# Appendix A6

Nonstandard Feature Justification Reports

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

# Exhibit 2-15
# Nonstandard Feature Justification

Rev. 04/15/21

| | | | |
|---|---|---|---|
| **PIN:** 5512.52 | **Route No. and Name:** NYS Route 33 Kensington Expressway | | |
| **Project Type:** Reconstruction | | ☑ **National Network/Qualifying Highway** | ☐ **Access Highway** |
| **Functional Class:** Urban Principal Arterial - Other Freeway/Expressway | | **Design Classification:** Other Freeway | **Context Class:** Urban Core |
| **AADT:** 74,504 (2047) | **% Trucks:** 14.55% | ◉ **NHS** ○ **Non-NHS** | **Terrain:** Rolling |

## 1. Description of Nonstandard Feature

**Type of Feature:** Other (identify feature in next field) **Other:** Raised Safety Walk

**Location:** NYS Route 33, Kensington Expressway, from Dodge Street to Sidney Street

**Latitude and Longitude** (Linear Feature) **FROM** Lat: 42.9053 Long: -78.8450 **TO** Lat: 42.9164 Long: -78.8434

**Latitude and Longitude** (Point Feature) Lat: Long:

| | |
|---|---|
| **Standard Value:** 3.5 ft min. on one side | **Design Speed:** 60 mph |
| **Existing Value:** N/A | **Recommended Speed - Existing:** 55 mph |
| **Proposed Value:** 0 ft (omit raised safety walk) | **Recommended Speed - Proposed:** 60 mph |

## 2. Accident Analysis

| | |
|---|---|
| **Current Accident Rate**[1]**:** 0.97 ◉ acc/mvm ○ acc/mev | **Statewide Accident Rate:** 1.34 ◉ acc/mvm ○ acc/mev |
| **From** High Street **to** East Ferry Street | **Is the Nonstandard Feature a contributing factor?** ○ Yes ◉ No |

**Anticipated accident rates, severity, and costs:**

N/A. Non-standard feature is not a contributing factor.

## 3. Cost Estimates

| | |
|---|---|
| **Cost to fully meet standards:** $40M increase in project cost | **Cost(s) for incremental improvements:** $40M increase in project cost |

## 4. Mitigation

*e.g., increased superelevation and speed change lane length for a non-standard ramp radius*

The project will include the following measures to mitigate the nonstandard feature:
- 8 ft. right shoulders and 6 ft. left shoulders to provide safety offset to tunnel walls, minimize accident risks, and allow for adequate shoulder width to serve as egress in case of an incident and for maintenance access to technical rooms and to tunnel systems located over the shoulders without necessitating lane closures.
- Tunnel systems/equipment designed and specified to reduce maintenance intervals to an anticipated maximum of once per year.
- Implement ITS safety measures, such as advanced warning signs and lane use signals to alert approaching vehicles of any lane or shoulder closures for maintenance purposes.
- Implement ITS measures to reduce the speeds of vehicles within the tunnel during any lane or shoulder closures for maintenance purposes.

## 5. Compatibility with Adjacent Segments and Future Plans

This recommendation provides a tunnel cross section that more readily matches the roadway cross section of the adjacent segments of the Kensington Expressway which are to remain. The inclusion of raised safety walks would require greater transitions in exterior retaining walls to meet existing Kensington Expressway roadway geometry.

In the event the tunnel were to be extended in the future, similar cross section without raised safety walk could be maintained.

## 6. Other Factors

*e.g., social, economic, and environmental*

Raised safety walks are not considered a viable means of egress and are intended for maintenance access. However, these safety walks allow for minimal maintenance activities to occur without the need for lane closures. A raised safety walk impedes maneuverability of a bucket truck to access the upper corner of the tunnel for structural inspection or tunnel system maintenance. Elevated walkways increase initial project costs as well as future maintenance/inspection requirements due to more elements (railing) and increased tunnel width for the safety walk. Additionally, the added width would likely lead to ROW impacts in the adjacent community. Raised walkways also prevent effective cleaning/maintenance of the tunnel, as they collect dust/debris over time. This can impair visibility and air quality, which can in turn increase risk of accidents and other safety incidents. Intermediate access points from the roadway or shoulder can introduce additional safety risks of blunt surfaces to oncoming traffic and vaulting hazards in case of access stairs and/or interruptions in the railing.

## 7. Proposed Treatment (i.e., recommendation)

We recommend the omission of the raised safety walk from the design and operation of the Kensington Expressway Tunnel. Instead, provide 8' right shoulder and 6' left shoulder, design and specify tunnel systems/equipment to reduce maintenance intervals to a maximum of once per year, and implement ITS safety measures (advanced warning signs and lane use signals).

[1] *Use accidents per million vehicle miles (acc/mvm) for linear highway segments; use accidents per million entering vehicles (acc/meh) for intersections.*

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| **Functional Class:** Urban Principal Arterial - Other Freeway/Expressway | | **Design Classification:** Other Freeway | **Context Class:** Urban Core |
| **AADT:** 74,504 (2047) | **% Trucks:** 14.55% | ◉ **NHS** ○ **Non-NHS** | **Terrain:** Rolling |

## 1. Description of Nonstandard Feature

**Type of Feature:** Shoulder Width - Right **Other:**

**Location:** NYS Route 33 EB and NYS Route 33 WB (outside tunnel)

**Latitude and Longitude** (Linear Feature) **FROM** Lat: 42.00176 Long: e,g., -78.848841 **TO** Lat: 42.919211 Long: e,g., -78.843444

**Latitude and Longitude** (Point Feature) Lat: Long:

| | |
|---|---|
| **Standard Value:** 10 ft | **Design Speed:** 60 mph |
| **Existing Value:** Generally is 8' but varies 4 ft min | **Recommended Speed - Existing:** 55 mph |
| **Proposed Value:** 8 ft | **Recommended Speed - Proposed:** 60 mph |

## 2. Accident Analysis

| | |
|---|---|
| **Current Accident Rate**[1]**:** 0.81/0.97 ◉ acc/mvm ○ acc/mev | **Statewide Accident Rate:** 1.34 ◉ acc/mvm ○ acc/mev |
| **From** 2018 **to** 2020 (pre covid) | **Is the Nonstandard Feature a contributing factor?** ○ Yes ◉ No |

**Anticipated accident rates, severity, and costs:**

Sideswipe and rear end accidents were the predominant accident types.

## 3. Cost Estimates

| | |
|---|---|
| **Cost to fully meet standards:** 1.5 Million | **Cost(s) for incremental improvements:** Current Design |

## 4. Mitigation

*e.g., increased superelevation and speed change lane length for a non-standard ramp radius*

Even though the areas of the proposed non-standard shoulders are outside of the tunnel, there will be increased surveillance by the traffic operations center and it will be more likely that vehicles broke down on the shoulder will be detected earlier.
Limit the use of non-standard 8ft shoulder to the location on NYS Route 33 WB between the off ramp and the tunnel. (800ft)

## 5. Compatibility with Adjacent Segments and Future Plans

Shoulder widths are compatible with the existing shoulder widths at the limits of work

## 6. Other Factors

*e.g., social, economic, and environmental*

Increased impacts to the community.
Creation of non-standard features on Humboldt parkway (lane width are already at minimum) or would require ROW acquisitions at 13 properties along Humboldt Parkway which would impact the community.
Increased impacts to Humboldt Parkway during construction.
Minimizing foot print of Kensington Expressway.

## 7. Proposed Treatment (i.e., recommendation)

Shoulder design to provide adequate space for disabled vehicles and be compatible with shoulder sections north and south of the project limits while minimizing impacts to Humboldt Parkway in properties

[1] *Use accidents per million vehicle miles (acc/mvm) for linear highway segments; use accidents per million entering vehicles (acc/meh) for intersections.*

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| **Functional Class:** Urban Principal Arterial - Other Freeway/Expressway | | **Design Classification:** Other Freeway | **Context Class:** Urban Core |
| **AADT:** 74,504 (2047) | **% Trucks:** 14.55% | ◉ **NHS** ○ **Non-NHS** | **Terrain:** Rolling |

## 1. Description of Nonstandard Feature

**Type of Feature:** Shoulder Width - Left **Other:**

**Location:** NYS Route 33 EB and NYS Route 33 WB (Outside of Tunnel)

**Latitude and Longitude** (Linear Feature) **FROM** Lat: 42.00176 Long: e,g., -78.848841 **TO** Lat: 42.919211 Long: e,g., -78.843444

**Latitude and Longitude** (Point Feature) Lat: Long:

| | |
|---|---|
| **Standard Value:** 10 ft | **Design Speed:** 60 mph |
| **Existing Value:** Varies 6 ft to 4 ft min | **Recommended Speed - Existing:** 55 mph |
| **Proposed Value:** Varies from 6' at tunnel to 4 ft (matches existing at limit of work) | **Recommended Speed - Proposed:** 60 mph |

## 2. Accident Analysis

| | |
|---|---|
| **Current Accident Rate**[1]**:** 0.81/0.97 ◉ acc/mvm ○ acc/mev | **Statewide Accident Rate:** 1.34 ◉ acc/mvm ○ acc/mev |
| **From** 2018 **to** 2020 (pre covid) | **Is the Nonstandard Feature a contributing factor?** ○ Yes ◉ No |

**Anticipated accident rates, severity, and costs:**

Sideswipe and rear end accidents were the predominant accident types.

## 3. Cost Estimates

| | |
|---|---|
| **Cost to fully meet standards:** 2.5 million | **Cost(s) for incremental improvements:** 2.4 million |

## 4. Mitigation

*e.g., increased superelevation and speed change lane length for a non-standard ramp radius*

Even though areas of the proposed non-standard shoulders are outside of the tunnel, there will be increased surveillance by the traffic operations center and it will be more likely that vehicles broke down on the shoulder will be detected earlier.

## 5. Compatibility with Adjacent Segments and Future Plans

Shoulder widths are compatible with the existing shoulder widths at the limits of work

## 6. Other Factors

*e.g., social, economic, and environmental*

Require widening of the Kensington Expressway.
Increased impacts to the community.
Creation of non-standard features on Humboldt parkway (lane width are already at minimum) or would require ROW acquisitions at 28 properties along Humboldt Parkway which would impact the community.
Increased impacts to Humboldt Parkway during construction.
Minimizing foot print of Kensington Expressway.

## 7. Proposed Treatment (i.e., recommendation)

Shoulder design to provide adequate space as practical for disabled vehicles and be compatible with the shoulder sections at the project limits.

[1] *Use accidents per million vehicle miles (acc/mvm) for linear highway segments; use accidents per million entering vehicles (acc/meh) for intersections.*

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| **Functional Class:** Urban Principal Arterial - Other Freeway/Expressway | | **Design Classification:** Other Freeway | **Context Class:** Urban Core |
| **AADT:** 74,504 (2047) | **% Trucks:** 14.55% | ◉ **NHS** ○ **Non-NHS** | **Terrain:** Rolling |

## 1. Description of Nonstandard Feature

**Type of Feature:** Stopping Sight Distance (Vertical) **Other:**

**Location:** NYS Route 33 EB and NYS Route 33 WB

**Latitude and Longitude** (Linear Feature) **FROM** Lat: 42.00176 Long: e,g., -78.848841 **TO** Lat: 42.919211 Long: e,g., -78.843444

**Latitude and Longitude** (Point Feature) Lat: Long:

| | |
|---|---|
| **Standard Value:** 570 ft Stopping Sight Distance | **Design Speed:** 60 mph |
| **Existing Value:** 450 ft | **Recommended Speed - Existing:** 55 mph |
| **Proposed Value:** 524-10" EB, 561-5" WB | **Recommended Speed - Proposed:** 60 mph |

## 2. Accident Analysis

| | |
|---|---|
| **Current Accident Rate**[1]**:** 0.81/0.97 ◉ acc/mvm ○ acc/mev | **Statewide Accident Rate:** 1.34 ◉ acc/mvm ○ acc/mev |
| **From** 2018 **to** 2020 (pre covid) | **Is the Nonstandard Feature a contributing factor?** ○ Yes ◉ No |

**Anticipated accident rates, severity, and costs:**

Sideswipe and rear end accidents were the predominant accident types.

## 3. Cost Estimates

| | |
|---|---|
| **Cost to fully meet standards:** $3-5 million | **Cost(s) for incremental improvements:** Current design |

## 4. Mitigation

*e.g., increased superelevation and speed change lane length for a non-standard ramp radius*

Lighting in the area of the non-standard sight distance will be provided increasing the driver's ability to detect objects.

## 5. Compatibility with Adjacent Segments and Future Plans

Compatible with future plans.

## 6. Other Factors

*e.g., social, economic, and environmental*

Increased impact on the community during construction due to the extended work limits.
Require engineering analysis of relocation and impacts to the Scajaquada Drain
Increased project limits to and impacts to the community

## 7. Proposed Treatment (i.e., recommendation)

Maximize the stopping sight distance with the limitation of not impacting the Scajaquada Drain.

[1] *Use accidents per million vehicle miles (acc/mvm) for linear highway segments; use accidents per million entering vehicles (acc/meh) for intersections.*