APPENDIX B
Survey Results

Part A: Agency Responsibility Overview

1. The agency is responsible for which project phases of the following road classes.

<table>
<thead>
<tr>
<th></th>
<th>Planning</th>
<th>Design</th>
<th>Construction</th>
<th>Maintenance</th>
<th>Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interstate</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>NHS</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>State</td>
<td>4</td>
<td>8</td>
<td>7</td>
<td>5</td>
<td>5</td>
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<tr>
<td>Local</td>
<td>17</td>
<td>19</td>
<td>17</td>
<td>15</td>
<td>14</td>
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<tr>
<td>Other</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

2. The roadway design is primarily done by
   • Agency personnel, 1
   • State DOT personnel, 1
   • Consultants managed by agency, 15
   • Consultants managed by others, 1
   • Other, 1: Agency personnel and consultants managed by agency

3. In designing roadways, the agency uses the following design documents:
   • Design guidelines, 4
   • Design standards, 13
   • Design practices based on other research/guidelines, 0
   • Other, 2:
     i. Combination of design standards and guidelines
     ii. Combination of AASHTO guidelines

4. The urban design documents used by the agency are
   • Those of the state DOT, 1
   • The Green Book, 2
   • Agency developed documents based on those of the state, 1
   • Agency developed documents based on the Green Book, 6
   • Agency documents developed based on other research/guidelines, 5
   • Other, 4:
     i. State DOT, Green Book, local standards
     ii. APWA Specifications and Criteria
     iii. c and d—Agency developed documents based on those of the state and Agency
debveloped documents based on the Green Book
     iv. Green Book and other research guidelines

5. The design guidelines used by your agency provide adequate flexibility (without design exceptions) to meet the transportation and community needs of the urban environment.
   • Yes, 13
   • No, 6
6. A copy of the design standards/guidelines is available
   - By mail, 4
   - Online, 12
   - Electronically, 3

Part B: Need for Design Variances

7. The typical constraints within your urban area that require flexibility or design exceptions include

<table>
<thead>
<tr>
<th>Constraint</th>
<th>Always</th>
<th>Frequently</th>
<th>Occasionally</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right-of-way (ROW)</td>
<td>2</td>
<td>7</td>
<td>6</td>
<td>0</td>
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<tr>
<td>Capacity</td>
<td>0</td>
<td>7</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Horizontal alignment</td>
<td>0</td>
<td>5</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Vertical alignment</td>
<td>0</td>
<td>6</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Natural environment</td>
<td>0</td>
<td>5</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Human/social environment</td>
<td>0</td>
<td>5</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Pedestrians</td>
<td>2</td>
<td>5</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Bicyclists</td>
<td>1</td>
<td>5</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Transit</td>
<td>1</td>
<td>4</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>2</td>
<td>5</td>
<td>8</td>
</tr>
</tbody>
</table>

4 did not give responses to this question

8. Design flexibility is typically considered for the following reasons

<table>
<thead>
<tr>
<th>Reason</th>
<th>Always</th>
<th>Frequently</th>
<th>Occasionally</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
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<td>4</td>
<td>5</td>
<td>3</td>
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<tr>
<td>Cost</td>
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<tr>
<td>Operational</td>
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<td>6</td>
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<td>1</td>
</tr>
<tr>
<td>Natural environment</td>
<td>1</td>
<td>4</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Human/social environment</td>
<td>1</td>
<td>3</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>ROW impacts</td>
<td>2</td>
<td>5</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Aesthetic</td>
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<td>3</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Pedestrian accommodations</td>
<td>3</td>
<td>4</td>
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<td>0</td>
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<tr>
<td>Bicycle facilities</td>
<td>2</td>
<td>3</td>
<td>10</td>
<td>0</td>
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<tr>
<td>Transit</td>
<td>1</td>
<td>4</td>
<td>9</td>
<td>1</td>
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<tr>
<td>Clear zone</td>
<td>1</td>
<td>2</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>1</td>
<td>6</td>
<td>8</td>
</tr>
</tbody>
</table>

4 did not give responses to this question

9. The typical design elements that your agency modifies to deliver projects include

<table>
<thead>
<tr>
<th>Element</th>
<th>Always</th>
<th>Frequently</th>
<th>Occasionally</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design speed</td>
<td>1</td>
<td>3</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Lane width</td>
<td>1</td>
<td>8</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Shoulder width</td>
<td>1</td>
<td>5</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Bridge width</td>
<td>1</td>
<td>1</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>2</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>--------------------------</td>
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<tr>
<td>Structural capacity</td>
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<td>Horizontal alignment</td>
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<td>Vertical alignment</td>
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<tr>
<td>Grade</td>
<td>2</td>
<td>3</td>
<td>9</td>
<td>1</td>
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<tr>
<td>Stopping sight distance</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>7</td>
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<tr>
<td>Cross slope</td>
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<td>4</td>
<td>10</td>
<td>1</td>
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<tr>
<td>Superelevation</td>
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<td>8</td>
<td>5</td>
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<tr>
<td>Vertical clearance</td>
<td>1</td>
<td>1</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Horizontal clearance (other than clear zone)</td>
<td>1</td>
<td>2</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Clear zone</td>
<td>0</td>
<td>5</td>
<td>4</td>
<td>6</td>
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<tr>
<td>Operational capacity</td>
<td>1</td>
<td>3</td>
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<tr>
<td>Other</td>
<td>0</td>
<td>1</td>
<td>6</td>
<td>8</td>
</tr>
</tbody>
</table>

4 did not give responses to this question

**Part C: Design Exceptions**

10. The agency considers design exceptions for projects that may not conform to the applicable design documents.
   - Yes, 12
   - No, 0
   - No response, 7

11. The agency considers design exceptions for ALL types of projects.
   - Yes, 6
   - No, 6
   - No response, 7

12. List any project types to which this does NOT apply
   - Reconstruction of a roadway segment within existing ROW, 4
   - Using a curb and gutter design to reduce ROW requirements, 4
   - Intersection improvements, 6
   - Modifying design elements to address pedestrian issues, 6
   - Modifying design elements to address bicyclist access, 5
   - Altering or lowering design speed, 6
   - Using traffic calming devices, 7
   - New roadway construction, 4
   - Preventive maintenance, 6
   - Other, 1 (did not specify)
   - No response, 7

13. The design exception documentation policy used by your agency uses only the 13 controlling criteria identified by FHWA in design exceptions.
   - Yes, 6
   - No, 6
   - No response, 7
14. The agency uses the following criteria in design exceptions.
   - Design speed, 8
   - Lane width, 10
   - Shoulder width, 8
   - Bridge width, 5
   - Structural capacity, 3
   - Horizontal alignment, 4
   - Vertical alignment, 7
   - Grade, 8
   - Stopping sight distance, 5
   - Cross slope, 8
   - Superelevation, 5
   - Vertical clearance, 7
   - Horizontal clearance (other than clear zone), 6
   - Clear zone, 5
   - Operational capacity, 7
   - Other, 0
   - No response, 7

15. In relation to the Green Book criteria, the design values used to require design exceptions are
   - The same, 5
   - More strict, 1
   - Less strict, 6
   - No response, 7

16. The design exception documentation for a project is typically prepared by the
   - Agency staff responsible for the design, 4
   - Agency staff supervising the design, 4
   - Consulting firm responsible for the design, 4
   - No response, 7

17. Design exceptions are typically submitted during
   - Planning, 2
   - Projection initiation, 0
   - Environmental permits, 0
   - Preliminary design, 7
   - 60% design, 3
   - Final design, 0
   - Plan and specifications/cost estimates, 0
   - No response, 7

18. The typical time for preparing a design exception document is
   - <1 month, 3
   - 1–2 months, 5
   - 2–6 months, 2
   - More than 6 months, 2
   - No response, 7
19. The agency collects and uses the following data for inclusion in design exceptions

<table>
<thead>
<tr>
<th>Data Category</th>
<th>Always</th>
<th>Frequently</th>
<th>Occasionally</th>
<th>Never</th>
</tr>
</thead>
<tbody>
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<td>Crash history</td>
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<td>3</td>
<td>4</td>
<td>2</td>
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<tr>
<td>Crash severity</td>
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<td>2</td>
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<tr>
<td>Traffic volume data</td>
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<td>Cost estimates</td>
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<td>Crash modification factors</td>
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<td>Before/after studies</td>
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<tr>
<td>Other</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>7</td>
</tr>
</tbody>
</table>

7 did not give responses to this question

20. For design exceptions to be approved, the application is reviewed by the
- Agency’s legal office, 2
- Agency’s design exception committee, 4
- Agency’s design team/group, 8
- DOT’s legal office, 1
- DOT’s design exception committee, 2
- DOT’s design team/group, 2
- FHWA, 2
- Other, 1: The Planning Department is also consulted and submission to City Council for a Resolution
- No response, 7

21. The typical time for review/approval of a design exception document is
- <3 months, 6
- 3–6 months, 4
- 6–9 months, 1
- More than 9 months, 1
- No response, 7

22. The approval rate for design exceptions is typically
- 0%–25%, 3
- 26%–50%, 2
- 51%–75%, 4
- More than 75%, 3
- No response, 7

23. The agency prepares and processes approximately how many design exceptions in a typical year
- <5, 6
- 5–10, 0
- 11–20, 2
- 21–50, 2
- >50, 2
- No response, 7
24. In the event that the design exception was not approved, the agency typically
- Negotiates a solution, 3
- Resubmits the application, 1
- Redesigns the project, 8
- Proceeds with design without approval, 0
- Other, 0
- No response, 7

Part D: Agency Streamlining Efforts

25. The agency has conducted a review of design practices to determine their impact on the project development process.
- Yes, 4
- No, 7
- No response, 8

26. List potential results of preparing design exceptions.

<table>
<thead>
<tr>
<th></th>
<th>Increased</th>
<th>Decreased</th>
<th>No change</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project delivery time</td>
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<td>2</td>
<td>4</td>
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<tr>
<td>Project costs</td>
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<td>6</td>
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<td>0</td>
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<tr>
<td>Potential liability exposure</td>
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<td>5</td>
<td>0</td>
</tr>
<tr>
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<td>0</td>
<td>2</td>
<td>8</td>
</tr>
</tbody>
</table>

8 did not give responses to this question

27. List potential impacts of preparing design exceptions.

<table>
<thead>
<tr>
<th></th>
<th>Improved</th>
<th>Deteriorated</th>
<th>No change</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
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<td>2</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Operational performance</td>
<td>3</td>
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<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Modal alternatives</td>
<td>2</td>
<td>0</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>9</td>
</tr>
</tbody>
</table>

8 did not give responses to this question

28. List the processes and/or efforts that your agency has initiated for timely resolution of design exceptions.
- Improved guidance, 6
- Clarification of controlling criteria, 6
- Training of staff, 5
- Uniform document format, 3
- Checklist of documents, 4
- Other, 3:
  i. Very limited requests show no need for policies
  ii. Monthly meeting of committee
  iii. Electronic plan submittal and approval
- No response, 8
29. Once a design exception is granted for flexible practice, the agency uses it as a precedent for future projects.
   - Yes, 2
   - No, 9
   - No response, 8

30. The agency reviews projects after completion to determine their effects of the design exceptions on

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>6</td>
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</tr>
<tr>
<td>Operation</td>
<td>7</td>
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</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>8</td>
</tr>
</tbody>
</table>

8 did not give responses to this question

31. The agency discusses design exceptions at public meetings.
   - Yes, 7
   - No, 4
   - No response, 8

32. The design exception policy used by your agency provides adequate flexibility to grant a variance when needed.
   - Yes, 9
   - No, 2
   - No response, 8

33. The design exception policy used by your agency requires
   - The appropriate amount of information, 9
   - Too much information, 0
   - Too little information, 2
   - No response, 8

34. Provide a list of any problems you have experienced with the design exception process.
   - None, 2
   - N/A, 2
   - No response, 9
   - Right-of-way, horizontal alignment, vertical alignment
   - Design exceptions are used so infrequently that we are not aware of any problems
   - Request not being submitted early in the design process
   - No participation by other agencies affected especially those agencies who must maintain roadways. No community outreach/dialogue to potentially affected communities. Minimal dialogue re: legal ramifications.
   - Sometimes the applicant needs to provide more information so it delays the determination one month
   - The design exceptions also have to adopt special maintenance regimes for the life of the facility
35. Provide a list of any improvements that you feel could be made to simplify the design exception process
   - None, 2
   - N/A, 3
   - No response, 9
   - Streamlining legal process
   - In the past year, we have improved our guidance which has simplified the process
   - Preparation of written documentation for process to be distributed to agency staff and design consultants
   - Make a list of criteria that needs to be submitted for the exception
   - This exception process should not be simplified since the public’s safety needs to be satisfied

36. Provide a list of lessons learned from the design process as currently applied by your agency.
   - None, 1
   - N/A, 3
   - No response, 9
   - Being effective in dealing with political realities
   - We have emphasized that design exceptions should be requested as early as possible in the design process
   - Early consideration in planning and preliminary design process. Early assessment of environmental and other existing conditions that may necessitate exceptions.
   - Once started on this path then every one wants an exception
   - Need to follow-up to determine impact
   - My agency has infrequent and almost no exceptions. If the exceptions are not met the facilities are deemed to be private ones.

Part E: Case Identification

37. Provide a specific example where a variance was granted.
   - None, 1
   - N/A, 3
   - No response, 11
   - Name: Route 734
     Design exception justification: Reduce shoulder width to lessen environmental and ROW impacts
     Reasons for success: Driver expectations will not be compromised
     Lessons learned: investigate impacts to environmental and right-of-way early
   - Name: Kuhio Avenue improvements project
     Design exception justification: Lane width narrowing
     Reasons for success: tradeoff between wider pedestrian sidewalks, pedestrian safety issues vs. narrower lane widths
     Lessons learned:
   - Name: E. 4th Street Improvement
     Design exception justification: lane narrowing
     Reasons for success: reduced traffic on roadway
     Lessons learned: need to coordinate with proper safety agencies
• Name: New Road Design
  Design exception justification: Grade of street greater 14%
  Reasons for success: The streets were concrete streets.
  Lessons learned: Maintenance equipment cannot operate on an asphalt surface at this grade.

38. Provide a specific example where a variance was NOT granted.
  - None, 1
  - N/A, 4
  - No response, 11
  - Name: Traffic calming measures various streets
    Design exception justification: slow speeds along certain segments of existing streets
    Reasons for denial: community opposition
    Lessons learned: Clear communication and early dialogue with community and City Council is essential
  - Name: Detroit Ave. Streetscape
    Design exception justification: Average daily traffic justified 2 lanes instead of 4
    Reasons for denial: need to maintain minimum lane widths to accommodate 4 lanes in the future
    Lessons learned: Negotiation period took far too long and costs increased as a result
  - Name: many projects