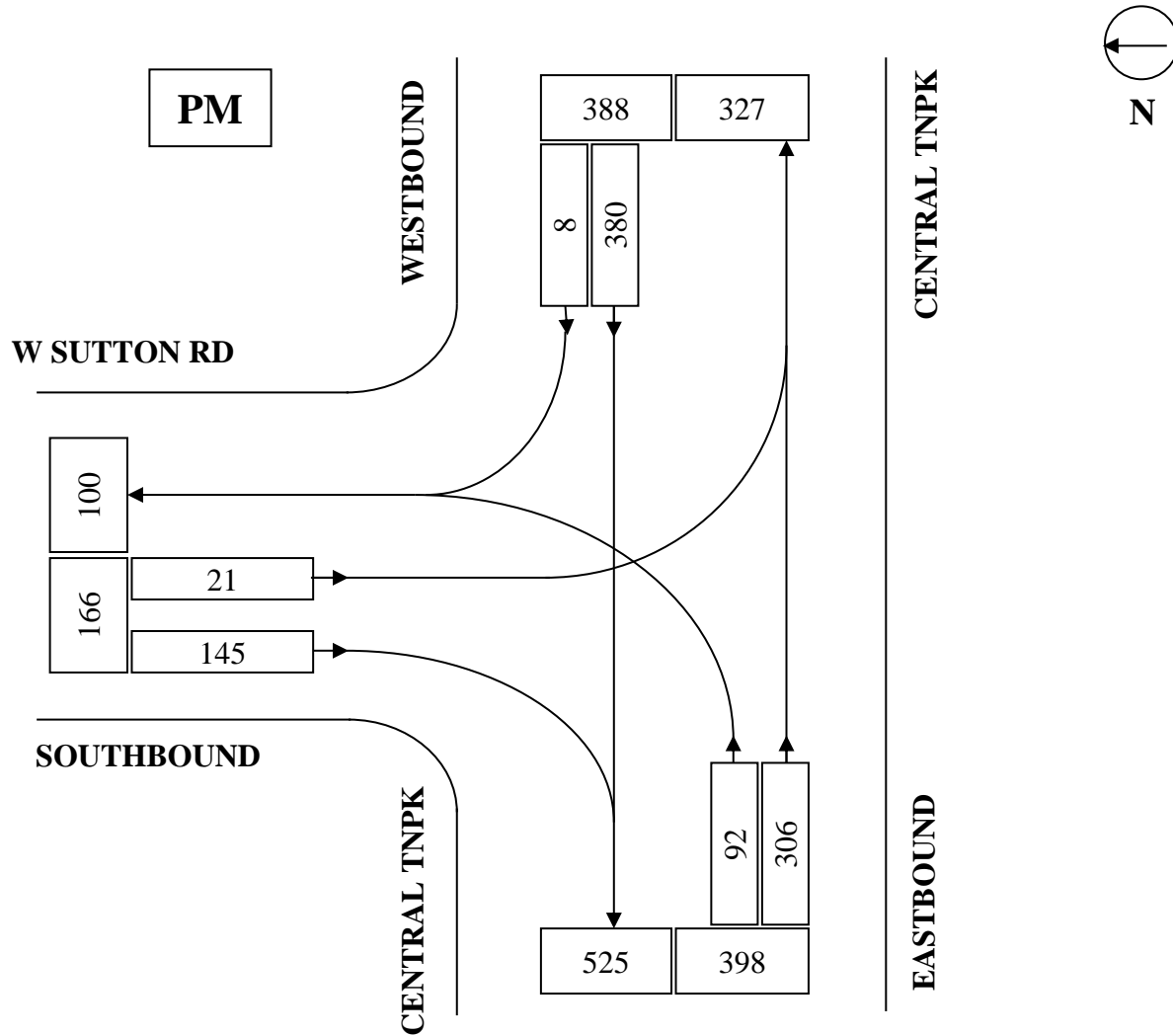
STREET	ENTERING VOLUMES	PERCENT OF FLOW	TIME OF COUNT
Central Tnpk EB	331	49.4%	7:30 - 8:30 AM
Central Tnpk WB	253	37.8%	PHF = .93
West Sutton Rd SB	86	12.8%	VEHICLES COUNTED
TOTAL	670	100.0%	ALL VEHICLES: 670
			TRUCKS: 49
			PERCENT TRUCKS: 7.31%

CMRPC

INTERSECTION TURNING MOVEMENT COUNT

CITY: Sutton DATE: 5/19/21 DAY OF WEEK: Wednesday

INTERSECTION: Central Turnpike & West Sutton Road

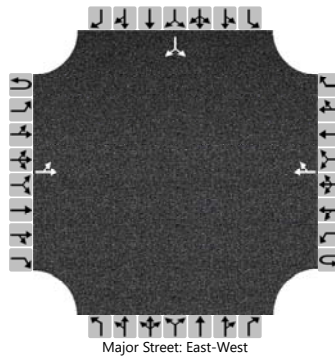


STREET	ENTERING VOLUMES	PERCENT OF FLOW	TIME OF COUNT
Central Tnpk EB	398	41.8%	4:30 - 5:30 PM
Central Tnpk WB	388	40.8%	
West Sutton Rd SB	166	17.4%	PHF = .96
TOTAL	952	100.0%	VEHICLES COUNTED
			ALL VEHICLES: 952
			TRUCKS: 23
			PERCENT TRUCKS: 2.42%

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	KK			Intersection	Central Tnpk/W Sutton Rd		
Agency/Co.	CMRPC			Jurisdiction	Sutton		
Date Performed	5/21/2021			East/West Street	Central Tnpk		
Analysis Year	2021			North/South Street	West Sutton Rd		
Time Analyzed	7:30 - 8:30 AM			Peak Hour Factor	0.93		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Corridor Profile - Balanced						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		104	247				239	14						14		72
Percent Heavy Vehicles (%)		7												7		7
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.17												6.47		6.27
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.26												3.56		3.36

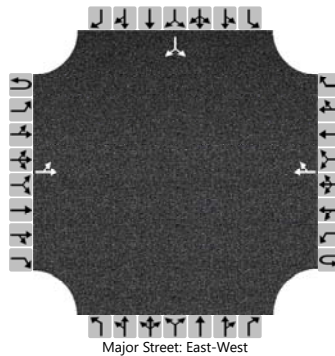
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		112														92
Capacity, c (veh/h)		1261														628
v/c Ratio		0.09														0.15
95% Queue Length, Q ₉₅ (veh)		0.3														0.5
Control Delay (s/veh)		8.1														11.7
Level of Service (LOS)		A														B
Approach Delay (s/veh)		3.0												11.7		
Approach LOS														B		

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	KK			Intersection	Central Tnpk/W Sutton Rd		
Agency/Co.	CMRPC			Jurisdiction	Sutton		
Date Performed	5/21/2021			East/West Street	Central Tnpk		
Analysis Year	2021			North/South Street	West Sutton Rd		
Time Analyzed	4:30 - 5:30 PM			Peak Hour Factor	0.96		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Corridor Profile - Balanced						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		38	325				380	8						21		145
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

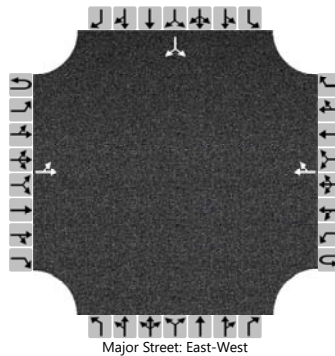
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		40														173	
Capacity, c (veh/h)		1152														578	
v/c Ratio		0.03														0.30	
95% Queue Length, Q ₉₅ (veh)		0.1														1.2	
Control Delay (s/veh)		8.2														13.9	
Level of Service (LOS)		A														B	
Approach Delay (s/veh)		1.2												13.9			
Approach LOS														B			

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	KK			Intersection	Central Tnpk/W Sutton Rd		
Agency/Co.	CMRPC			Jurisdiction	Sutton		
Date Performed	5/21/2021			East/West Street	Central Tnpk		
Analysis Year	2021			North/South Street	West Sutton Rd		
Time Analyzed	7:30 - 8:30 AM			Peak Hour Factor	0.93		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Corridor Profile - Projected 2031						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		120	286				277	16						16		83
Percent Heavy Vehicles (%)		7												7		7
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.17												6.47		6.27
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.26												3.56		3.36

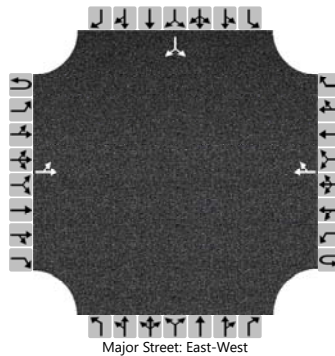
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		129														106	
Capacity, c (veh/h)		1215														570	
v/c Ratio		0.11														0.19	
95% Queue Length, Q ₉₅ (veh)		0.4														0.7	
Control Delay (s/veh)		8.3														12.8	
Level of Service (LOS)		A														B	
Approach Delay (s/veh)		3.2												12.8			
Approach LOS														B			

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	KK			Intersection	Central Tnpk/W Sutton Rd		
Agency/Co.	CMRPC			Jurisdiction	Sutton		
Date Performed	5/21/2021			East/West Street	Central Tnpk		
Analysis Year	2021			North/South Street	West Sutton Rd		
Time Analyzed	4:30 - 5:30 PM			Peak Hour Factor	0.96		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Corridor Profile - Projected 2031						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		113	377				441	9						24		168
Percent Heavy Vehicles (%)		2												2		2
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.12												6.42		6.22
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.22												3.52		3.32

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		118														200	
Capacity, c (veh/h)		1091														481	
v/c Ratio		0.11														0.42	
95% Queue Length, Q ₉₅ (veh)		0.4														2.0	
Control Delay (s/veh)		8.7														17.7	
Level of Service (LOS)		A														C	
Approach Delay (s/veh)		2.9												17.7			
Approach LOS														C			

TURNING MOVEMENT COUNT WORKSHEET

CMRPC

MUNICIPALITY: Town of Sutton

DATE: 6/9/2021

LOCATION: Central Turnpike / Putnam Hill Road

DAY OF WEEK: Wednesday

WEATHER: AM: Clear PM: Clear

TECHNICIAN: EG

Time Period	Central Tnpk EB				Central Tnpk WB				Putnam Hill Rd NB				Putnam Hill Rd SB				Total	Peak
	L	S	R	HV	L	S	R	HV	L	S	R	HV	L	S	R	HV		
7:00 - 7:15	13	53	1	1	3	23	0	1	1	16	7	1	0	5	2	1	124	591
7:15 - 7:30	19	60	3	8	7	39	0	4	2	16	2	0	2	8	5	0	163	
7:30 - 7:45	9	53	0	1	4	37	3	6	0	22	7	0	1	11	11	2	158	
7:45 - 8:00	7	63	2	8	1	39	1	2	3	13	0	2	1	9	7	0	146	
8:00 - 8:15	7	39	0	2	0	42	4	6	1	23	1	1	0	1	4	0	122	
8:15 - 8:30	11	36	1	1	5	48	1	2	1	13	3	0	4	11	11	1	145	
8:30 - 8:45	7	38	1	1	3	26	1	2	1	10	2	1	2	4	8	2	103	
8:45 - 9:00	4	34	1	2	1	24	2	1	2	7	2	1	0	5	5	1	87	
TOTAL	77	376	9	24	24	278	12	24	11	120	24	6	10	54	53	7	1048	

EBPct 47.9 WBPct 26.6 NBPct 15.1 SBPct 10.5

Peak Sums: 48 229 6 18 15 138 4 13 6 67 16 3 4 33 25 3 591

Total Trucks 37 TrkPct 6.26 PHF 0.91

Time Period	Central Tnpk EB				Central Tnpk WB				Putnam Hill Rd NB				Putnam Hill Rd SB				Total	Peak
	L	S	R	HV	L	S	R	HV	L	S	R	HV	L	S	R	HV		
4:00 - 4:15	7	35	1	4	9	55	1	4	1	11	5	1	1	14	6	0	146	634
4:15 - 4:30	6	50	0	2	8	56	1	2	1	14	3	1	0	21	11	0	171	
4:30 - 4:45	8	44	2	3	5	67	0	0	1	11	3	1	0	14	8	0	163	
4:45 - 5:00	5	46	2	0	3	52	1	2	4	14	1	2	0	17	9	1	154	
5:00 - 5:15	8	54	5	1	5	75	1	1	3	3	4	0	0	17	14	0	189	
5:15 - 5:30	9	43	1	0	5	52	0	1	2	9	4	0	1	12	13	1	151	
5:30 - 5:45	9	52	0	1	4	62	2	2	2	14	7	0	0	11	8	0	171	
5:45 - 6:00	1	38	1	1	7	42	0	1	2	16	4	0	0	13	5	0	129	
TOTAL	53	362	12	12	46	461	6	13	16	92	31	5	2	119	74	2	1274	

EBPct 34.0 WBPct 40.5 NBPct 9.2 SBPct 16.4

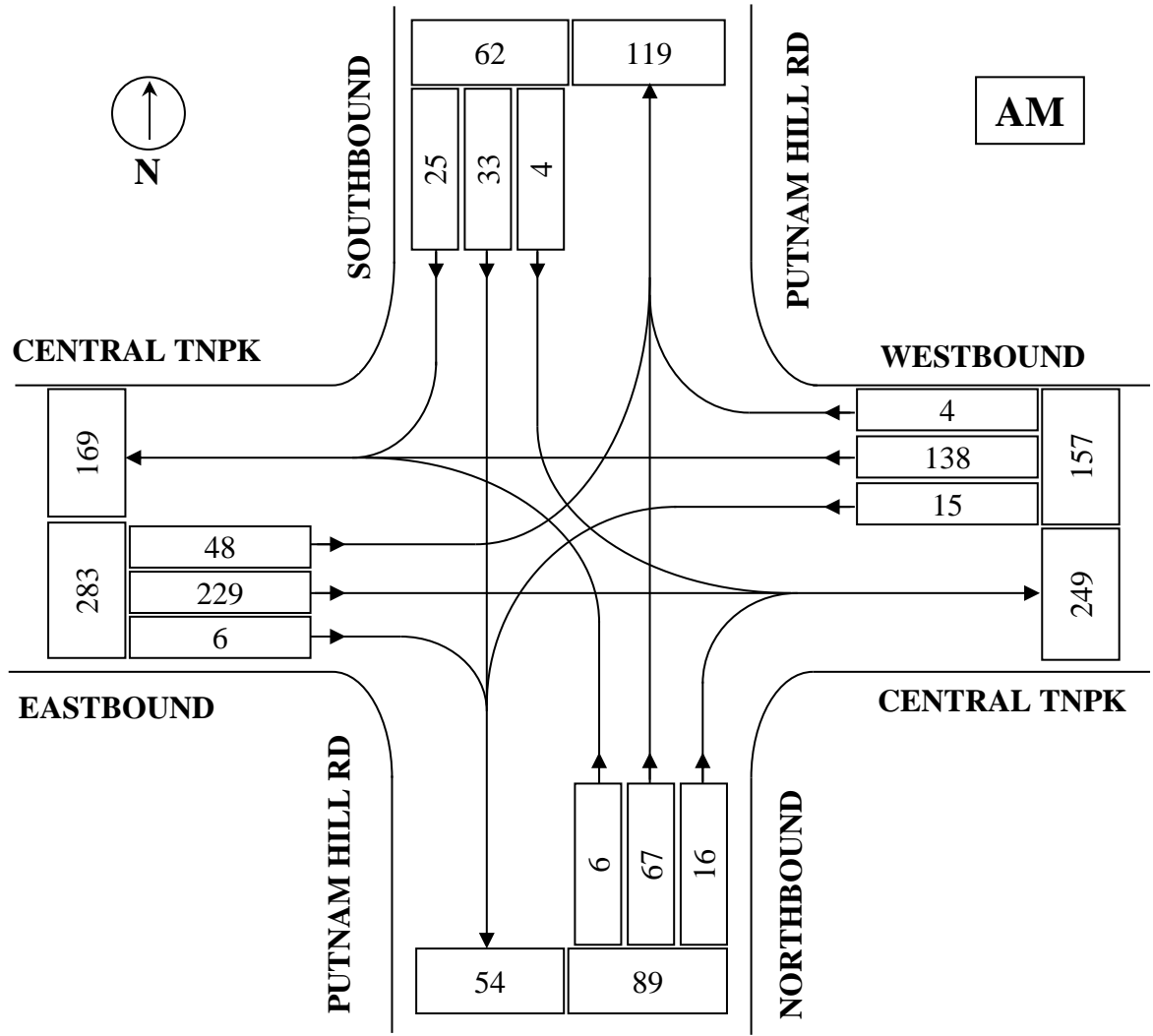
Peak Sums: 27 194 9 6 21 250 3 5 9 42 11 4 0 69 42 1 677

Total Trucks 16 TrkPct 2.36 PHF 0.90

CMRPC

INTERSECTION TURNING MOVEMENT COUNT

CITY: Sutton DATE: 6/9/21 DAY OF WEEK: Wednesday
 INTERSECTION: Central Turnpike / Putnam Hill Road

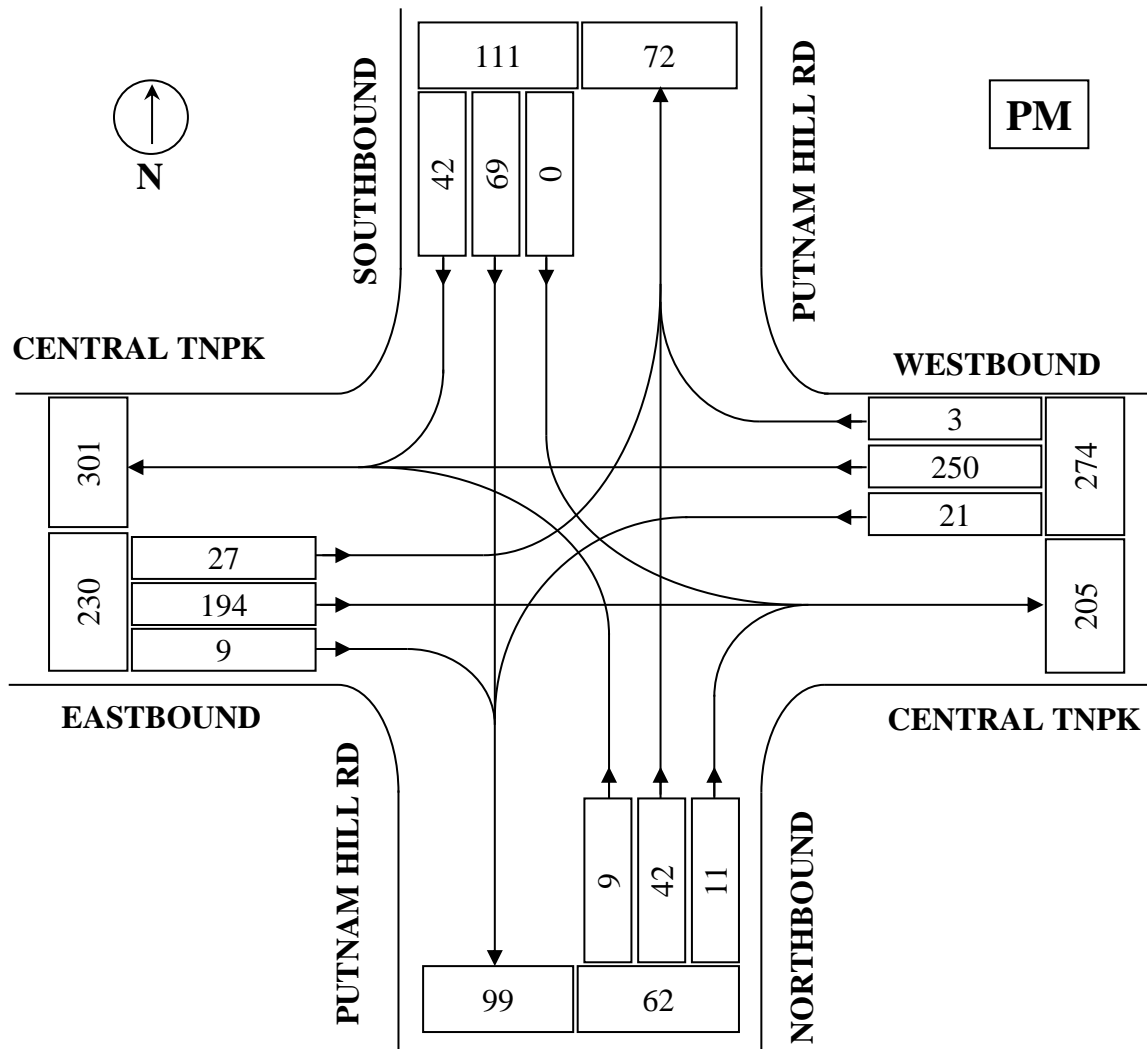


STREET	ENTERING VOLUMES	PERCENT OF FLOW	TIME OF COUNT
Central Tnpk EB	283	47.8%	7:00 - 8:00 AM
Central Tnpk WB	157	26.6%	
Putnam Hill Rd NB	89	15.1%	PHF = .91
Putnam Hill Rd SB	62	10.5%	
TOTAL	591	100.0%	VEHICLES COUNTED
			ALL VEHICLES: 591
			TRUCKS: 37
			PERCENT TRUCKS: 6.26%

CMRPC

INTERSECTION TURNING MOVEMENT COUNT

CITY: Sutton DATE: 6/9/21 DAY OF WEEK: Wednesday
 INTERSECTION: Central Turnpike / Putnam Hill Road

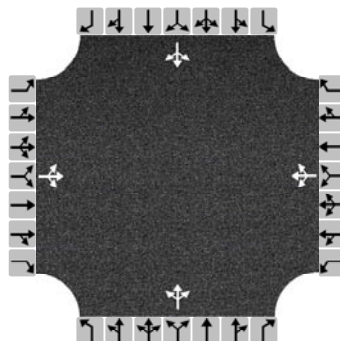


STREET	ENTERING VOLUMES	PERCENT OF FLOW	TIME OF COUNT
Central Tnpk EB	230	34.0%	4:15 - 5:15 PM
Central Tnpk WB	274	40.5%	
Putnam Hill Rd NB	62	9.2%	PHF = .90
Putnam Hill Rd SB	111	16.3%	
TOTAL	677	100.0%	VEHICLES COUNTED
			ALL VEHICLES: 677
			TRUCKS: 16
			PERCENT TRUCKS: 2.36%

HCS7 All-Way Stop Control Report

General Information		Site Information	
Analyst	KK	Intersection	Central Tnpk/Putnam Hill
Agency/Co.	CMRPC	Jurisdiction	Sutton
Date Performed	6/21/2021	East/West Street	Central Tnpk
Analysis Year	2021	North/South Street	Putnam Hill Rd
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.91
Time Analyzed	7:00 - 8:00 AM		
Project Description	Corridor Profile - Balanced		

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume	48	229	6	20	182	5	6	67	16	4	33	25
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	311			227			98			68		
Percent Heavy Vehicles	6			6			3			3		

Departure Headway and Service Time

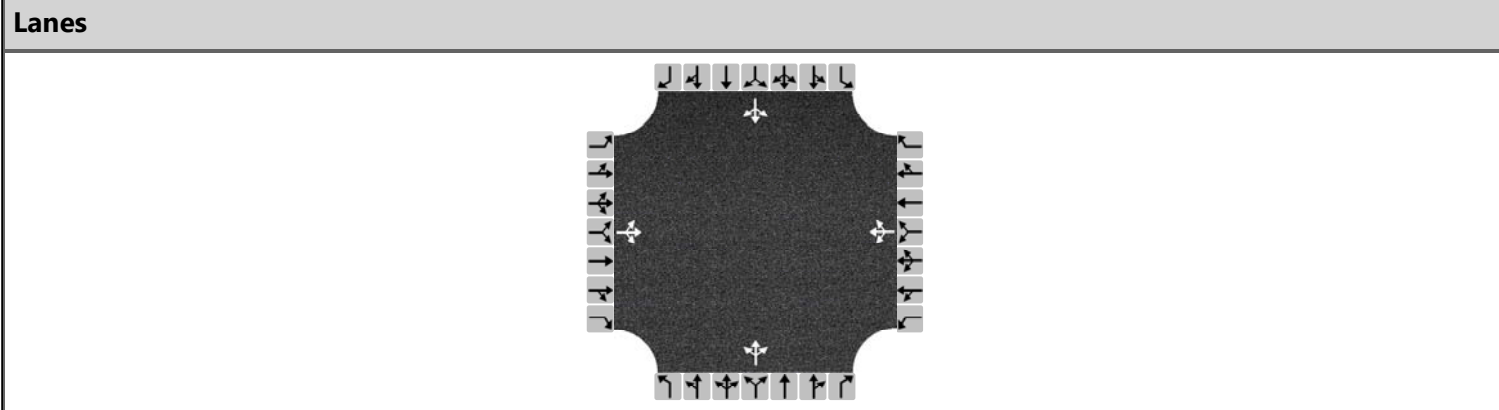
Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.276			0.202			0.087			0.061		
Final Departure Headway, hd (s)	4.76			4.84			5.27			5.19		
Final Degree of Utilization, x	0.411			0.306			0.143			0.098		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, ts (s)	2.76			2.84			3.27			3.19		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	311			227			98			68		
Capacity	756			743			683			693		
95% Queue Length, Q ₉₅ (veh)	2.0			1.3			0.5			0.3		
Control Delay (s/veh)	11.0			10.0			9.2			8.8		
Level of Service, LOS	B			A			A			A		
Approach Delay (s/veh)	11.0			10.0			9.2			8.8		
Approach LOS	B			A			A			A		
Intersection Delay, s/veh LOS	10.2						B					

HCS7 All-Way Stop Control Report

General Information		Site Information	
Analyst	KK	Intersection	Central Tnpk/Putnam Hill
Agency/Co.	CMRPC	Jurisdiction	Sutton
Date Performed	6/21/2021	East/West Street	Central Tnpk
Analysis Year	2021	North/South Street	Putnam Hill Rd
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.90
Time Analyzed	4:15 - 5:15 PM		
Project Description	Corridor Profile - Balanced		



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume	34	244	12	25	290	4	9	42	11	0	69	42
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	322			354			69			123		
Percent Heavy Vehicles	2			2			2			2		

Departure Headway and Service Time

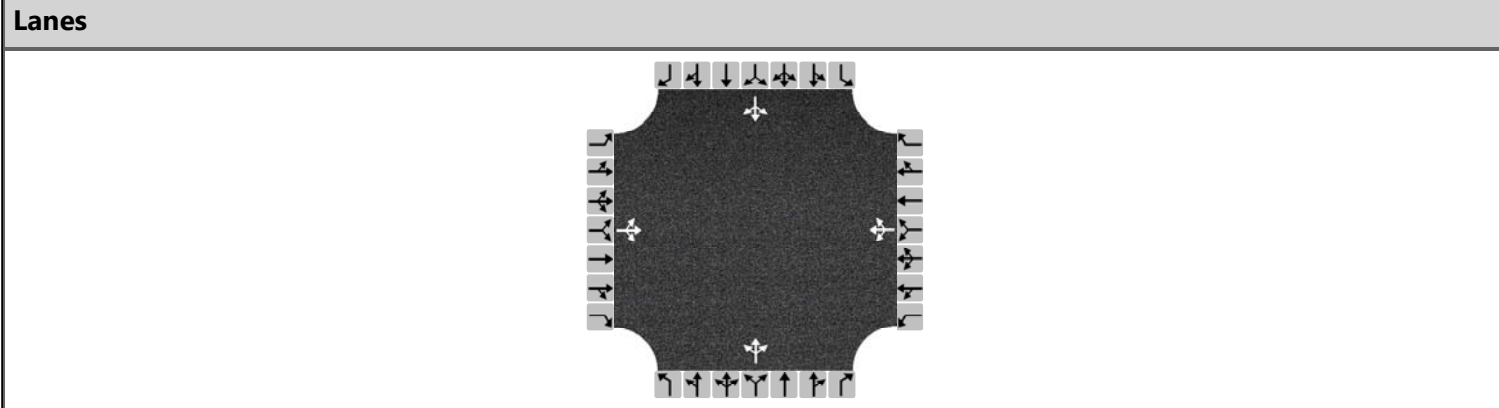
Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.286			0.315			0.061			0.110		
Final Departure Headway, hd (s)	4.96			4.93			5.76			5.49		
Final Degree of Utilization, x	0.444			0.486			0.110			0.188		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, ts (s)	2.96			2.93			3.76			3.49		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	322			354			69			123		
Capacity	725			730			625			656		
95% Queue Length, Q ₉₅ (veh)	2.3			2.7			0.4			0.7		
Control Delay (s/veh)	11.9			12.5			9.5			9.8		
Level of Service, LOS	B			B			A			A		
Approach Delay (s/veh)	11.9			12.5			9.5			9.8		
Approach LOS	B			B			A			A		
Intersection Delay, s/veh LOS	11.6						B					

HCS7 All-Way Stop Control Report

General Information		Site Information	
Analyst	KK	Intersection	Central Tnpk/Putnam Hill
Agency/Co.	CMRPC	Jurisdiction	Sutton
Date Performed	6/21/2021	East/West Street	Central Tnpk
Analysis Year	2021	North/South Street	Putnam Hill Rd
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.91
Time Analyzed	7:00 - 8:00 AM		
Project Description	Corridor Profile - Projected 2031		



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume	55	265	7	23	211	6	7	77	18	5	38	29
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	359			264			112			79		
Percent Heavy Vehicles	6			6			3			3		

Departure Headway and Service Time

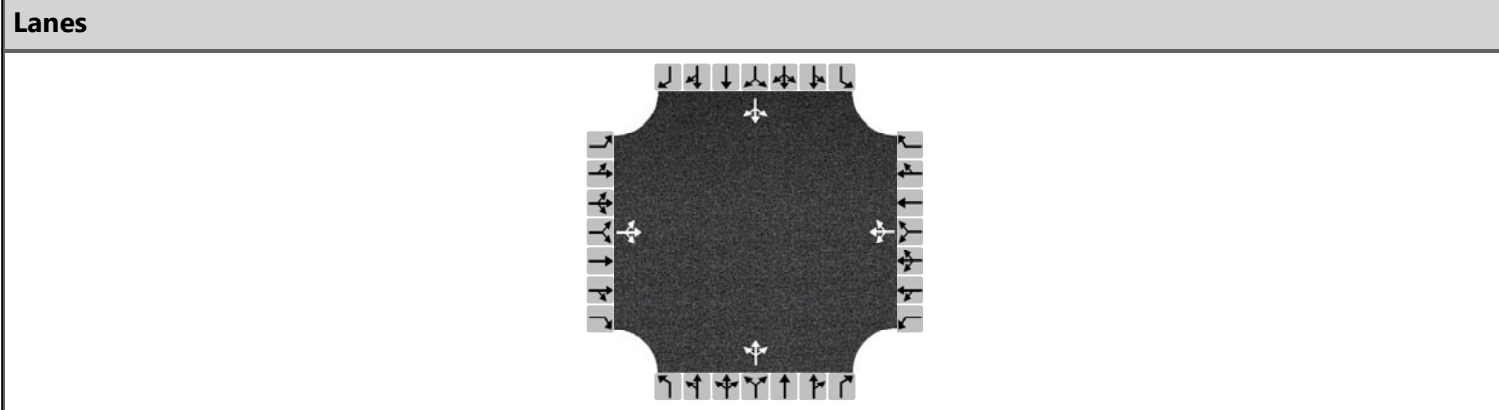
Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.319			0.234			0.100			0.070		
Final Departure Headway, hd (s)	4.92			5.03			5.55			5.48		
Final Degree of Utilization, x	0.492			0.368			0.173			0.120		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, ts (s)	2.92			3.03			3.55			3.48		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	359			264			112			79		
Capacity	731			716			649			657		
95% Queue Length, Q ₉₅ (veh)	2.7			1.7			0.6			0.4		
Control Delay (s/veh)	12.6			10.9			9.7			9.2		
Level of Service, LOS	B			B			A			A		
Approach Delay (s/veh)	12.6			10.9			9.7			9.2		
Approach LOS	B			B			A			A		
Intersection Delay, s/veh LOS	11.3						B					

HCS7 All-Way Stop Control Report

General Information		Site Information	
Analyst	KK	Intersection	Central Tnpk/Putnam Hill
Agency/Co.	CMRPC	Jurisdiction	Sutton
Date Performed	6/21/2021	East/West Street	Central Tnpk
Analysis Year	2021	North/South Street	Putnam Hill Rd
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.90
Time Analyzed	4:15 - 5:15 PM		
Project Description	Corridor Profile - Projected 2031		



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume	39	283	13	29	336	5	10	48	12	0	80	48
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	372			411			78			142		
Percent Heavy Vehicles	2			2			2			2		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.331			0.365			0.069			0.126		
Final Departure Headway, hd (s)	5.22			5.17			6.20			5.89		
Final Degree of Utilization, x	0.539			0.591			0.134			0.233		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, ts (s)	3.22			3.17			4.20			3.89		

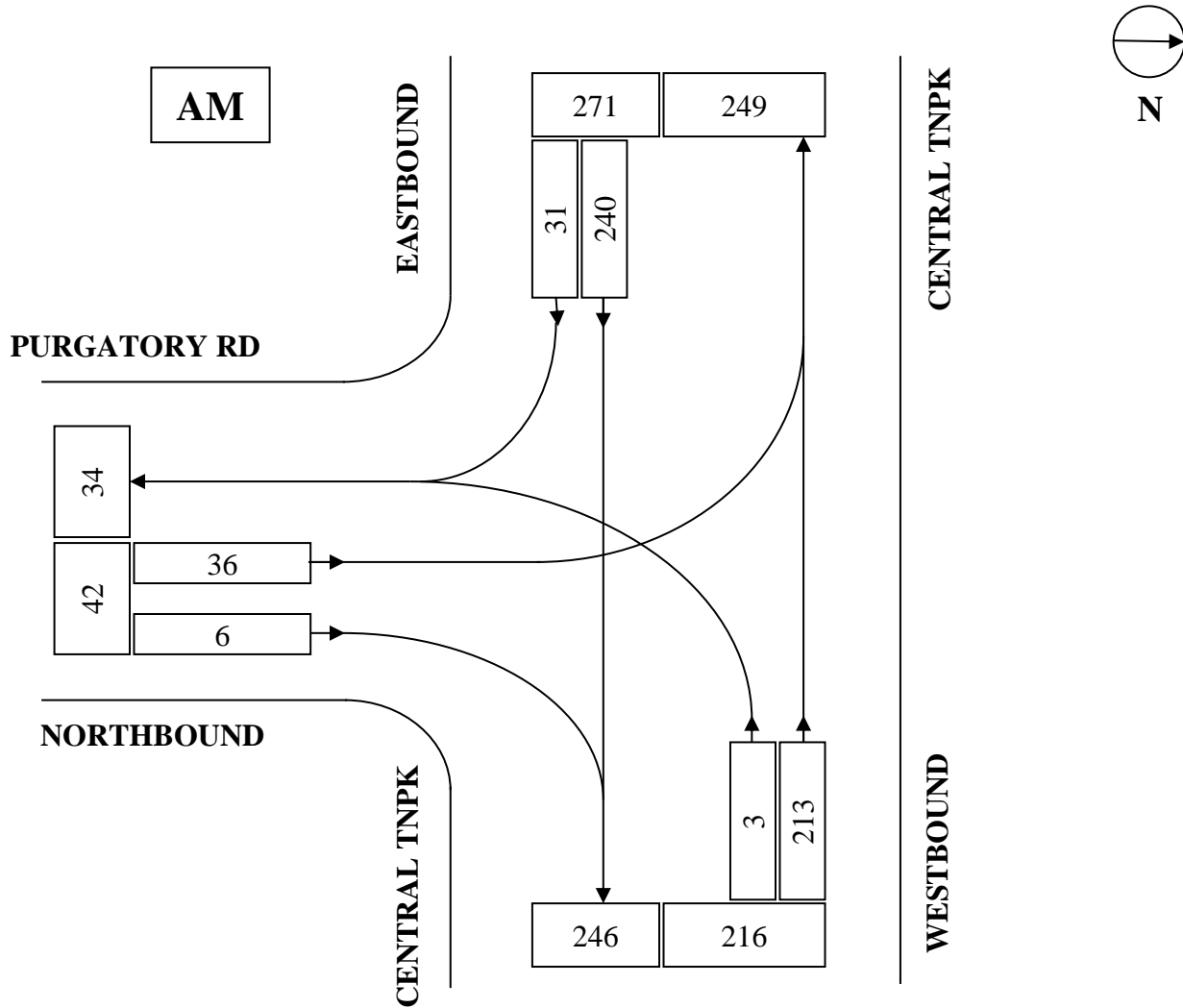
Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	372			411			78			142		
Capacity	690			696			580			611		
95% Queue Length, Q ₉₅ (veh)	3.2			3.9			0.5			0.9		
Control Delay (s/veh)	14.2			15.4			10.2			10.7		
Level of Service, LOS	B			C			B			B		
Approach Delay (s/veh)	14.2			15.4			10.2			10.7		
Approach LOS	B			C			B			B		
Intersection Delay, s/veh LOS	13.8						B					

CMRPC

INTERSECTION TURNING MOVEMENT COUNT

CITY: Sutton DATE: 5/13/21 DAY OF WEEK: Thursday
 INTERSECTION: Central Turnpike & Purgatory Road

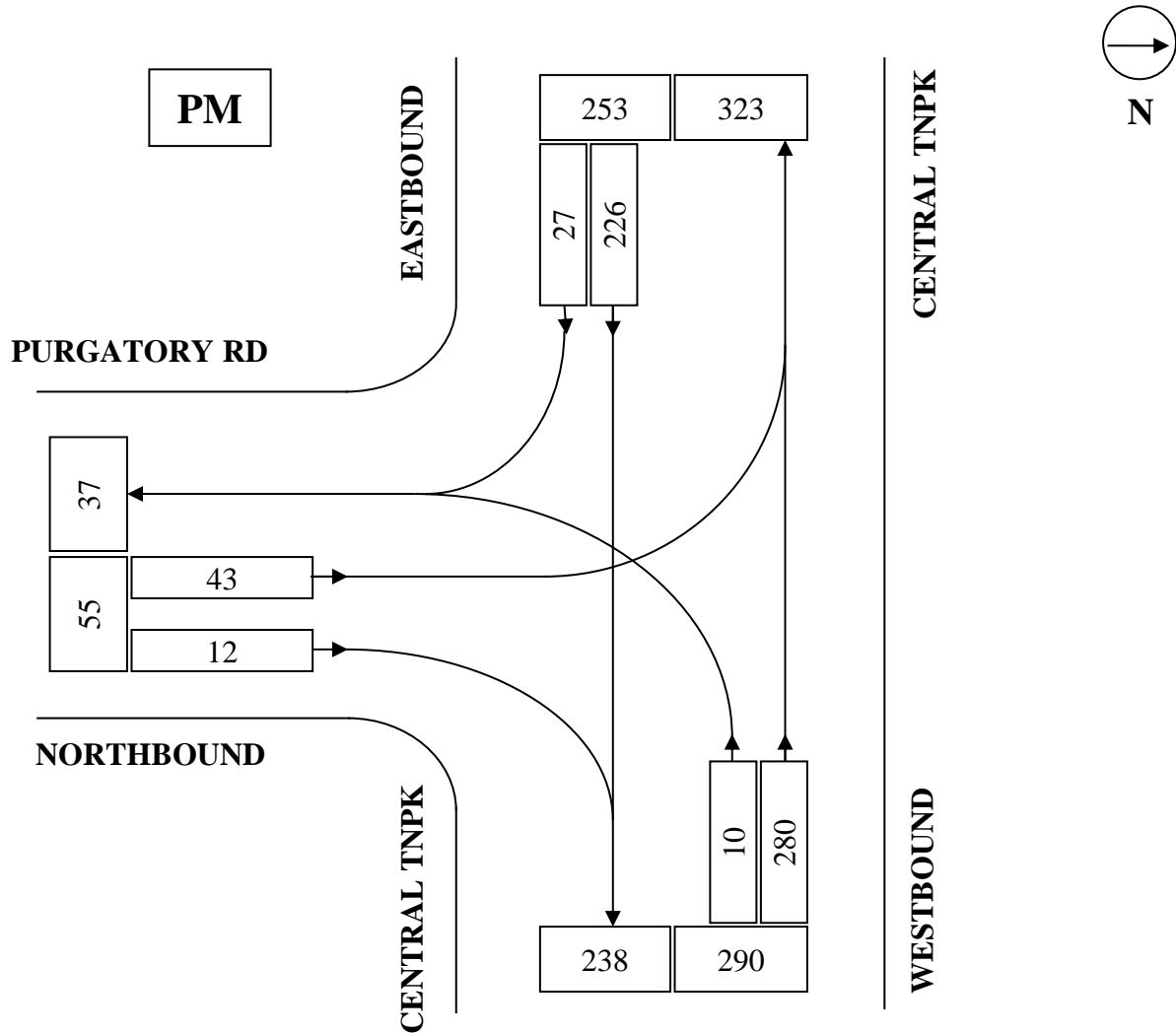


STREET	ENTERING VOLUMES	PERCENT OF FLOW	TIME OF COUNT
Central Tnpk EB	271	51.2%	7:15 - 8:15 AM
Central Tnpk WB	216	40.8%	
Purgatory Rd NB	42	8.0%	PHF = .90
TOTAL	529	100.0%	
			VEHICLES COUNTED
			ALL VEHICLES: 529
			TRUCKS: 31
			PERCENT TRUCKS: 5.86%

CMRPC

INTERSECTION TURNING MOVEMENT COUNT

CITY: Sutton DATE: 5/13/21 DAY OF WEEK: Thursday
 INTERSECTION: Central Turnpike & Purgatory Road

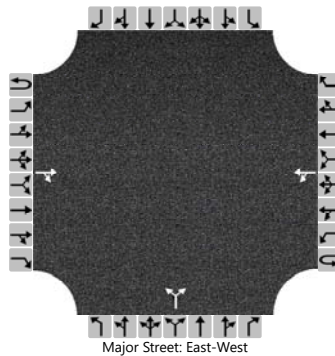


STREET	ENTERING VOLUMES	PERCENT OF FLOW	TIME OF COUNT
Central Tnpk EB	253	42.3%	4:30 - 5:30 PM
Central Tnpk WB	290	48.5%	PHF = .91
Purgatory Rd NB	55	9.2%	VEHICLES COUNTED
TOTAL	598	100.0%	ALL VEHICLES: 598
			TRUCKS: 10
			PERCENT TRUCKS: 1.67%

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	KK			Intersection	Central Tnpk/Purgatory Rd		
Agency/Co.	CMRPC			Jurisdiction	Sutton		
Date Performed	5/14/2021			East/West Street	Central Tnpk		
Analysis Year	2021			North/South Street	Purgatory Rd		
Time Analyzed	7:15 - 8:15 AM			Peak Hour Factor	0.90		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Corridor Profile - Balanced						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			240	31		3	213			36		6				
Percent Heavy Vehicles (%)						3				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.13					6.40		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.23					3.50		3.30			

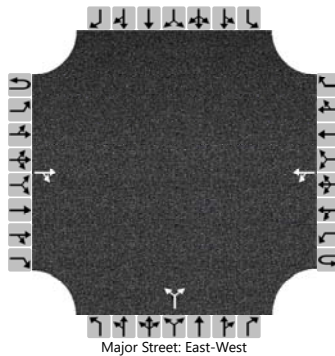
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)					3						47					
Capacity, c (veh/h)					1254						538					
v/c Ratio					0.00						0.09					
95% Queue Length, Q ₉₅ (veh)					0.0						0.3					
Control Delay (s/veh)					7.9						12.3					
Level of Service (LOS)					A						B					
Approach Delay (s/veh)					0.1				12.3							
Approach LOS									B							

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	KK			Intersection	Central Tnpk/Purgatory Rd		
Agency/Co.	CMRPC			Jurisdiction	Sutton		
Date Performed	5/14/2021			East/West Street	Central Tnpk		
Analysis Year	2021			North/South Street	Purgatory Rd		
Time Analyzed	4:30 - 5:30 PM			Peak Hour Factor	0.91		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Corridor Profile - Balanced						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			226	27		10	280			43		12				
Percent Heavy Vehicles (%)						1				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.11					6.40		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.21					3.50		3.30			

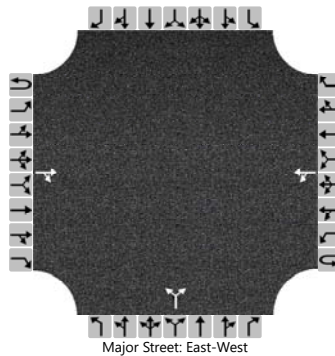
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						11						60				
Capacity, c (veh/h)						1288						511				
v/c Ratio						0.01						0.12				
95% Queue Length, Q ₉₅ (veh)						0.0						0.4				
Control Delay (s/veh)						7.8						13.0				
Level of Service (LOS)						A						B				
Approach Delay (s/veh)					0.3				13.0							
Approach LOS									B							

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	KK			Intersection	Central Tnpk/Purgatory Rd		
Agency/Co.	CMRPC			Jurisdiction	Sutton		
Date Performed	5/14/2021			East/West Street	Central Tnpk		
Analysis Year	2021			North/South Street	Purgatory Rd		
Time Analyzed	7:15 - 8:15 AM			Peak Hour Factor	0.90		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Corridor Profile - Projected 2031						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			278	35		4	247			41		7				
Percent Heavy Vehicles (%)						3				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.13					6.40		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.23					3.50		3.30			

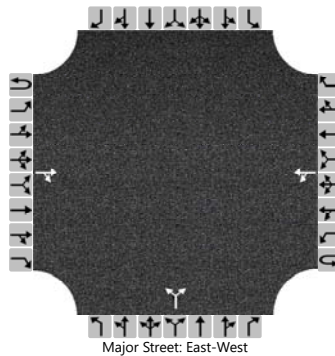
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)					4						53					
Capacity, c (veh/h)					1206						483					
v/c Ratio					0.00						0.11					
95% Queue Length, Q ₉₅ (veh)					0.0						0.4					
Control Delay (s/veh)					8.0						13.4					
Level of Service (LOS)					A						B					
Approach Delay (s/veh)					0.2				13.4							
Approach LOS									B							

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	KK			Intersection	Central Tnpk/Purgatory Rd		
Agency/Co.	CMRPC			Jurisdiction	Sutton		
Date Performed	5/14/2021			East/West Street	Central Tnpk		
Analysis Year	2021			North/South Street	Purgatory Rd		
Time Analyzed	4:30 - 5:30 PM			Peak Hour Factor	0.91		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	Corridor Profile - Projected 2031						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			262	31		11	324			49		13				
Percent Heavy Vehicles (%)						1				0		0				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1					7.1		6.2			
Critical Headway (sec)						4.11					6.40		6.20			
Base Follow-Up Headway (sec)						2.2					3.5		3.3			
Follow-Up Headway (sec)						2.21					3.50		3.30			

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)					12						68					
Capacity, c (veh/h)					1241						453					
v/c Ratio					0.01						0.15					
95% Queue Length, Q ₉₅ (veh)					0.0						0.5					
Control Delay (s/veh)					7.9						14.4					
Level of Service (LOS)					A						B					
Approach Delay (s/veh)					0.4				14.4							
Approach LOS									B							

Central Massachusetts Regional Planning Commission

Member Communities

Auburn	Northborough
Barre	Northbridge
Berlin	Oakham
Blackstone	Oxford
Boylston	Paxton
Brookfield	Princeton
Charlton	Rutland
Douglas	Shrewsbury
Dudley	Southbridge
East Brookfield	Spencer
Grafton	Sturbridge
Hardwick	Sutton
Holden	Upton
Hopedale	Uxbridge
Leicester	Warren
Mendon	Webster
Millbury	West Boylston
Millville	West Brookfield
New Braintree	Westborough
North Brookfield	Worcester

Central Mass Regional Planning Commission



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