Colchester IM 089-3(69)
Regional Concerns Meeting

Interstate 89 – Bridges #76 North & South over Bay Road

May 28, 2015

Accelerated Bridge Program
VTRANS

Colchester IM 089-3(69)
Regional Concerns Meeting

Interstate 89 – Bridges #77 North & South over Mallets Creek

May 28, 2015

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Introductions

Jennifer Fitch, P.E.
VTrans Scoping Project Manager

Laura Stone, P.E.
VTrans Scoping Engineer

Kristin Higgins, P.E.
VTrans Design Project Manager

Scott Burbank, P.E.
VHB Consultant Designer

Jill Barrett
Project Outreach Coordinator

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Purpose of Meeting

- Provide an understanding of our approach to the project
- Provide an overview of project constraints
- Discuss alternatives and maintenance of traffic considered
- Provide an opportunity to ask questions and voice concerns
- Foster support for the recommended alternative

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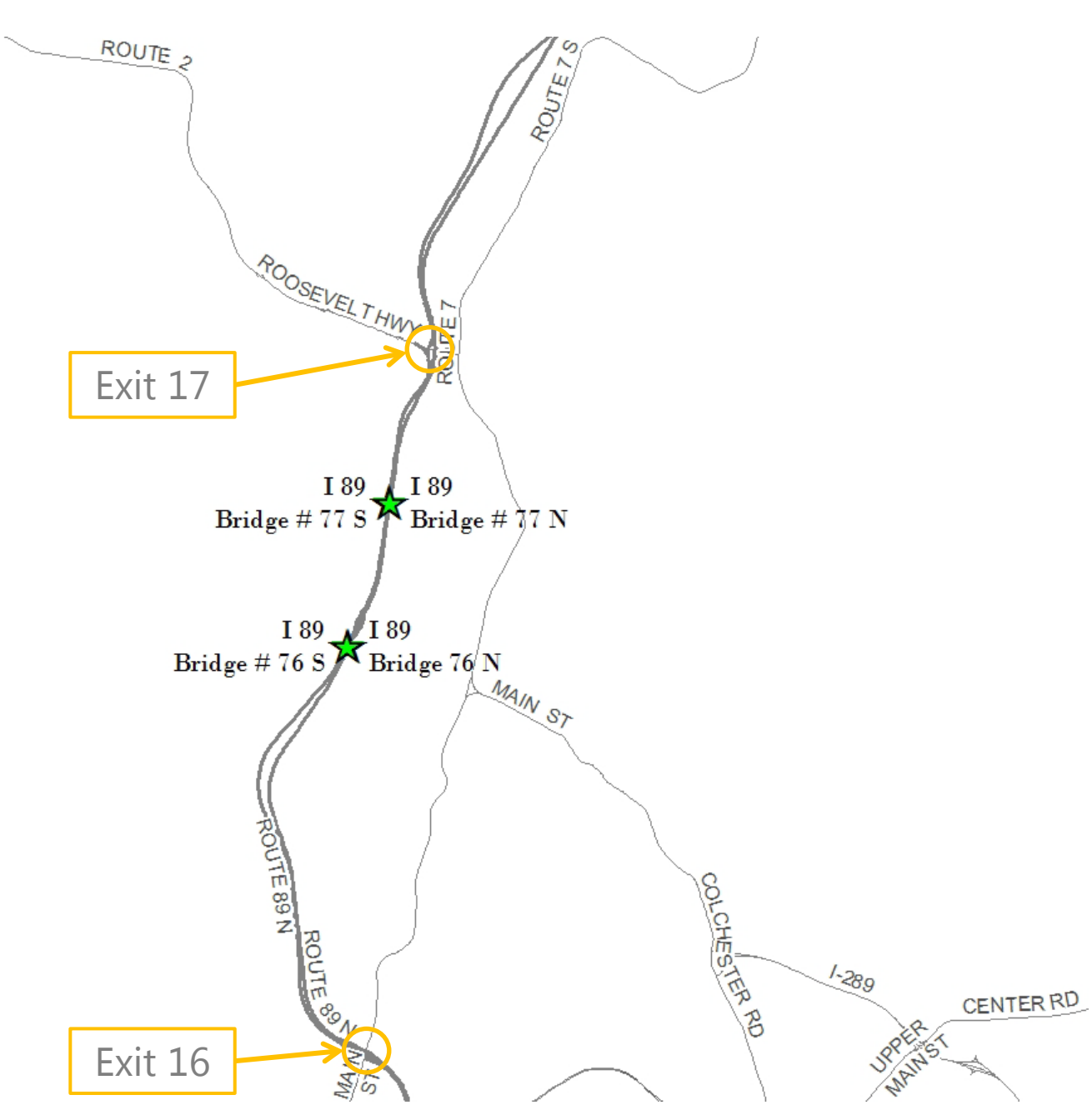
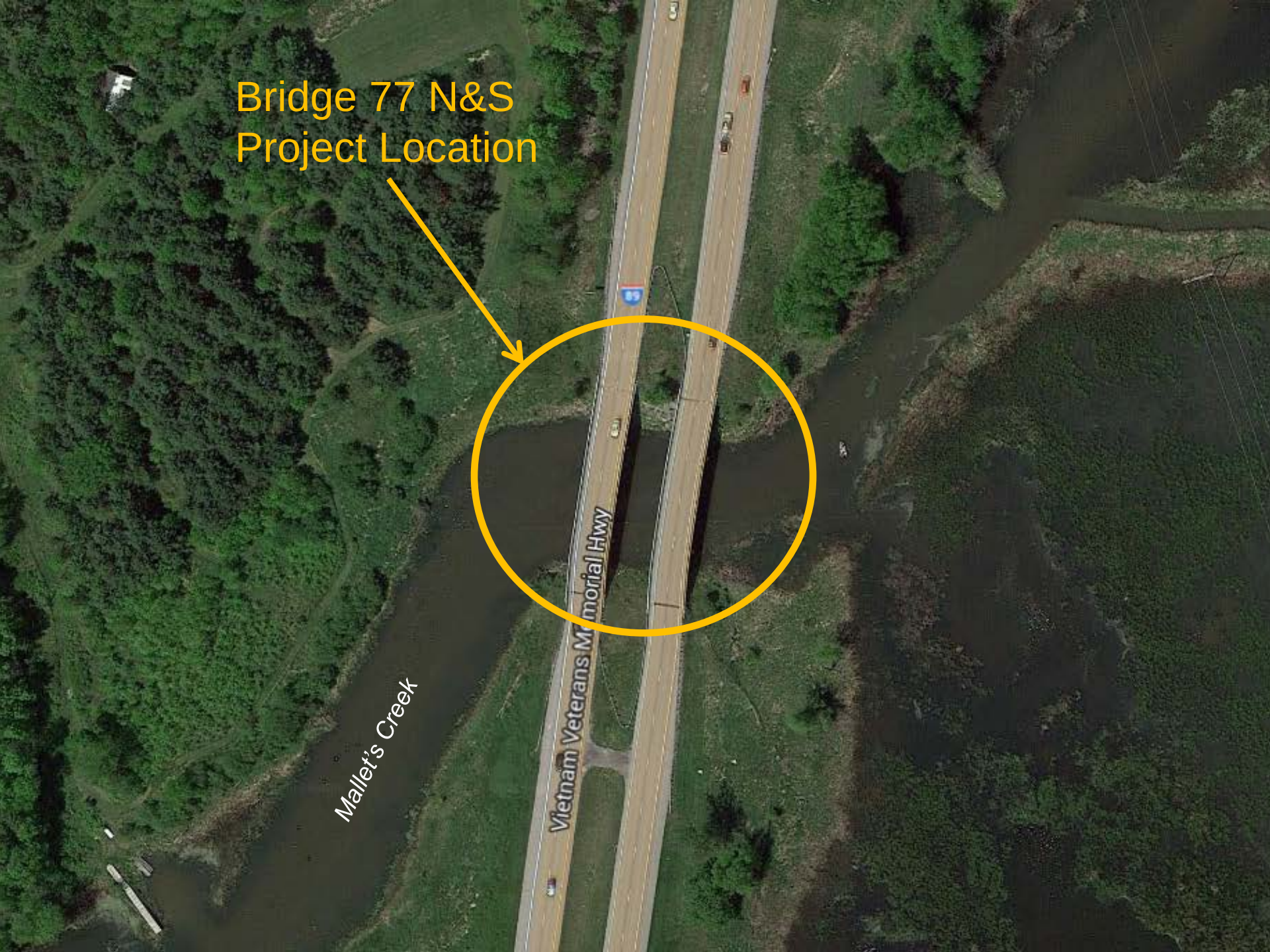


Location Map

Bridge 76 N&S
Project Location
Sunset View Rd
Bay Rd
Bay Rd
Bay Rd
89


Bridge 77 N&S
Project Location
Vietnam Veterans Memorial Hwy
Mallet's Creek

Meeting Overview

- VTrans Project Development Process
- Project Overview
  - Existing Conditions
  - Alternatives Considered
  - Recommended Alternative
- Maintenance of Traffic
- Project Schedule
- Summary
- Questions

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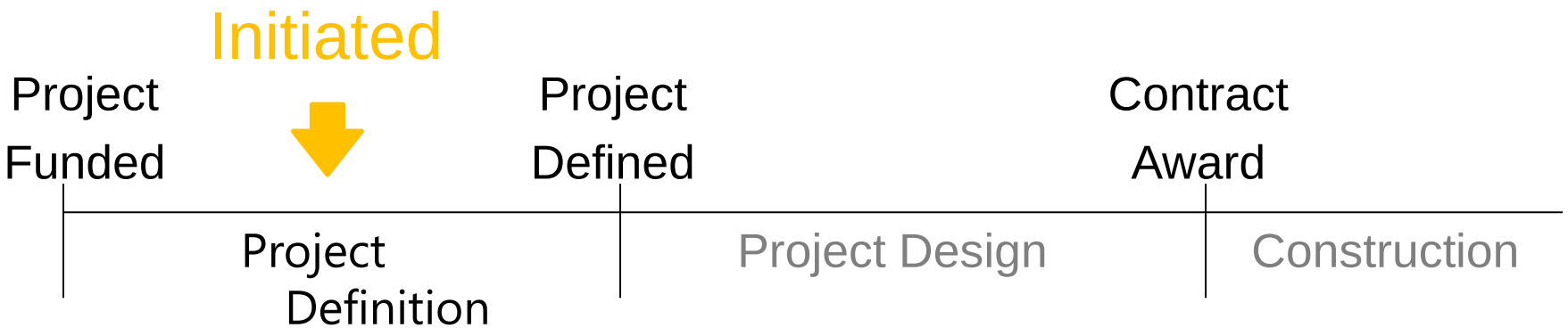
VTrans Project Development Process



- Identify resources & constraints
- Evaluate alternatives
- Public participation
- Build Consensus

- Quantify areas of impact
- Environmental permits
- Develop plans, estimate and specifications
- Right-of-Way process (if needed)

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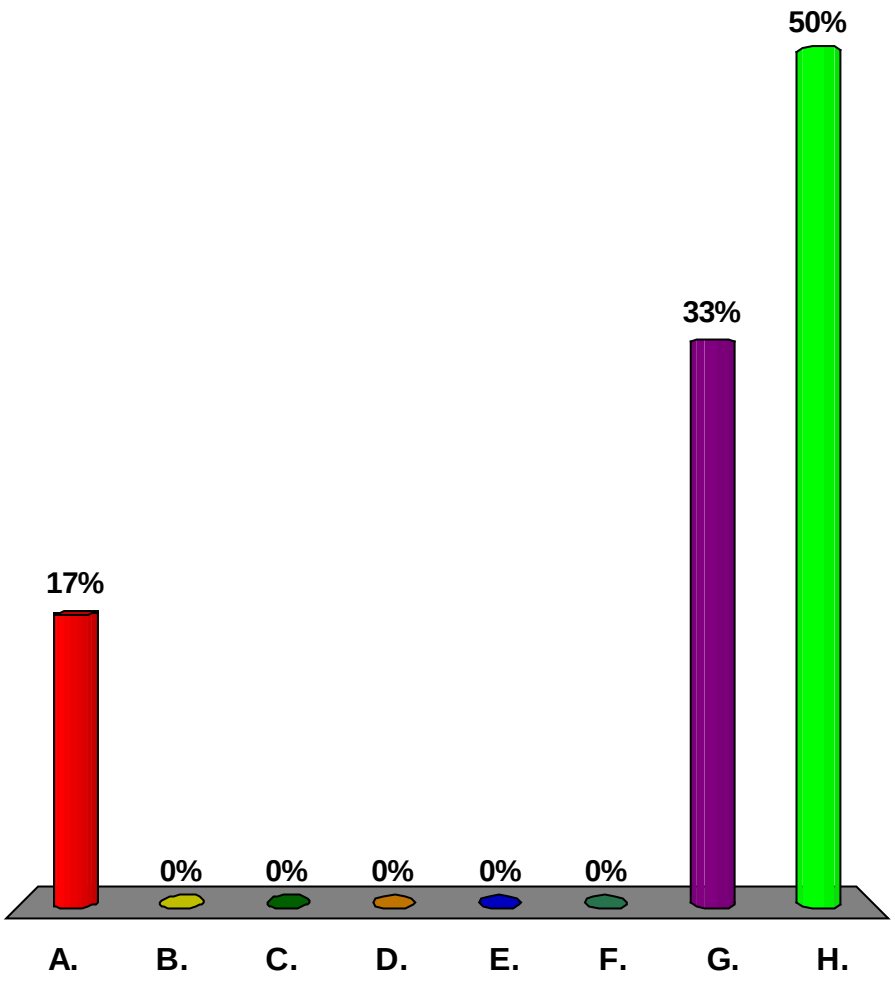
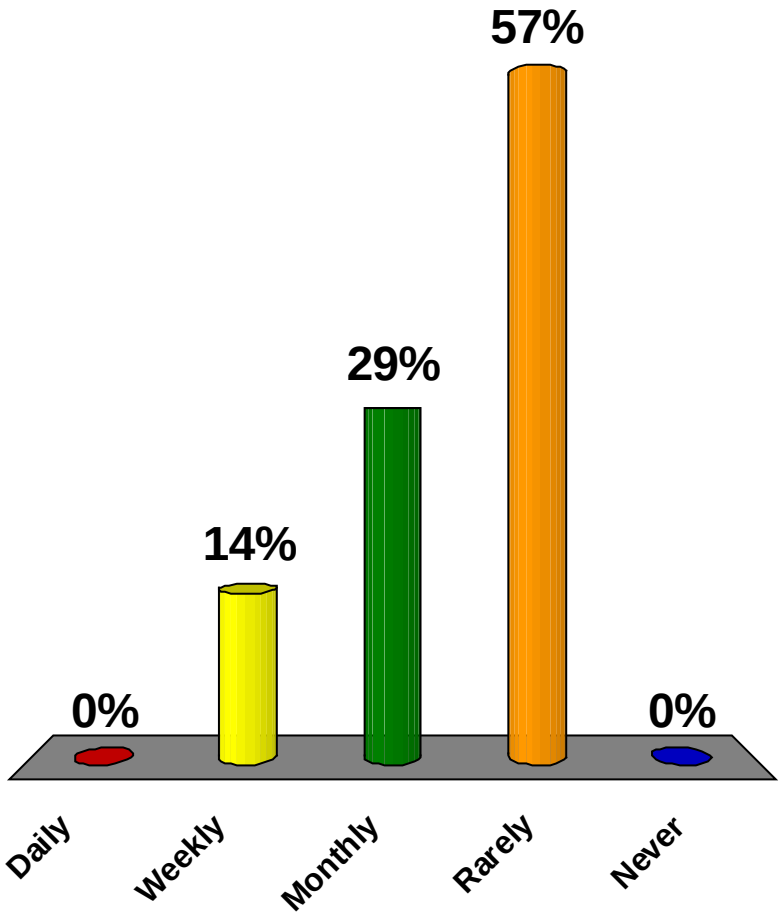
Who are you representing?

A. Municipal Official
B. Resident
C. Local Business
D. Trucking Industry
E. Independent Organization
F. Local School
G. Emergency Services
H. Other



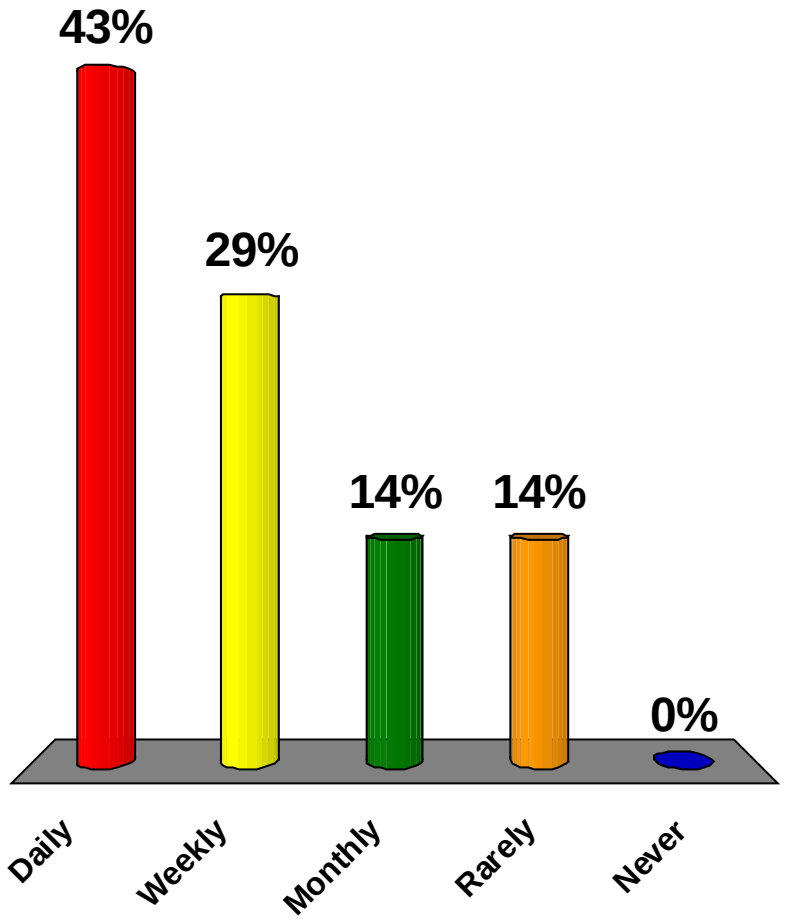
How often do you use this segment of I-89?

A. Daily
B. Weekly
C. Monthly
D. Rarely
E. Never



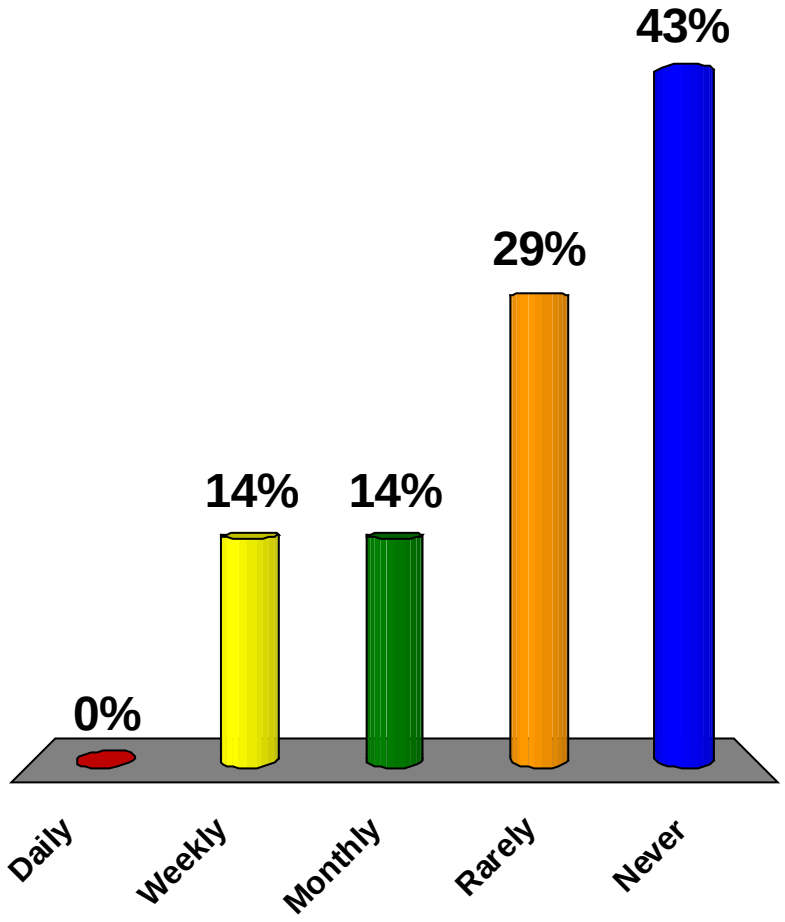
How often do you use the segment of US Route 7 between exits 16 and 17?

A. Daily
B. Weekly
C. Monthly
D. Rarely
E. Never



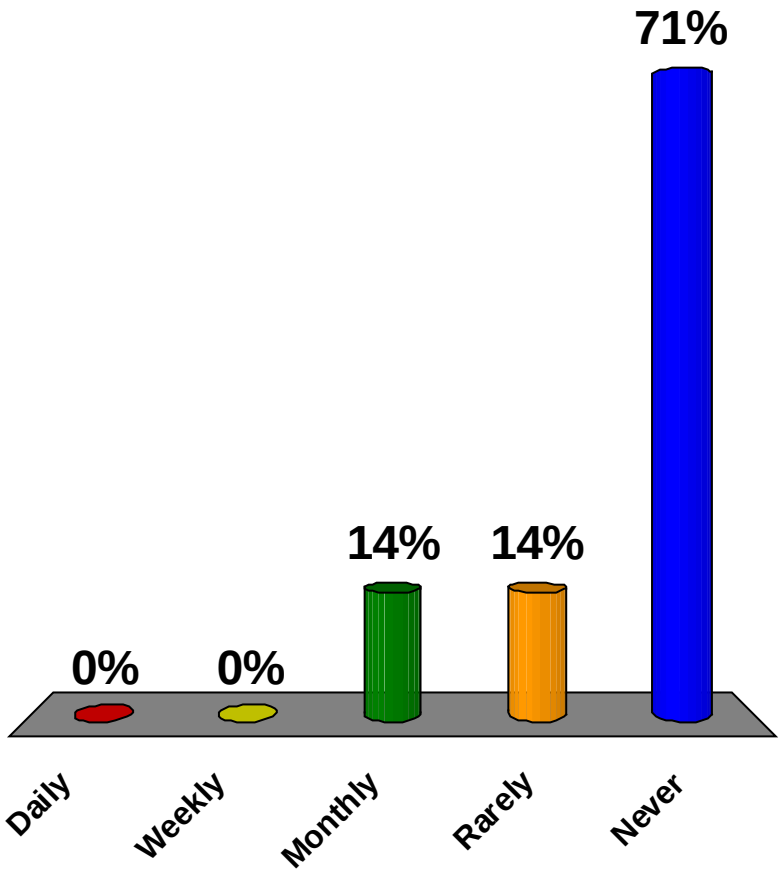
How often do you walk on Bay Road?

A. Daily
B. Weekly
C. Monthly
D. Rarely
E. Never



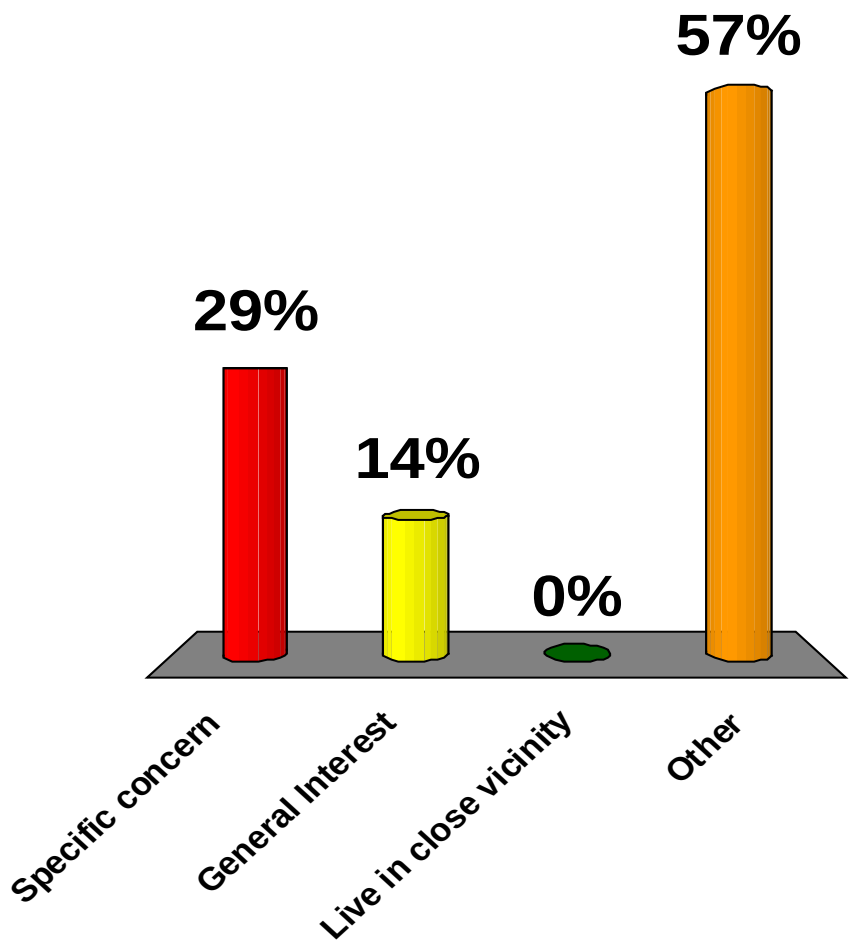
How often do you bike on Bay Road?

A. Daily
B. Weekly
C. Monthly
D. Rarely
E. Never



What is your reason for attending this meeting?

A. Specific concern
B. General Interest
C. Live in close vicinity
D. Other



Project Overview

- Existing Conditions
- Alternatives Considered
- Recommended Alternative

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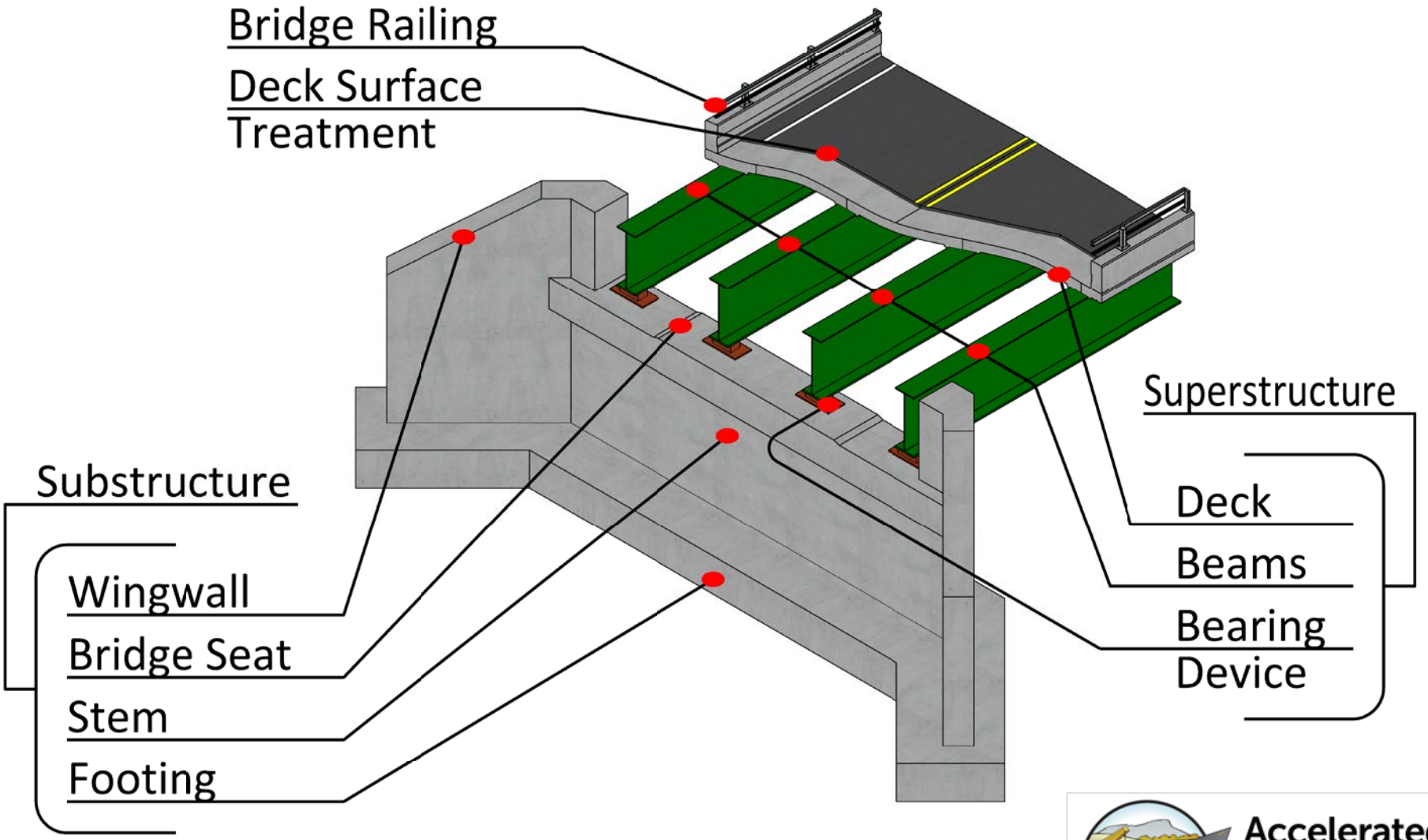
Description of Terms Used



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Existing Conditions – Bridge #76 N&S

- Superstructure – 157’ long, 3 Span Continuous Rolled Beam
- Substructure – Reinforced Concrete Abutments & Pier
- Constructed in 1964

Existing Conditions – Bridge #77 N&S

- Superstructure – 185’ long, 3 Span Continuous Rolled Beam
- Substructure – Reinforced Concrete Abutments & Pier
- Constructed in 1964

Inspection Summary:

Bridge	Deck Rating	Superstructure Rating	Substructure Rating	Channel Rating
76 N	5 (Fair)	6 (Satisfactory)	6 (Satisfactory)	N/A
76 S	5 (Fair)	6 (Satisfactory)	6 (Satisfactory)	N/A
77 N	5 (Fair)	6 (Satisfactory)	6 (Satisfactory)	8 (Very Good)
77 S	4 (Poor)	6 (Satisfactory)	6 (Satisfactory)	8 (Very Good)

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Existing Conditions – Bridges #76 N&S

- The approach rail connections and bridge railing are substandard
- Both bridges have insufficiently protected piers.
- Both bridges have Leaky Bridge Joints
- Deck geometry is substandard
- Archaeologically sensitive area within limits
- Wetlands within project area limits

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Existing Conditions – Bridges #77 N&S

- Bridge 77S is structurally deficient with some heavy deterioration of the deck
- The approach rail connections and bridge railing are substandard
- Deck geometry is substandard
- There are extensive wetlands around the bridges

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Looking Over Bridge (Typical of all four bridges)

Existing Conditions – Bridges #76 and #77 N&S

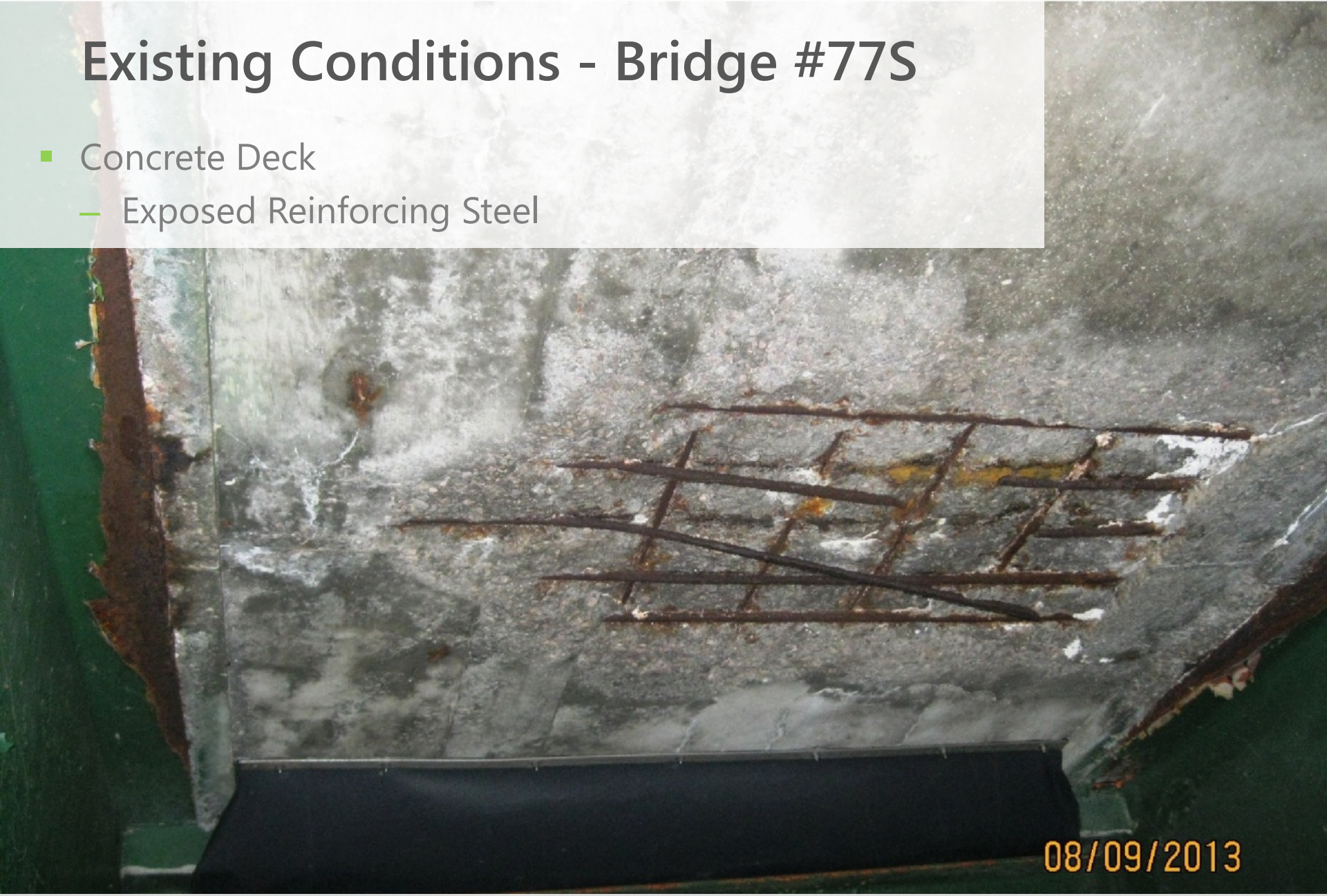
- Substandard Deck Geometry
- Substandard Railing

Existing Conditions - Bridge #76 N&S

- Piers are not protected from impact

Existing Conditions - Bridge #77S

- Concrete Deck
  - Exposed Reinforcing Steel



Heavy Deterioration of Deck

Design Criteria and Considerations:

- Average Daily Traffic (ADT):
  - 19,600 (Bridges 76 & 77 Northbound)
  - 19,600 (Bridges 76 & 77 Southbound)
  - 5,800 (Bay Road, current)
- Design Hourly Volume (DHV):
  - 3,100 (Bridges 76 & 77 Northbound)
  - 3,600 (Bridges 76 & 77 Southbound)
- % Trucks:
  - 11.3 (Bridges 76 & 77 Northbound)
  - 9.4 (Bridges 76 & 77 Southbound)
- Design Speed of 70 mph
- Archaeologically sensitive area within Bridges 76 N&S limits
- Wetlands within Bridges 76 and 77 limits

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Alternatives Considered – Bridges #76 & 77

- No Action
  - Additional maintenance required within 10 years
- Rehabilitation
  - Only considered for bridges 76 N&S
  - Superstructure and substructure patching with anodes
  - Substandard width
- Deck Replacement
  - Precast deck panels
  - Superstructure and substructure patching
  - Beams to be painted as part of a future project
  - Substandard width
- Superstructure Replacement
  - New beams, no field paint/hazardous materials issues
  - Substructure patching
  - Substandard width
- Full Bridge Replacement
  - Longest design life
  - Meets all geometric criteria

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Selected Alternative - Bridges #76 & 77

- Replace all four decks utilizing precast deck panels
  - Bridges widened by 1 foot on each side (substandard width)
  - New approach railing and bridge railing
  - New joints
  - Bearing replacement as necessary
  - Composite construction
  - Guardrail placed along Bay Road under bridge 76 N and S for pier protection
  - Precast components for rapid construction

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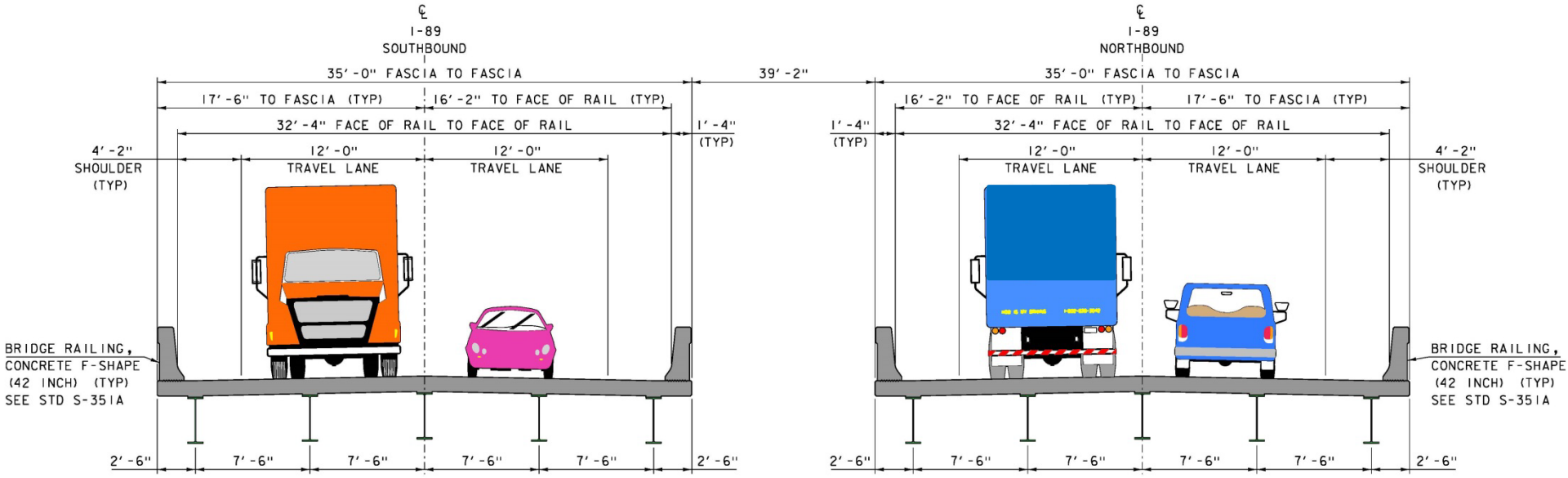
Proposed Bridge Section

- Proposed Bridge Rail to Rail = 32’-4” (Existing is 30’)



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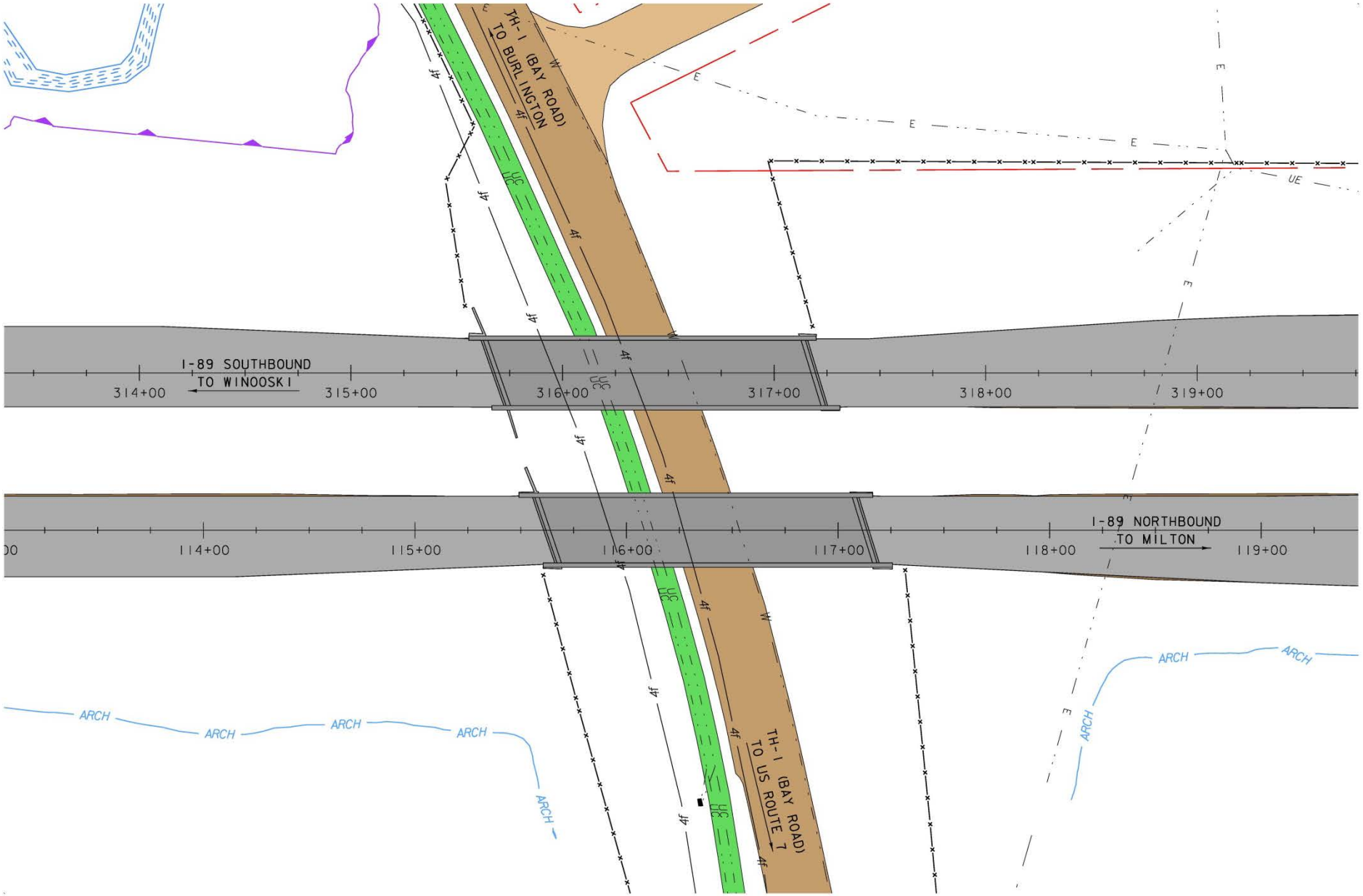
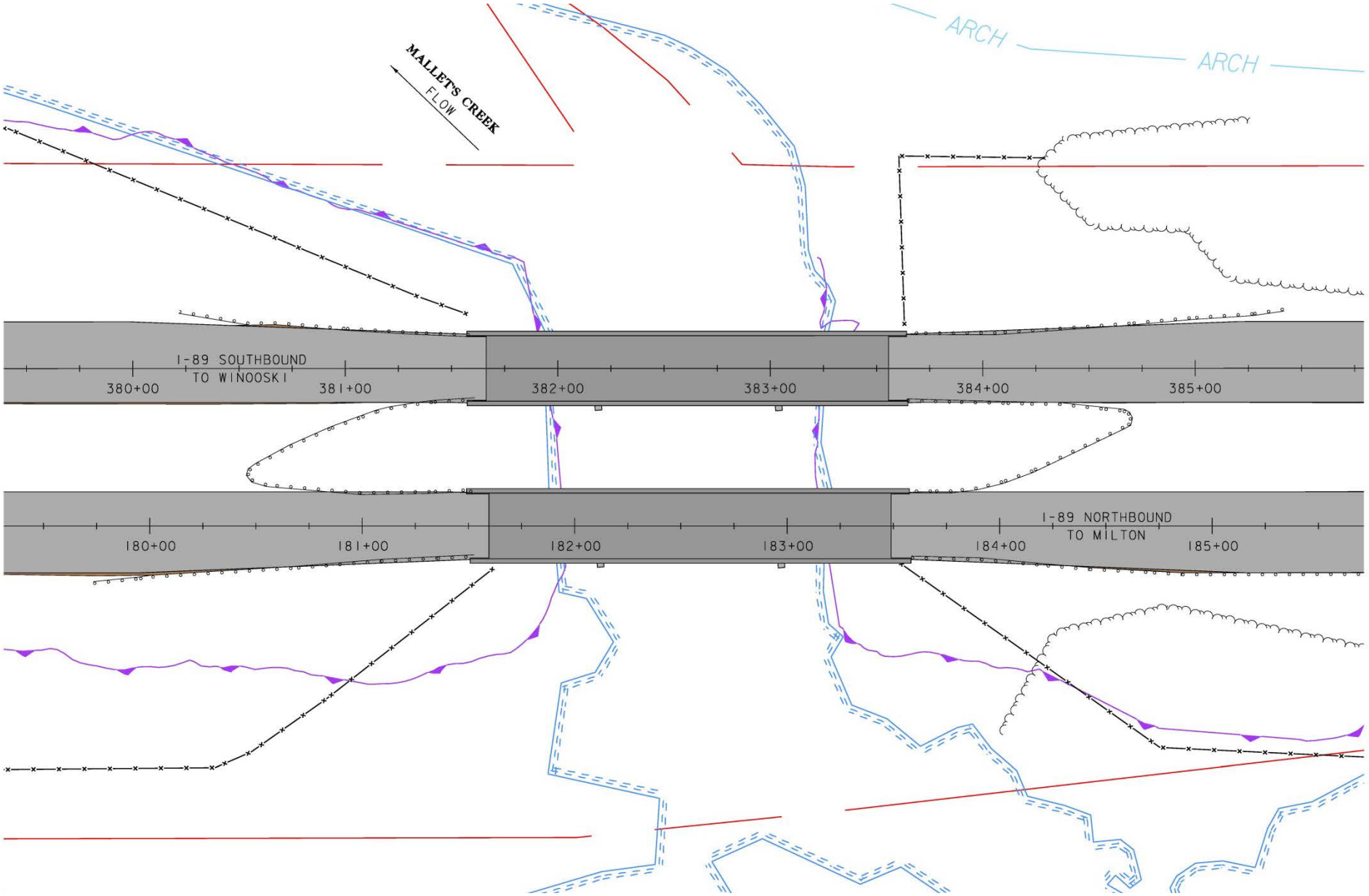
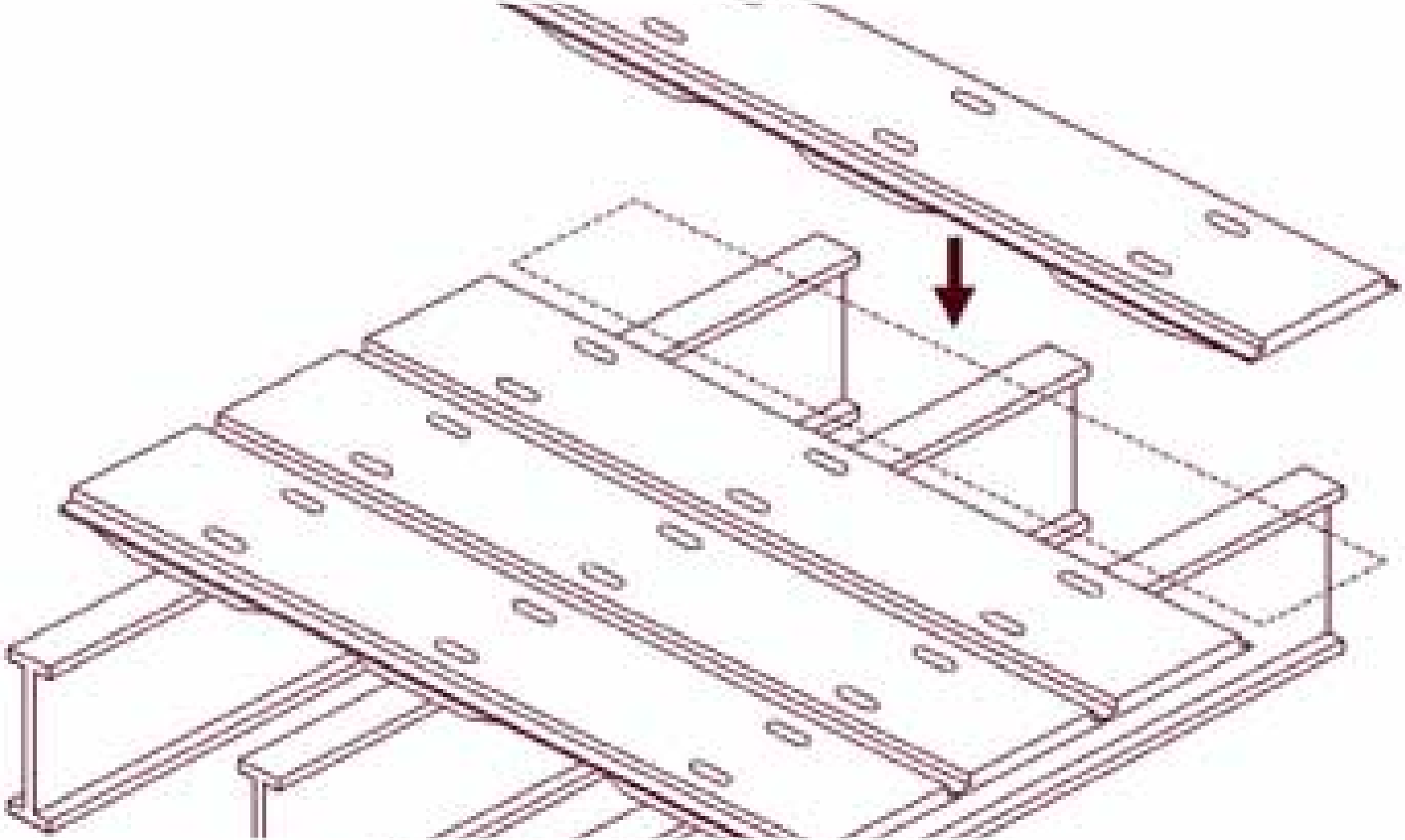
Proposed Layout Bridges #76 N&S



Proposed Layout Bridges #77 N&S



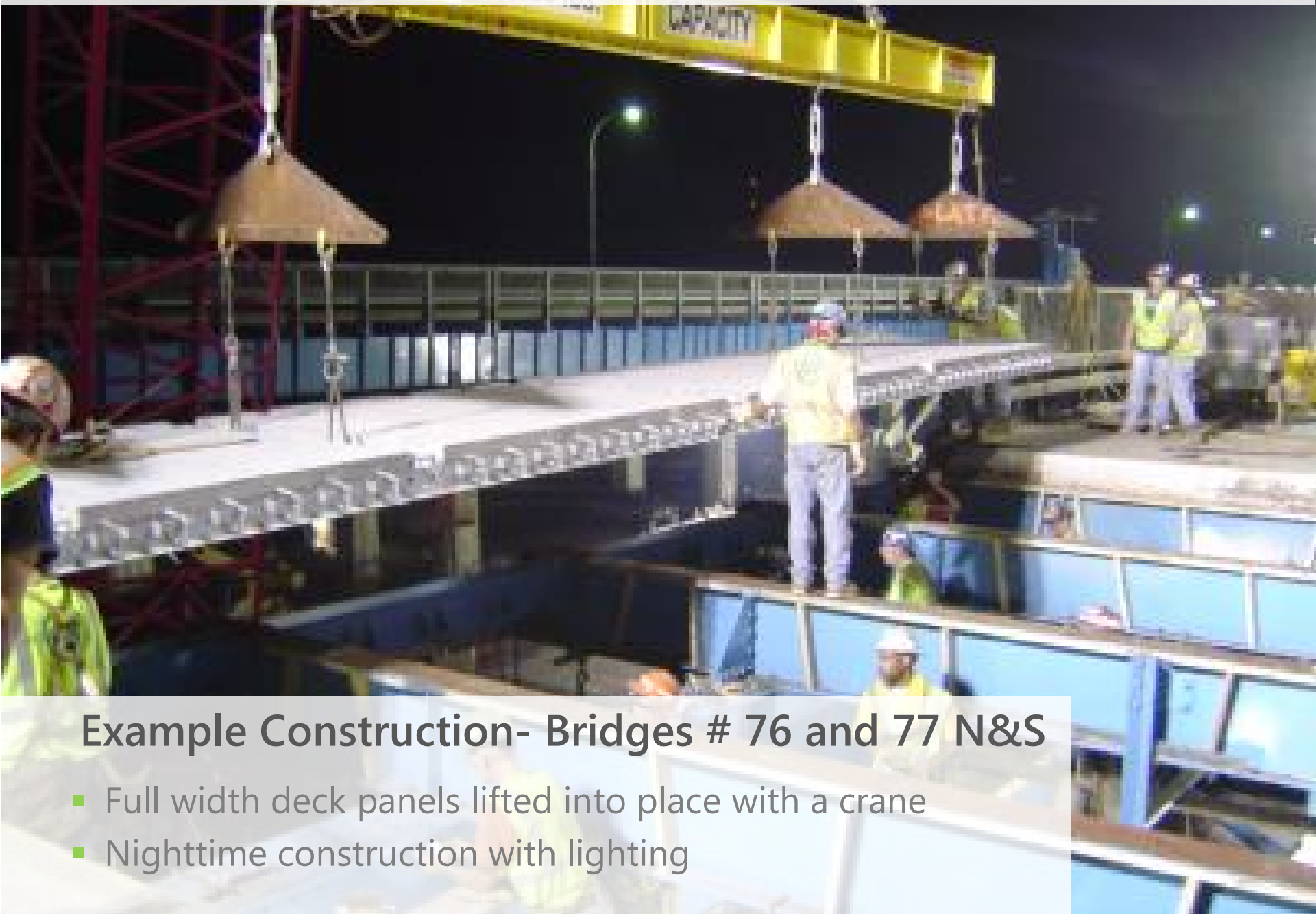
What Will the New Bridge Look Like?



Example Construction- Bridges # 76 and 77 N&S

- Full width/Full depth precast concrete deck panels placed adjacent to each other on steel beams

What Will the New Bridge Look Like?



Example Construction- Bridges # 76 and 77 N&S

- Full width deck panels lifted into place with a crane
- Nighttime construction with lighting

What Will the New Bridge Look Like?

Example Construction- Bridges # 76 and 77 N&S

- Longitudinal post tensioning ducts
- Shear stud pockets over girders for composite construction

What Will the New Bridge Look Like?

Example Construction- Bridges # 76 and 77 N&S

Maintenance of Traffic Options Considered

- Nightly Interstate Closures w/ Offsite Detour
  - Regional detour route parallel to I-89 and adds no distance to travel
- Phased Construction
  - Two lanes in each direction need to be maintained
  - Phasing is only an option for a complete replacement since the existing bridges are too narrow to accommodate 2 lanes of traffic and provide working space
- Temporary Bridge
  - Two lanes in each direction need to be maintained
  - Can be constructed within the ROW
- Crossovers
  - Two lanes in each direction need to be maintained
  - Crossovers are not an option since 4 lanes of traffic cannot be accommodated on either of the existing narrow bridges

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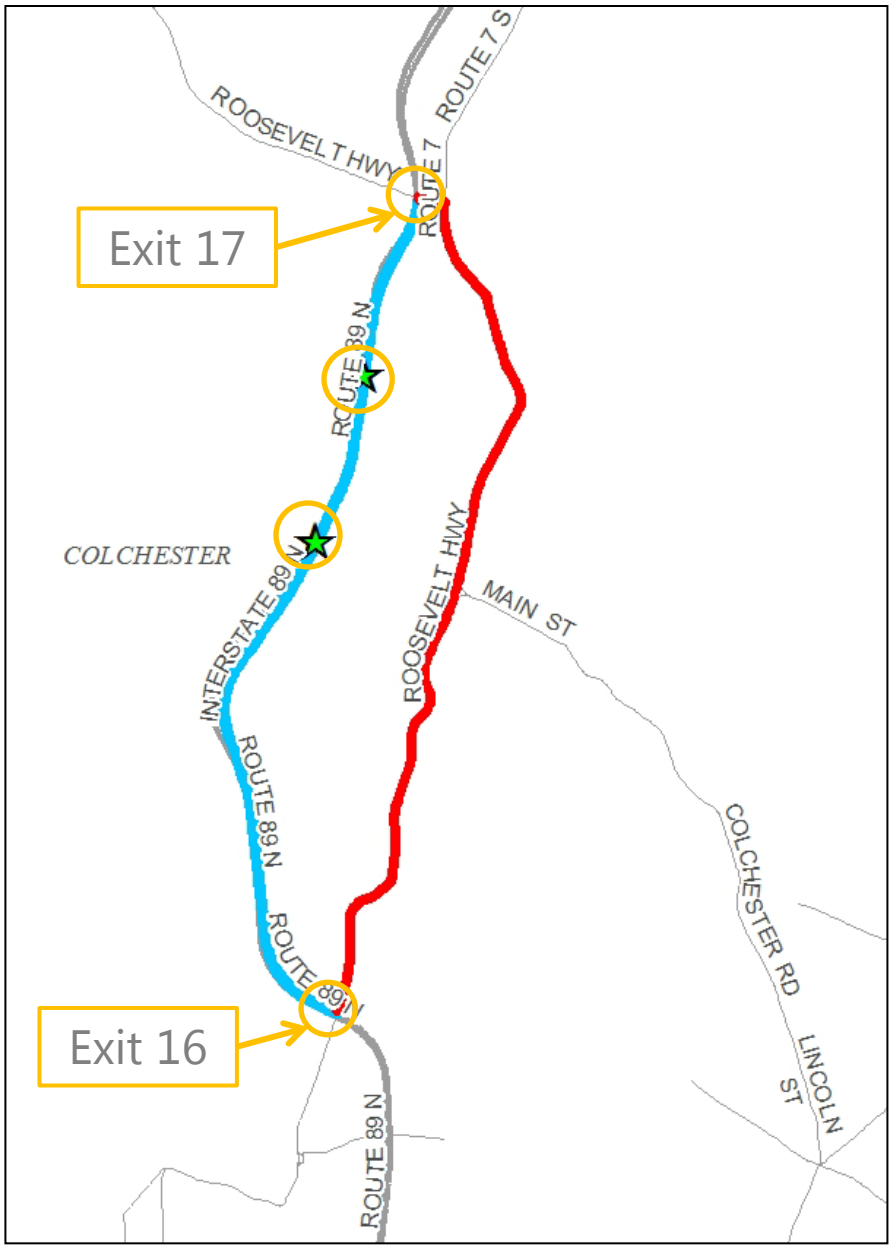
Preferred Maintenance of Traffic

Off Site Detour

- 12 nighttime closures during offpeak hours for each direction of travel
  - 8^{pm} to 5^{am}
- 2 panels installed each night per bridge

Traffic Control – Offsite Detour



- Short Term Road Closure w/ Offsite Detour
  - Signed by State, regional detour route parallel to I-89 and adds no distance to travel

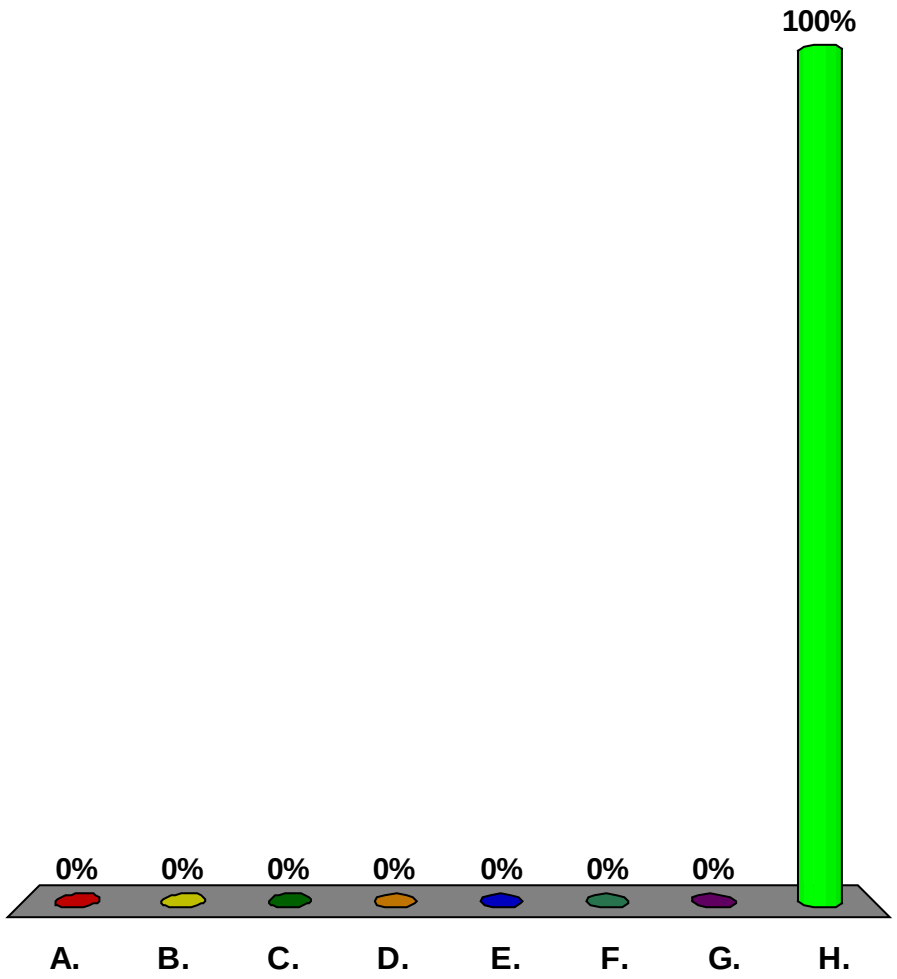
- I-89 to US Route 2/US Route 7, back to I-89

Through Route: 6.7 Miles
Detour Route: 6.3 Miles
Added Miles: 0 Miles

Additional travel time: 2 minutes
(assuming free flow conditions)

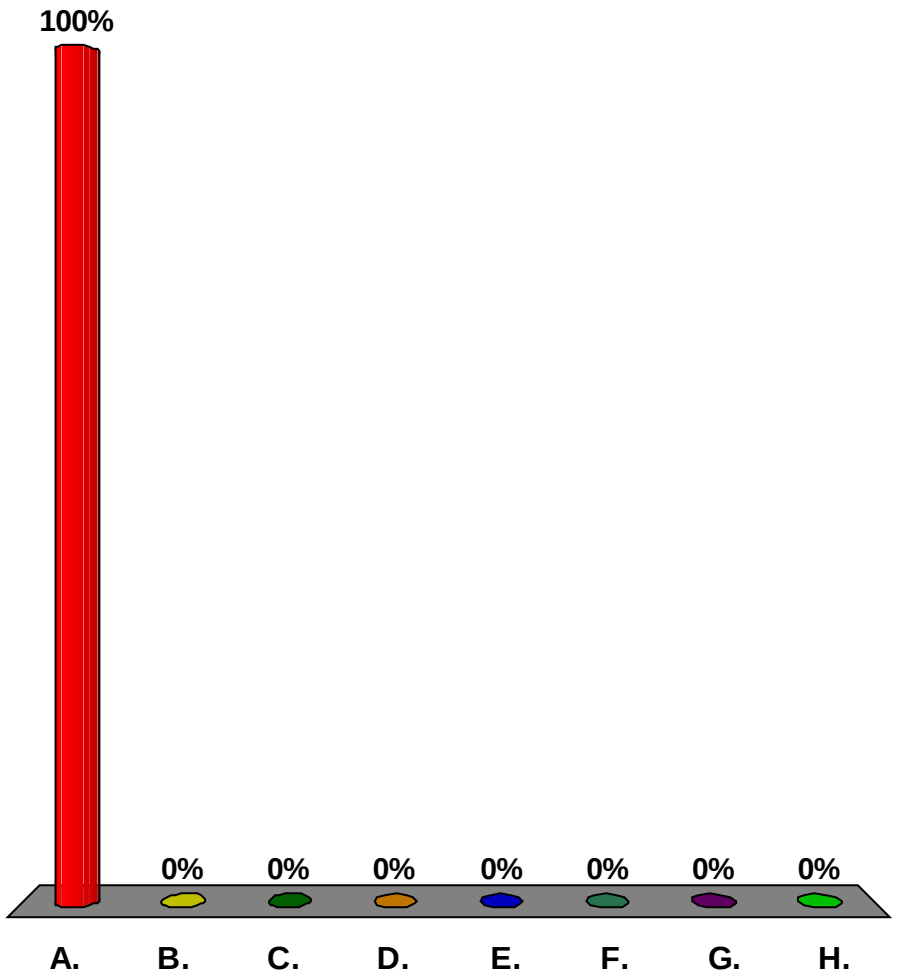
What AM time do you normally drive over Bridges 76 and 77?

A. Before 4 am
B. 4:00 – 4:30
C. 4:30 – 5:00
D. 5:00 – 5:30
E. 5:30 – 6:00
F. 6:00 – 6:30
G. 6:30 – 7:00
H. After 7 am



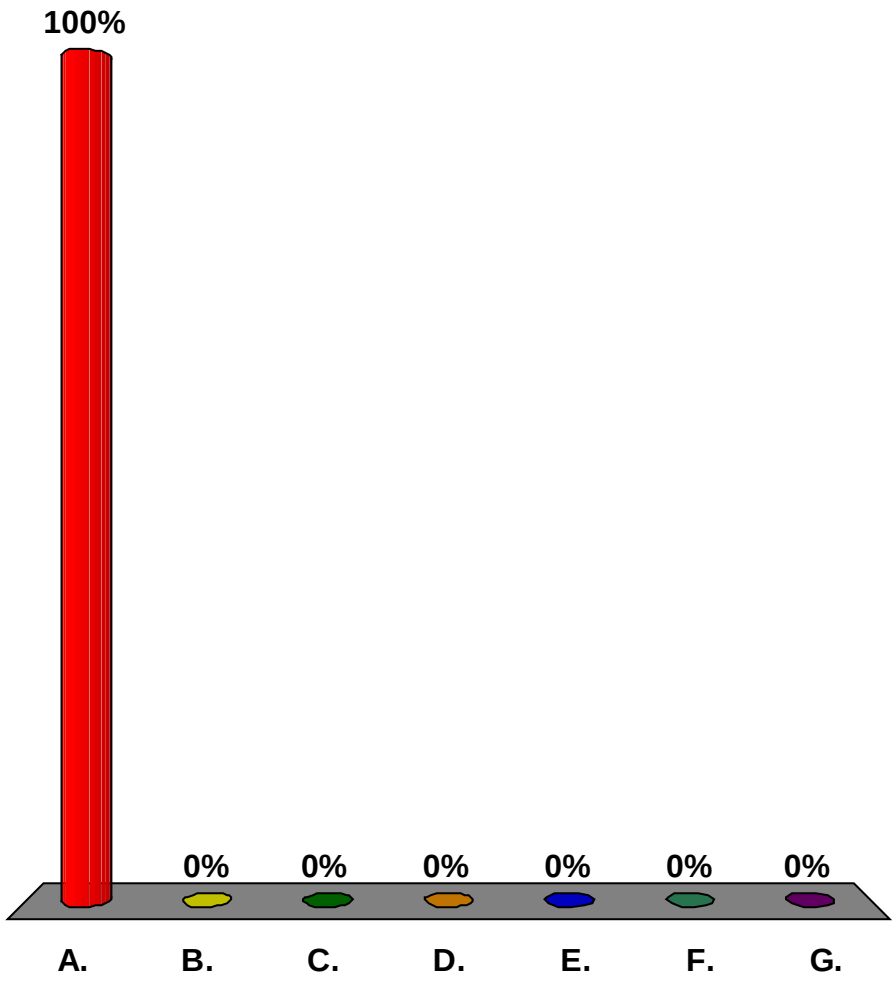
What PM time do you normally drive over Bridges 76 and 77?

A. Before 4 pm
B. 4:00 – 4:30
C. 4:30 – 5:00
D. 5:00 – 5:30
E. 5:30 – 6:00
F. 6:00 – 6:30
G. 6:30 – 7:00
H. After 7 pm



Which time of year would be most acceptable for nighttime closures between exits 16 and 17 on I-89?

A. April
B. May
C. June
D. July
E. August
F. September
G. Other



Project Summary

- Replace all four decks utilizing precast deck panels
  - Traffic maintained on an offsite detour during nightly closures
  - Both southbound bridges worked on at the same time for a total of 12 nightly closures for the southbound direction
  - Both northbound bridges worked on at the same time for a total of 12 nightly closures for the northbound direction
  - No utility relocation needed
  - NO Right-of-Way needed

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Preliminary Project Schedule

- Earliest Construction – Summer 2018 *(to be coordinated with the double diamond interchange project)*

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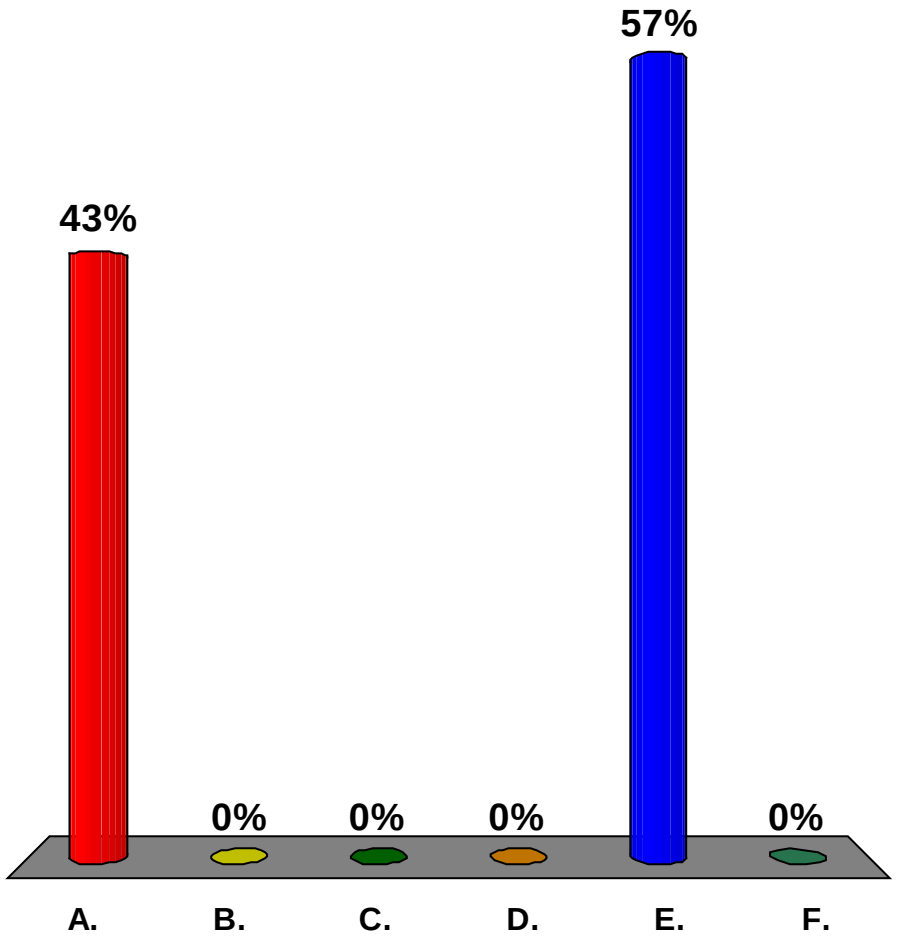
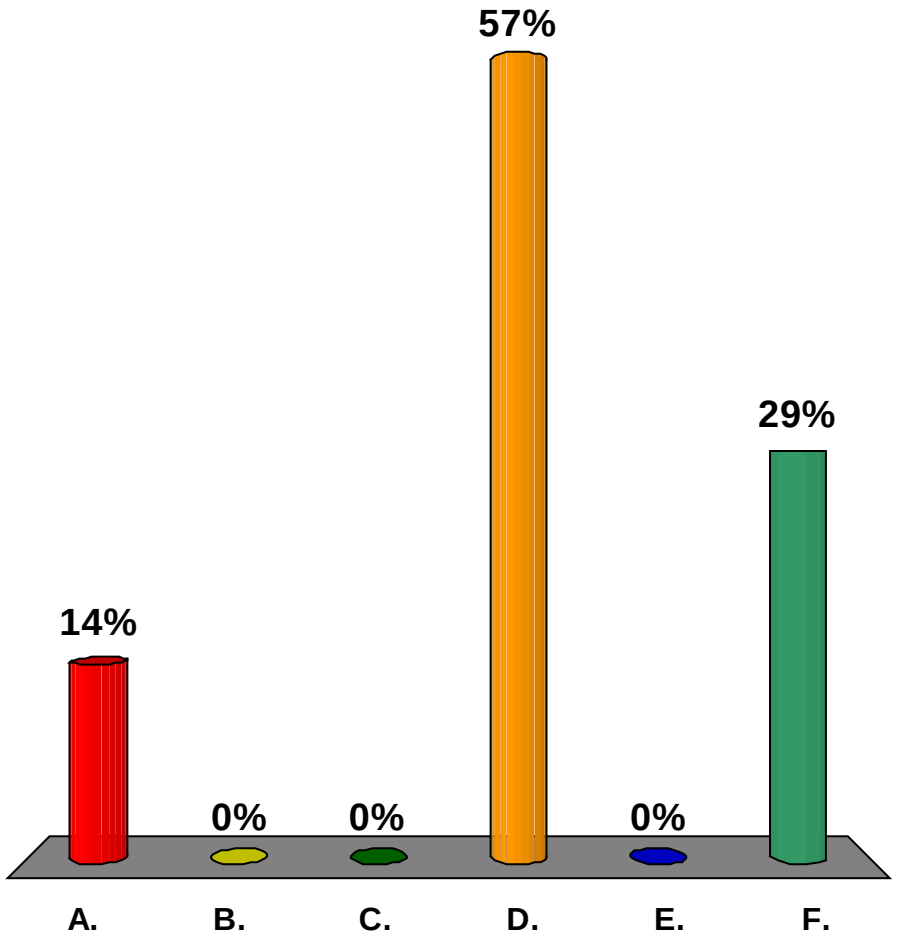
Which would you be most concerned about?

A. Closure Duration
B. Bridge Aesthetics
C. Environmental Impacts
D. Recreational Impacts
E. Other
F. Not really concerned



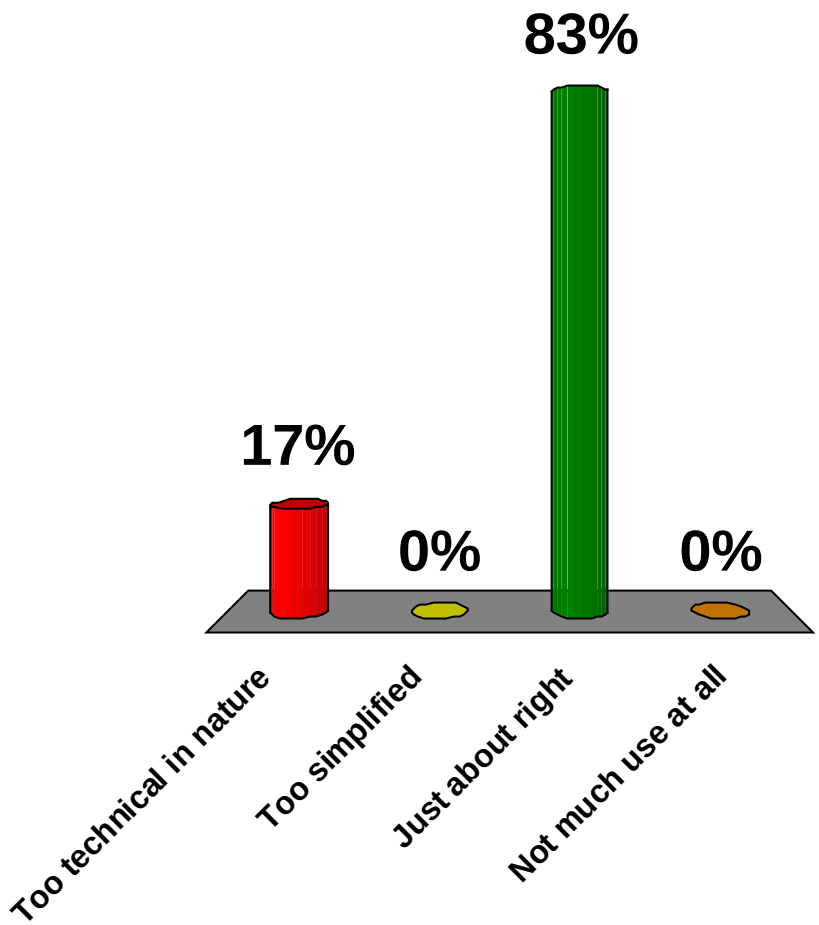
Which design aspect is the most important to you?

A. Shoulder width/bicycle accommodations
B. Aesthetics - Bridge Railing
C. Construction year
D. Construction Duration
E. Cost
F. Other



Did you find this presentation to be?

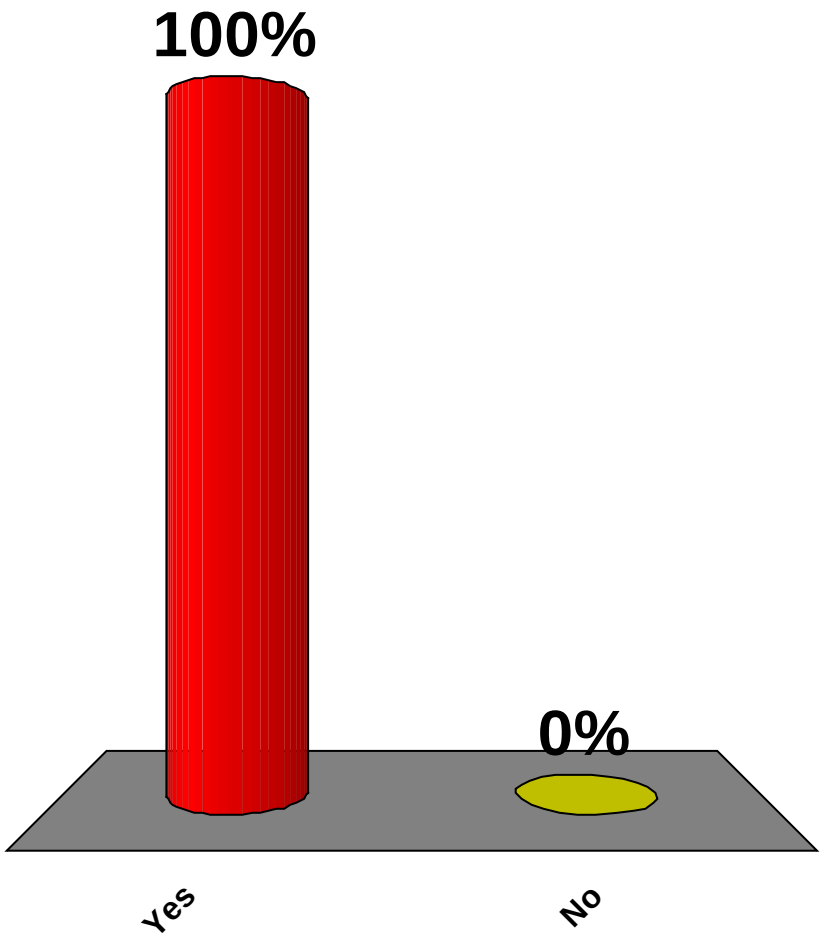
A. Too technical in nature
B. Too simplified
C. Just about right
D. Not much use at all



Do you find the recommended scope of work satisfactory?

A. Yes

B. No



For more information:

- www.i89colchester.vtransprojects.vermont.gov

Colchester IM 089-3(69)
Questions and Comments

February 17, 2015

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Traffic Data – US Route 7

US Route 7 between Exits 16 and 17

Month	Jun		Month	July		Month	Aug		Month	Sept	
Avg Vol 2014	Day		Avg Vol 2014	Day		Avg Vol 2014	Day		Avg Vol 2014	Day	
Begin Hour	Mon-Fri	Sat-Sun	Begin Hour	Mon-Fri	Sat-Sun	Begin Hour	Mon-Fri	Sat-Sun	Begin Hour	Mon-Fri	Sat-Sun
12:00 AM	53	105	12:00 AM	60	97	12:00 AM	57	97	12:00 AM	45	92
1:00 AM	36	78	1:00 AM	37	68	1:00 AM	33	63	1:00 AM	28	50
2:00 AM	41	69	2:00 AM	41	61	2:00 AM	42	59	2:00 AM	35	55
3:00 AM	46	38	3:00 AM	45	42	3:00 AM	46	43	3:00 AM	43	43
4:00 AM	111	61	4:00 AM	111	51	4:00 AM	109	49	4:00 AM	107	47
5:00 AM	282	107	5:00 AM	253	101	5:00 AM	248	94	5:00 AM	245	98
6:00 AM	713	206	6:00 AM	662	182	6:00 AM	679	170	6:00 AM	664	181
7:00 AM	1370	366	7:00 AM	1154	310	7:00 AM	1217	304	7:00 AM	1344	306
8:00 AM	1220	537	8:00 AM	1138	470	8:00 AM	1151	470	8:00 AM	1188	489
9:00 AM	896	746	9:00 AM	909	720	9:00 AM	884	730	9:00 AM	855	735
10:00 AM	982	1045	10:00 AM	1001	1038	10:00 AM	981	977	10:00 AM	913	1000
11:00 AM	1081	1133	11:00 AM	1134	1113	11:00 AM	1113	1127	11:00 AM	998	1133
12:00 PM	1172	1228	12:00 PM	1230	1153	12:00 PM	1222	1177	12:00 PM	1110	1157
1:00 PM	1127	1151	1:00 PM	1175	1077	1:00 PM	1145	1096	1:00 PM	1078	1072
2:00 PM	1264	1108	2:00 PM	1220	1053	2:00 PM	1215	1075	2:00 PM	1177	1052
3:00 PM	1511	1106	3:00 PM	1407	1032	3:00 PM	1436	1079	3:00 PM	1439	1033
4:00 PM	1715	1051	4:00 PM	1652	979	4:00 PM	1654	1010	4:00 PM	1630	1017
5:00 PM	1765	950	5:00 PM	1620	910	5:00 PM	1685	946	5:00 PM	1694	919
6:00 PM	1090	745	6:00 PM	1031	723	6:00 PM	1072	724	6:00 PM	1078	727
7:00 PM	750	609	7:00 PM	717	573	7:00 PM	758	579	7:00 PM	715	527
8:00 PM	571	533	8:00 PM	565	478	8:00 PM	551	464	8:00 PM	481	383
9:00 PM	367	380	9:00 PM	399	343	9:00 PM	354	305	9:00 PM	329	252
10:00 PM	219	226	10:00 PM	263	230	10:00 PM	226	223	10:00 PM	189	182
11:00 PM	126	129	11:00 PM	144	131	11:00 PM	128	136	11:00 PM	115	116

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Traffic Data – I 89 NB

I 89 NB between Exits 16 and 17

Month	Jun		Month	July		Month	Aug		Month	Sept	
Avg Vol 2014	Day		Avg Vol 2014	Day		Avg Vol 2014	Day		Avg Vol 2014	Day	
Begin Hour	Mon-Fri	Sat-Sun	Begin Hour	Mon-Fri	Sat-Sun	Begin Hour	Mon-Fri	Sat-Sun	Begin Hour	Mon-Fri	Sat-Sun
12:00 AM	129	193	12:00 AM	128	146	12:00 AM	134	218	12:00 AM	119	169
1:00 AM	66	88	1:00 AM	82	93	1:00 AM	77	95	1:00 AM	67	80
2:00 AM	53	68	2:00 AM	56	59	2:00 AM	64	70	2:00 AM	51	66
3:00 AM	47	45	3:00 AM	47	47	3:00 AM	50	54	3:00 AM	49	50
4:00 AM	57	44	4:00 AM	59	57	4:00 AM	57	40	4:00 AM	56	42
5:00 AM	151	78	5:00 AM	147	138	5:00 AM	168	80	5:00 AM	172	71
6:00 AM	405	137	6:00 AM	354	326	6:00 AM	405	165	6:00 AM	488	141
7:00 AM	670	284	7:00 AM	616	591	7:00 AM	684	315	7:00 AM	726	264
8:00 AM	598	361	8:00 AM	600	609	8:00 AM	617	399	8:00 AM	585	339
9:00 AM	600	479	9:00 AM	637	974	9:00 AM	632	556	9:00 AM	573	449
10:00 AM	672	652	10:00 AM	736	796	10:00 AM	735	759	10:00 AM	653	626
11:00 AM	790	848	11:00 AM	887	989	11:00 AM	871	971	11:00 AM	736	774
12:00 PM	909	994	12:00 PM	1017	1154	12:00 PM	1008	1129	12:00 PM	854	981
1:00 PM	1054	1084	1:00 PM	1142	1308	1:00 PM	1143	1197	1:00 PM	952	1005
2:00 PM	1326	1105	2:00 PM	1396	1552	2:00 PM	1470	1280	2:00 PM	1288	1087
3:00 PM	1775	1163	3:00 PM	1819	1891	3:00 PM	1925	1356	3:00 PM	1799	1136
4:00 PM	2330	1130	4:00 PM	2299	2271	4:00 PM	2471	1332	4:00 PM	2340	1159
5:00 PM	2246	1031	5:00 PM	2271	2201	5:00 PM	2387	1212	5:00 PM	2286	1066
6:00 PM	1307	862	6:00 PM	1385	1412	6:00 PM	1451	1011	6:00 PM	1360	885
7:00 PM	924	717	7:00 PM	952	1025	7:00 PM	1037	855	7:00 PM	936	765
8:00 PM	768	592	8:00 PM	792	848	8:00 PM	861	767	8:00 PM	740	632
9:00 PM	633	524	9:00 PM	712	832	9:00 PM	715	581	9:00 PM	609	490
10:00 PM	411	349	10:00 PM	482	563	10:00 PM	463	412	10:00 PM	373	339
11:00 PM	307	245	11:00 PM	317	363	11:00 PM	313	279	11:00 PM	265	228

Accelerated Bridge Program
VTRANS

Traffic Data – I 89 SB

I 89 SB between Exits 16 and 17

Month	Jun		Month	July		Month	Aug		Month	Sept	
Avg Vol 2014	Day		Avg Vol 2014	Day		Avg Vol 2014	Day		Avg Vol 2014	Day	
Begin Hour	Mon-Fri	Sat-Sun	Begin Hour	Mon-Fri	Sat-Sun	Begin Hour	Mon-Fri	Sat-Sun	Begin Hour	Mon-Fri	Sat-Sun
12:00 AM	60	87	12:00 AM	70	86	12:00 AM	64	87	12:00 AM	55	74
1:00 AM	45	41	1:00 AM	44	53	1:00 AM	43	53	1:00 AM	42	39
2:00 AM	46	35	2:00 AM	52	48	2:00 AM	54	43	2:00 AM	50	37
3:00 AM	102	66	3:00 AM	105	72	3:00 AM	112	74	3:00 AM	112	71
4:00 AM	251	95	4:00 AM	257	107	4:00 AM	261	109	4:00 AM	265	98
5:00 AM	705	204	5:00 AM	668	224	5:00 AM	697	230	5:00 AM	703	205
6:00 AM	1660	415	6:00 AM	1609	409	6:00 AM	1669	435	6:00 AM	1712	384
7:00 AM	2527	510	7:00 AM	2344	534	7:00 AM	2558	574	7:00 AM	2781	496
8:00 AM	1800	726	8:00 AM	1718	745	8:00 AM	1812	797	8:00 AM	1820	696
9:00 AM	1216	953	9:00 AM	1267	1057	9:00 AM	1308	1132	9:00 AM	1151	933
10:00 AM	1094	1133	10:00 AM	1196	1245	10:00 AM	1254	1335	10:00 AM	1040	1146
11:00 AM	1042	1189	11:00 AM	1168	1324	11:00 AM	1224	1400	11:00 AM	991	1197
12:00 PM	1028	1173	12:00 PM	1137	1213	12:00 PM	1181	1293	12:00 PM	960	1154
1:00 PM	970	1088	1:00 PM	1069	1159	1:00 PM	1100	1212	1:00 PM	914	1035
2:00 PM	991	1030	2:00 PM	1046	1091	2:00 PM	1094	1152	2:00 PM	926	963
3:00 PM	1028	1003	3:00 PM	1039	1100	3:00 PM	1091	1119	3:00 PM	992	921
4:00 PM	1033	923	4:00 PM	1082	1048	4:00 PM	1111	1024	4:00 PM	1058	870
5:00 PM	992	782	5:00 PM	1047	903	5:00 PM	1077	919	5:00 PM	1041	773
6:00 PM	742	633	6:00 PM	788	748	6:00 PM	804	724	6:00 PM	784	636
7:00 PM	485	487	7:00 PM	533	566	7:00 PM	538	546	7:00 PM	485	451
8:00 PM	374	390	8:00 PM	440	455	8:00 PM	433	479	8:00 PM	340	342
9:00 PM	307	320	9:00 PM	341	381	9:00 PM	341	365	9:00 PM	254	247
10:00 PM	214	216	10:00 PM	240	284	10:00 PM	238	259	10:00 PM	202	200
11:00 PM	113	112	11:00 PM	126	144	11:00 PM	131	144	11:00 PM	99	93

Accelerated Bridge Program
VTRANS

Traffic Data – Combined NB

COMBINED NB

Month	Jun	
Avg Vol 2014	Day	
Begin Hour	Mon-Fri	Sat-Sun
12:00 AM	182	298
1:00 AM	102	166
2:00 AM	94	137
3:00 AM	93	83
4:00 AM	168	105
5:00 AM	433	185
6:00 AM	1118	343
7:00 AM	2040	650
8:00 AM	1818	898
9:00 AM	1496	1225
10:00 AM	1654	1697
11:00 AM	1871	1981
12:00 PM	2081	2222
1:00 PM	2181	2235
2:00 PM	2590	2213
3:00 PM	3286	2269
4:00 PM	4045	2181
5:00 PM	4011	1981
6:00 PM	2397	1607
7:00 PM	1674	1326
8:00 PM	1339	1125
9:00 PM	1000	904
10:00 PM	630	575
11:00 PM	433	374

Month	July	
Avg Vol 2014	Day	
Begin Hour	Mon-Fri	Sat-Sun
12:00 AM	188	243
1:00 AM	119	161
2:00 AM	97	120
3:00 AM	92	89
4:00 AM	170	108
5:00 AM	400	239
6:00 AM	1016	508
7:00 AM	1770	901
8:00 AM	1738	1079
9:00 AM	1546	1694
10:00 AM	1737	1834
11:00 AM	2021	2102
12:00 PM	2247	2307
1:00 PM	2317	2385
2:00 PM	2616	2605
3:00 PM	3226	2923
4:00 PM	3951	3250
5:00 PM	3891	3111
6:00 PM	2416	2135
7:00 PM	1669	1598
8:00 PM	1357	1326
9:00 PM	1111	1175
10:00 PM	745	793
11:00 PM	461	494

Month	Aug	
Avg Vol 2014	Day	
Begin Hour	Mon-Fri	Sat-Sun
12:00 AM	191	315
1:00 AM	110	158
2:00 AM	106	129
3:00 AM	96	97
4:00 AM	166	89
5:00 AM	416	174
6:00 AM	1084	335
7:00 AM	1901	619
8:00 AM	1768	869
9:00 AM	1516	1286
10:00 AM	1716	1736
11:00 AM	1984	2098
12:00 PM	2230	2306
1:00 PM	2288	2293
2:00 PM	2685	2355
3:00 PM	3361	2435
4:00 PM	4125	2342
5:00 PM	4072	2158
6:00 PM	2523	1735
7:00 PM	1795	1434
8:00 PM	1412	1231
9:00 PM	1069	886
10:00 PM	689	635
11:00 PM	441	415

Month	Sept	
Avg Vol 2014	Day	
Begin Hour	Mon-Fri	Sat-Sun
12:00 AM	164	261
1:00 AM	95	130
2:00 AM	86	121
3:00 AM	92	93
4:00 AM	163	89
5:00 AM	417	169
6:00 AM	1152	322
7:00 AM	2070	570
8:00 AM	1773	828
9:00 AM	1428	1184
10:00 AM	1566	1626
11:00 AM	1734	1907
12:00 PM	1964	2138
1:00 PM	2030	2077
2:00 PM	2465	2139
3:00 PM	3238	2169
4:00 PM	3970	2176
5:00 PM	3980	1985
6:00 PM	2438	1612
7:00 PM	1651	1292
8:00 PM	1221	1015
9:00 PM	938	742
10:00 PM	562	521
11:00 PM	380	344

Accelerated Bridge Program
VTRANS

Traffic Data – Combined SB

COMBINED SB

Month	Jun		Month	July		Month	Aug		Month	Sept	
Avg Vol 2014	Day		Avg Vol 2014	Day		Avg Vol 2014	Day		Avg Vol 2014	Day	
Begin Hour	Mon-Fri	Sat-Sun	Begin Hour	Mon-Fri	Sat-Sun	Begin Hour	Mon-Fri	Sat-Sun	Begin Hour	Mon-Fri	Sat-Sun
12:00 AM	113	192	12:00 AM	130	183	12:00 AM	121	184	12:00 AM	100	166
1:00 AM	81	119	1:00 AM	81	121	1:00 AM	76	116	1:00 AM	70	89
2:00 AM	87	104	2:00 AM	93	109	2:00 AM	96	102	2:00 AM	85	92
3:00 AM	148	104	3:00 AM	150	114	3:00 AM	158	117	3:00 AM	155	114
4:00 AM	362	156	4:00 AM	368	158	4:00 AM	370	158	4:00 AM	372	145
5:00 AM	987	311	5:00 AM	921	325	5:00 AM	945	324	5:00 AM	948	303
6:00 AM	2373	621	6:00 AM	2271	591	6:00 AM	2348	605	6:00 AM	2376	565
7:00 AM	3897	876	7:00 AM	3498	844	7:00 AM	3775	878	7:00 AM	4125	802
8:00 AM	3020	1263	8:00 AM	2856	1215	8:00 AM	2963	1267	8:00 AM	3008	1185
9:00 AM	2112	1699	9:00 AM	2176	1777	9:00 AM	2192	1862	9:00 AM	2006	1668
10:00 AM	2076	2178	10:00 AM	2197	2283	10:00 AM	2235	2312	10:00 AM	1953	2146
11:00 AM	2123	2322	11:00 AM	2302	2437	11:00 AM	2337	2527	11:00 AM	1989	2330
12:00 PM	2200	2401	12:00 PM	2367	2366	12:00 PM	2403	2470	12:00 PM	2070	2311
1:00 PM	2097	2239	1:00 PM	2244	2236	1:00 PM	2245	2308	1:00 PM	1992	2107
2:00 PM	2255	2138	2:00 PM	2266	2144	2:00 PM	2309	2227	2:00 PM	2103	2015
3:00 PM	2539	2109	3:00 PM	2446	2132	3:00 PM	2527	2198	3:00 PM	2431	1954
4:00 PM	2748	1974	4:00 PM	2734	2027	4:00 PM	2765	2034	4:00 PM	2688	1887
5:00 PM	2757	1732	5:00 PM	2667	1813	5:00 PM	2762	1865	5:00 PM	2735	1692
6:00 PM	1832	1378	6:00 PM	1819	1471	6:00 PM	1876	1448	6:00 PM	1862	1363
7:00 PM	1235	1096	7:00 PM	1250	1139	7:00 PM	1296	1125	7:00 PM	1200	978
8:00 PM	945	923	8:00 PM	1005	933	8:00 PM	984	943	8:00 PM	821	725
9:00 PM	674	700	9:00 PM	740	724	9:00 PM	695	670	9:00 PM	583	499
10:00 PM	433	442	10:00 PM	503	514	10:00 PM	464	482	10:00 PM	391	382
11:00 PM	239	241	11:00 PM	270	275	11:00 PM	259	280	11:00 PM	214	209

Accelerated Bridge Program
VTRANS

Alternatives Matrix – Bridges 76 N&S

Accelerated Bridge Program
VTRANS

Colchester IM 089-3(69) Bridges 76 N&S	Alt 1a	Alt 1b	Alt 2a	Alt 2b	Alt 3a	Alt 3b	Alt 4
	Rehabilitation		Deck Replacement		Superstructure Replacement		Complete Replacement
	Offsite Detour	Temporary Bridge	Offsite Detour	Temporary Bridge	Offsite Detour	Temporary Bridge	Phasing
Total Project Costs (including Engineering and Contingencies)	$1,232,300	$2,153,000	$4,966,200	$5,563,000	$5,683,900	$6,617,600	$12,051,300
Project Development Duration	2 years	2 years	2 years	2 years	2 years	2 years	4 years
Construction Duration	6 months	18 months	9 months	18 months	18 months	24 months	30 months
Closure Duration (If Applicable)	N/A	N/A	12 ~ nights	N/A	4 ~ 3 day periods	N/A	N/A
Geometric Design Criteria	Substandard Width	Substandard Width	Substandard Width	Substandard Width	Substandard Width	Substandard Width	Meets Criteria
Alignment Change	No	No	No	No	No	No	No
Utilities	No	No	No	No	No	No	Yes
ROW	No	No	No	No	No	No	No
Design Life	15 years	15 years	40 years	40 years	40 years	40 years	100 years

Alternatives Matrix – Bridge 77 N&S

Accelerated Bridge Program
VTRANS

Colchester IM 089-3(69) Bridges 77 N&S	Alt 1a	Alt 1b	Alt 2a	Alt 2b	Alt 3a	Alt 3b	Alt 4
	Rehabilitation		Deck Replacement		Superstructure Replacement		Complete Replacement
	Phasing	Temporary Bridge	Offsite Detour	Temporary Bridge	Offsite Detour	Temporary Bridge	Phasing
Total Project Costs (including Engineering and Contingencies)	Rehabilitation option was not considered for Bridges 77 N&S due to the poor deck condition of Bridge 77S		$5,738,100	$6,519,300	$6,675,900	$7,875,600	$14,107,400
Project Development Duration			2 years	2 years	2 years	2 years	4 years
Construction Duration			9 months	18 months	18 months	24 months	30 months
Closure Duration (If Applicable)			12 ~ nights	N/A	4 ~ 3 day periods	N/A	N/A
Geometric Design Criteria			Substandard Width	Substandard Width	Substandard Width	Substandard Width	Meets Criteria
Alignment Change			No	No	No	No	No
Utilities			No	No	No	No	Yes
ROW			No	No	No	No	No
Design Life			40 years	40 years	40 years	40 years	100 years