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Agreement T4118, Task 02
Pavement Deterioration

ASSESSMENT OF THE I-5 PORTLAND CEMENT CONCRETE PAVEMENTS IN KING COUNTY

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16. ABSTRACT

The Interstate 5 portland cement concrete pavement (PCCP) in King County has been in service for over 40 years, twice its planned design life. As such, I-5 is in need of a rehabilitation/reconstruction effort. This study provides WSDOT information that will aid decision making about the timing, locations, and type of rehabilitation or reconstruction.

Extensive pavement conditions/distress data provided by WSDOT were summarized, analyzed, and used to develop visual tools to communicate the condition of the I-5 PCCP. The performances of the non-rehabilitated, diamond ground, and the dowel bar retrofit and diamond ground PCCP were summarized and compared. Use of such information shows that about 66 percent of I-5 in King County is in need of rehabilitation or reconstruction. To further illustrate these conditions, Arc GIS was used to map the various distresses/conditions, and the results suggest which sections of I-5 should be addressed early in the rehabilitation/reconstruction process.

A field study assessing the I-5 PCCP was conducted at the same location as a 1986 study, providing a unique opportunity to compare the PCCP conditions over a span of 20 years. The field study showed that the number of cracks had more than doubled, spalling dimensions had increased, and faulting displacements had increased by more than 43 percent.

The report concludes with a broad assessment of expected I-5 conditions and necessary WSDOT actions for five-year increments (0 to 5 years, 5 to 10 years and greater than 10 years).

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TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF FIGURES

LIST OF TABLES

EXECUTIVE SUMMARY

The Interstate 5 portland cement concrete pavement (PCCP) in King County has been in service for over 40 years, twice its planned design life. As such, I-5 is in need of a rehabilitation/reconstruction effort. This study provides WSDOT information that will aid in decision making about the timing, location, and type of rehabilitation or reconstruction.

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CHAPTER 1
INTRODUCTION

1.1 THE PROBLEM

The U.S. Interstate system is about 50 years old. For I-5 within King County, most of the original portland cement concrete pavement (PCCP) was placed up to 47 years ago, according to the Washington State Department of Transportation (WSDOT). These 9-inch-thick pavements have been in service for more than twice their original design life of 20 years.

Why has I-5 performed as well as it has? This could be due to Western Washington's mild climate and the durable aggregates used in the PCC.

Despite the good performance of the I-5 PCC pavements, they are now showing high levels of distress and are in need of rehabilitation and/or replacement. High volumes of heavy truck traffic have resulted in extensive panel cracking and transverse joint faulting. Studded tire use has also created extensive wheel path wear and aggregate surface polishing. As a result, pavements are not only losing their structural capacity but are becoming uncomfortable for the public to travel upon.

1.2 THE STUDY

In an effort to address the issues associated with the deterioration of I-5 in King County, WSDOT's Urban Corridors Office commissioned the Route Development Plan to assess the condition and deterioration of I-5 in King County. This study is a joint effort among the WSDOT Office of Urban Corridors, Parametrix Engineering, Nichols Consulting Engineers, and a team from the University of Washington's Department of Civil and Environmental Engineering.

Parametrix Engineering is providing a traffic assessment for I-5 within King County and a traffic model that uses the program VisSim, short for Visual Simulations. The VisSim model was used to identify possible methods for improving traffic efficiency, such as removing exits or adding lanes to reduce weaving and increase capacity.

The UW team consisted of professors Joe Mahoney and George Turkiyyah, Graduate Research Assistant Michael Hansen, WSDOT State Pavements Engineer Linda Pierce, and Newton Jackson of Nichols Consulting.

1.3 OBJECTIVES

This report is the first of at least three reports to be produced by the study team. This report presents a pavement assessment and the development of visual tools for reviewing the condition of the I-5 PCCP. The second report is an executive summary of the major study findings. A third report will overview the research relating to the modeling of the PCCP's structural behavior.

1.4 ORGANIZATION

The report contains five chapters. Chapter 2 overviews the I-5 PCCP distress data. Chapter 3 describes the analyses of those data, Chapter 4 reviews the PCCP rehabilitation options for I-5, and Chapter 5 contains the study's initial conclusions and recommendations.

CHAPTER 2
I-5 PCCP DATA

Evaluating the distress of the I-5 PCCP requires extensive data collection. Fortunately, WSDOT has collected much of the needed data for I-5 through King County.

This chapter describes the data that were collected, including data from 2004 and 2007. Additional information was collected from the Washington State Pavement Management System (WSPMS), video imagery, and accident histories.

2.1 I-5 PCCP DISTRESS DATA

For this report, slab cracking, transverse joint faulting, wheel path wear, and International Roughness Index (IRI) will be referred to as PCCP distress.

WSDOT collected the I-5 PCCP distress data with its data distress collection van. The van is outfitted with multiple lasers for measuring wheel path wear and the road profile, along with video imaging equipment that documents other pavement distress such as slab cracking. Data were collected continuously and summarized in 1/10-mile increments for IRI, wheel path wear, faulting, and cracking.

The IRI was averaged for the right and left wheel paths for each of the 1/10-mile sections. An examination of the IRI data revealed that higher IRI values were recorded in the left wheel paths for all lanes in both the northbound and southbound directions. Initially this was thought to have been the result of longitudinal cracking, which tends to be more prevalent in the left wheel path. Extensive longitudinal cracking was noted in a research report that examined I-5 performance in the early 1990s (Mahoney et al., 1991). However, discussions with WSDOT determined that this discrepancy was a result of problems with the collection equipment. Therefore, only the data from the right wheel path were used in the study (Pierce, 2006).

Wheel path wear was evaluated in both the wheel paths and averaged over 1/10-mile sections. The maximum wear depth was recorded and stored for each section.

The faulting of the pavement sections was collected as a percentage of the slabs in a 1/10-mile section (1/10-mile equals 35 slabs) that exhibited one of three levels of faulting: ⅛ in. to ¼ in., ¼ in. to ½ in., and ½ in. and greater. Additionally, the average faulting was recorded over each 1/10-mile section.

Through analyses of video imagery, WSDOT determined the number of cracks (either one, two to three, or four or more cracks) in each of the panels per 1/10-mile section.

2.1.1 2004 I-5 PCCP Distress Data

The 2004 I-5 PCCP distress data were collected between July 8, 2004, and July 22, 2004. These data represented pavement distress data collected by WSDOT from milepost (MP) 139.5 (King-Pierce County Line) to MP 177.75 (King-Snohomish County Line) for lanes 1 through 4 in both the northbound and southbound directions. The 2004 survey was the first one conducted by WSDOT for all lanes in both directions.

For this study it was necessary to filter the 2004 distress data, which included the removal of sections of hot mix asphalt (HMA) paving, HMA overlays, and bridge decks. The centerline mileage of I-5 in King County is shown in Table 1.1.

Within King County, I-5 has a total of 76.5 centerline miles, including 9.7 miles of bridge deck (both directions), or about 13 percent of the total. Each of the 1/10-mile sections that contained bridge deck were removed from the 2004 distress data used in this study. The logic for this is that where the bridge deck meets with the PCCP, displacement at the joint tends to cause a large increase in faulting and IRI.

Table 2.1. I-5 Bridge Deck in King County by Centerline Miles and Percentage

Item	Northbound	Southbound	Total
I-5 Total Centerline Miles	38.25	38.25	76.5
Total Centerline Miles of Bridge Deck	4.01	5.69	9.7
Total % of Bridge Deck	10.5%	14.9%	12.68%

All of I-5 in King County was originally constructed with PCCP. Since the original construction, only one section of I-5 in King County has been overlaid with HMA. This section of HMA exists in the southbound lanes between mileposts 156.5 and 156.7. This section was also removed from the data set.

2.1.2 2006 I-5 PCCP Distress Data

The 2006 I-5 PCCP distress data were collected on August 14th, 17th, and November 1st of 2006 as part of WSDOT's annual pavement distress collection process. This data collection was done in one pass of a single lane of I-5 northbound and southbound, most of which was in Lane 2. Bridge decks were identified and removed from the 2006 distress data. Refer to Appendix A for a detailed road log with MP locations.

2.2 I-5 VIDEO IMAGERY

Video imagery was collected from four cameras mounted on the WSDOT distress collection van. Two of the cameras face down toward the pavement and take surface images of the lane that the van is traveling. These two cameras take continuous images that overlap, providing a complete picture of the pavement. The other two cameras face forward, taking images of the roadway ahead of the van in a driver's perspective. These images are not taken as often as the pavement images. For every five sets of pavement images there is one driving perspective set of images.

2.3 ACCIDENT DATA

WSDOT documents all reported accidents that occur on state routes. For this study the accidents that occurred in wet conditions were of special interest.

Wet condition accidents are accidents that occurred either when the roadway was wet or when water was standing on the roadway. Between 2001 and 2006, 4,485 wet condition accidents occurred on I-5 in King County (excluding all accidents involving alcohol).

The data recorded for each accident include the following:

- Milepost
- Lane and Direction
- Date and Time
- Number of Injuries and Fatalities
- Number of Vehicles
- Roadway Surface Condition (Wet/Standing Water)
- Type of Vehicle.

2.4 FIELD STUDY DATA

This study used field data that were collected in conjunction with a previous study of I-5 pavement performance

2.4.1 Field Study Site Selection Criteria

As another factor to assess the condition of I-5, a pavement section was sought that included extensive distress but was not necessarily the worst case. Such distress would include longitudinal cracking, panels with multiple cracks, wheel path wear, and faulting. I-5 exhibits an abnormal amount of longitudinal cracking, especially in the left wheel path. These longitudinal cracks developed early in the life of these slabs and progressed minimally over several decades (Jackson, 2006; Mahoney et al, 1991).

Once multiple cracks develop in a panel, the pavement begins to lose serviceability. Assessing panels with multiple cracks allows further understanding of the progression of crack development.

2.4.2 Selected Field Study Site—Northbound I-5 at MP 176.35

Northbound I-5 at milepost 176.35 was selected, in part, because of previous testing in September 1986 (Mahoney et al., 1991). Testing at this location provided a unique opportunity to study how these PCC pavements had deteriorated over a 21-year period.

This section of I-5 was constructed in December 1964 with four 12-foot-wide PCC lanes in each direction and HMA shoulders. The transverse joints were spaced 15 feet apart and perpendicular to the centerline. The pavement design for this section of I-5 consisted of 9 inches of plain jointed PCC over 2 inches of crushed surfacing top course, over 5 inches of special ballast, over a silty subgrade.

The 1986 testing began at about MP 176.35 and extended north about 420 feet in the two outside lanes. The core locations from 1986 are visible on Pathview, which allowed identification of the slabs.

The 1986 field study data from MP 176.35 were collected in three groups of four panels each in lanes 1 and 2 (slabs 1 to 4, 18 to 21, and 25 to 28). Cores were taken; cracking, spalling, and faulting were surveyed; and falling weight deflectometer (FWD) tests were conducted.

2.4.3 1986 I-5 Field Study Data Collection—MP 176.35

Forty 4-inch-diameter cores were obtained in the initial investigation in 1986. These cores were taken at slab centers, transverse joints, longitudinal joints, and intact areas between joints and cracks, as noted in Appendix B.

Each slab in the test was closely scrutinized to identify every crack. The cracks were then inspected for spalling; the area of highest spalling distress was identified; and the maximum depth and width of the spall were recorded. The cracking and spall data can also be found in Appendix B.

Faulting measurements for joints and cracks were made at the outside and inside edges of Lane 1 on all of the slabs. Measurements were limited to the outside edge of Lane 2 for all slabs except 25 and 26. Additional measurements were made at the middle of the lane and in each wheel path in Lane 1 for slabs 1 through 4. All of the faulting measurement locations are shown in Appendix B.

FWD testing was conducted in the outside wheel panel edge, the right wheel path, and at the center of the lane in Lane 1 for slabs 1 through 4. The

FWD was positioned on either side of the joints and at the center of the slabs. For slabs 19 and –20, FWD tests were taken at the outside edge of Lane 1 and on either side of a longitudinal crack in Slab 18. Tests were also conducted on either side of a longitudinal crack in slabs 25 and 26, as laid out in Appendix B.

2.4.4 2007 I-5 Field Study Data Collection

The 2007 I-5 field study was similar to the 1986 field study. The 2007 field study was conducted in the early morning hours of July 28th and collected much of the same information at the same locations as in the 1986 study. In comparison to the 1986 field study, the 2007 field study was not as in-depth but provided a unique opportunity to compare two sets of distress data collected 21 years apart.

As occurred in 1986, the 2007 data collection was a joint effort of WSDOT and the University of Washington. WSDOT provided the core drilling, FWD testing, and traffic control. The University of Washington provided the field study plan, conducted the faulting and cracking surveys, and assisted with the FWD testing and the core drilling.

While 40 cores were collected in 1986, only 12 were collected in 2007, short of the planned number. Core locations were restricted to the outside wheel path at mid-slab and at the transverse joints of Lane 1, as seen in Appendix B. Unfortunately, because of time constraints and a lack of patching material, core drilling was cut short.

The crack and spalling survey was the same as in 1986. The cracking survey was not fully completed because of safety concerns associated with traffic during the field study (slabs 26, 27, and 28 were not completely surveyed). These slabs exhibited some of the worst spalling observed at the test site. Spalling widths were estimated to be in excess of 4 in. at two of the slabs.

The faulting survey was also cut short at Slab 26 because of safety concerns. The detailed locations of the faulting survey are found in Appendix B.

The FWD was used primarily at the transverse joints and at the longitudinal cracks to assess load transfer, and these locations are more fully described in Chapter 3 and Appendix B.

CHAPTER 3
I-5 PCCP DISTRESS DATA ANALYSIS

The data provided by WSDOT and described in Chapter 2 were analyzed to assess the pavement's current condition, identify sections of high distress, and provide an improved understanding of the remaining life of the PCCP along I-5 through King County. The methods and results for these data are discussed in this chapter.

3.1 2004 I-5 PCCP DISTRESS DATA SUMMARY

The 2004 distress data set was large, which made it a bit challenging to process and summarize. As such, the data were organized into three manageable sets. These sets consisted of (1) non-rehabilitated PCCP, (2) diamond ground PCCP, and (3) dowel bar retrofitted and diamond ground PCCP. These three sets were further divided by increasing/decreasing direction and lane (1 through 4).

These groups of data were statistically analyzed and placed in tabular form for ease of comparison. These tables can be found in appendices C, D, and E.

This division of distress data resulted in 27 summary tables. By use of these divisions, it was possible to compare the non-rehabilitated PCCP distresses for each lane.

3.1.1 Non-Rehabilitated 2004 PCCP Distress

The majority of the existing I-5 PCCP in King County was constructed between 1962 and 1971, and as of 2004, it had not been reconstructed or rehabilitated. Out of a total of 195.7 lane miles (refer to Figure 3.1), I-5 in King County has 162.9 lane miles of non-rehabilitated PCCP, or 83 percent. As might be expected given their age and traffic, these pavements are showing significant distress.

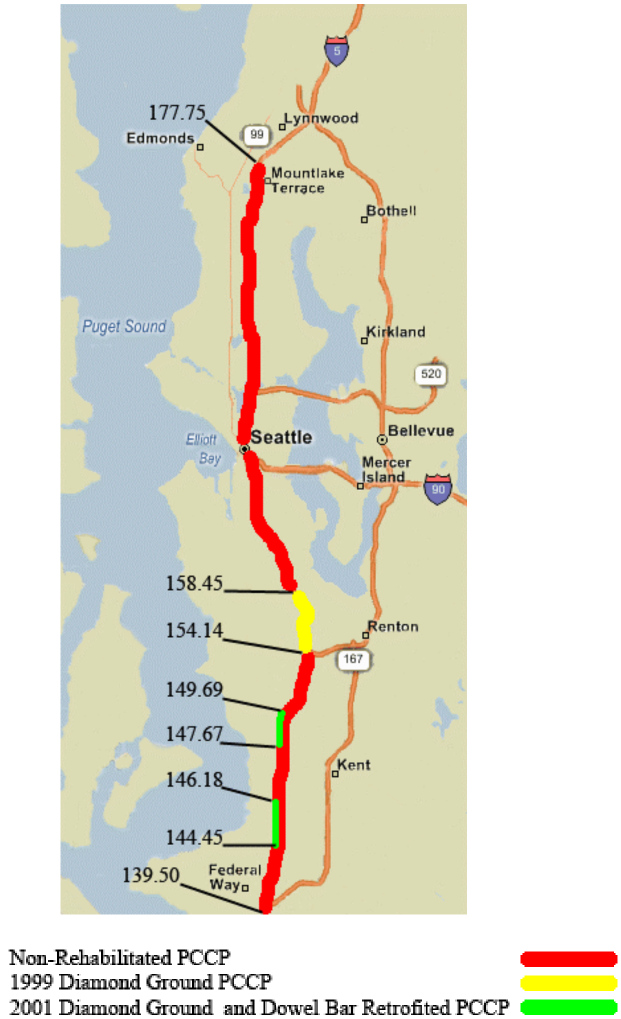

Figure 3.1. I-5 King County PCCP in 2004

The average IRI in the right wheel path for all non-rehabilitated PCCP is 157 in./mile. As expected, the highest IRI values are in lanes 1 and 2 (refer to Table 3.1), where a higher volume of truck traffic contributes to faulting and increased panel cracking.

I-5's non-rehabilitated pavements exhibit substantial wheel path wear, which is attributed to studded tires. The average wear for all these pavements is 0.34 in. in both the right and left wheel paths. The maximum wear exceeds 0.75 in., which can cause difficulty with lane changes and create potential for hydroplaning (Pierce, 2006).

Table 3.1. 2004 Average Distresses of Non-Rehabilitated, Diamond Ground, and Diamond Ground with Dowel Bar Retrofit PCCP

	Item	Non-Rehabilitated PCCP	Diamond Ground PCCP	Dowel Bar Retrofit and Diamond Grinded PCCP
	NB Mile Posts	139.5-177.75 103.75 ln-mi	154.14-158.24 14.16 ln-mi	N/A
	SB Mile Posts	139.75-177.75 59.05 ln-mi	154.16-154.4 12.68 ln-mi	144.45-149.69 6.04 ln-mi
	Average IRI (in/mi)	157	70	52
	Average Rut Left (in)	0.34	0.17	0.26
	Average Rut Right (in)	0.34	0.19	0.27
	Average Faulting (in)	0.11	0.05	0.03
	Number of Faults per 35 slabs	8.10	2.17	2.54
% of Faulted Slabs	**⅛" - ¼"**	22.18	4.70	3.39
	¼" - ½"	5.80	1.64	0.00
	½" +	0.94	0.02	0.00
	Total	28.91	6.36	3.39
Average # of Cracks per Panel per 35 slabs	**1 Crack**	3.77	3.56	1.41
	2 - 3 Cracks	0.67	0.33	0.13
	4+ Cracks	0.09	0.05	0.00
# of Cracks as % of Total Slabs	**1 Cracks**	11.20	10.73	4.04
	2 - 3 Cracks	2.08	0.98	0.38
	4+ Cracks	0.29	0.14	0.00
Faulted Slabs as % of Total Slabs	**⅛" - ¼"**	7.78	0.65	0.23
	¼" - ½"	2.93	0.23	0.00
	½" +	0.20	0.01	0.00
	Total	10.91	0.89	0.23
	% PCCP Cracked	13.56	11.85	4.42
	Average Age of PCCP as of 2004	40.43	37.00	39.74
	Age of Rehabilitation as of 2004	N/A	5.0	3.0

As observed in previous studies, faulting on I-5 is not as prevalent as it is on other PCCP pavements in Washington (Mahoney et al., 1991). On average, 29 percent of the slabs are faulted, with an average fault displacement of 0.11 in. (a bit less than ⅛ in.); 22 percent of the slabs have a displacement of between ⅛ in. and ¼ in.; 6 percent of the slabs have a displacement of ¼ in. to ½ in.; and about 1 percent of the slabs have a displacement of ½ in. or greater (refer to Table 3.1).

In comparison, about 14 percent of the non-rehabilitated PCCP panels exhibit cracking (see Table 3.1).

3.1.2 Diamond Ground 2004 PCCP Distress

About 41 lane miles of diamond ground PCCP are on I-5 in King County. This grinding occurred in 1999 in both the northbound and southbound directions between mileposts 154.14 and 158.45 (refer to Figure 3.1). The performance of the ground PCCP exceeds that of the non-rehabilitated PCCP, as expected.

The ride of these pavements is smoother than that of the non-rehabilitated pavements. The IRI for these diamond ground pavements is 70 in./mile in comparison to 157 in./mile for the non-rehabilitated sections.

The average wear for the diamond ground PCCP is 0.17 in. in the left wheel path and 0.19 in. in the right wheel path.

The diamond ground PCCP has substantially less faulting than the non-rehabilitated PCCP. Only 6 percent of the slabs of the diamond ground PCCP exhibit faulting, with an average of 0.05 in., in comparison to the non-rehabilitated sections, 29 percent of which have faulted slabs, with an average faulting of 0.11 in. (refer to Table 3.1). Assuming that the grinding removed the then-existing faulting, this level of faulting developed over a 5-year span (1999 to 2004). While dynamic loading at the transverse joints is reduced, issues associated with the base material, subgrade, and joint load transfer are not solved by diamond grinding.

Cracking is a bit less prevalent in the diamond ground PCCP. Twelve percent of the diamond ground PCCP panels have experienced cracking in comparison to 14 percent of the non-rehabilitated PCCP panels. This difference is not considered significant (see Table 3.1).

3.1.3 Dowel Bar Retrofit and Diamond Ground 2004 PCCP Distress

There are only two sections of dowel bar retrofit (DBR) and diamond ground PCCP on I-5 within King County (a total of 6.04 lane miles). As seen in Figure 3.1, these sections exist on southbound I-5 from mileposts 144.45 to 146.18 and mileposts 147.67 to 149.69.

As expected, the PCCP that was both retrofitted with dowel bars and diamond ground is performing better than either the non-rehabilitated or solely diamond ground PCCP. The increased performance would be expected, in part, because the DBR and diamond grinding were done in 2001, and the pavement had experienced only three years of traffic before the data collection in 2004. Furthermore, the pavement with DBR and diamond grinding would be expected to exhibit better performance than the pavements that were only ground because of the increased load transfer provided by the dowel bars. The improved load transfer would, in turn, reduce faulting and improve the pavement's ability to carry heavy traffic.

The DBR and diamond grinding improved the ride of these pavements, as evident by the low IRI values. The IRI for all pavements that had DBR and diamond grinding is 52 in./mile. The faulting for these pavements is almost non-existent, with 3 percent of the panels exhibiting faulting with an average of 0.03 in. No faulting over 0.25 in. was observed in any of the PCCP that had DBR and diamond grinding.

Despite being ground in 2001, the DBR and diamond ground pavements exhibit more wear than the pavement diamond ground in 1999. According to WSDOT, this is a result of a shallower grind depth in 2001 than in 1999 (Pierce, personal communication, 2007).

The cracking of the PCCP panels is also lower in the sections that had the DBR and diamond grinding than for either the diamond ground or non-rehabilitated pavements. Only 4 percent of the PCCP panels exhibit any cracking, and none of the panels has more than three cracks. This indicates that the PCCP panels that have developed four or more cracks in the non-rehabilitated and diamond ground sections may have recently developed these cracks, suggesting accelerating deterioration of the PCCP in this corridor.

3.1.4 Type and Year of Construction—2004 PCCP Distress Summary

The WSPMS was used to identify the year of construction and the type and thickness of base associated with the non-rehabilitated I-5 PCCP in King County. Thirteen distinct sections of construction were identified. Tables are shown in Appendix F, and maps of the locations of these sections along I-5 are located in Appendix G.

All of the PCCP in the I-5 King County corridor was constructed with a slab thickness of 9 in., while base materials had varying thicknesses and types. Most of the sections have untreated base material ranging in thickness from 0.59 ft to 1.08 ft, while a few sections were constructed with an asphalt treated base (ATB) and concrete treated base (CTB). The ATB was placed at a thickness of 0.33 ft, with 0.58 ft and 0.75 ft of untreated base beneath. The single section of CTB was placed with a thickness of 0.17 ft, with 0.42 ft of untreated base underneath (see Table 3.2).

The data in Table 3.2 suggest that the sections of PCCP that were constructed with the ATB have performed better with respect to faulting than those sections of PCCP with untreated base. The percentage of faulted slabs is lower for the ATB sections than for the untreated base sections. The cracking for both types of section (ATB and untreated) does not appear to be significantly different.

The single section of PCCP with CTB has performed similarly to the PCCP sections with ATB. Like the ATB sections, the CTB section shows better faulting resistance. The percentage of cracked slabs with the CTB base is similar to values seen with the ATB sections. The sections with the greatest thickness of untreated base (160.17 to 162.68 SB) are performing better than all of the other sections in all categories except for percentage of cracked slabs.

Table 3.2. Summary of Construction Sections, 2004 Distress Performance

MILE POST NB	174.58-177.75	172.79-174.58	170.85-172.76	170.5-170.85	169.18-170.25	176.13-168.34	166.21-167.13	162.68-165.32	N/A	158.24-162.68	152.65-158.24	149.39-152.65	139.50-149.39
Mile Post SB	N/A	N/A	170.85-177.75	170.5-170.85	169.18-170.25	167.72-168.34	N/A	162.68-166.36	160.17-162.68	157.47-160.07	153.15-158.45	149.40-153.15	139.50-149.40
Year Constructed	1965	1965	1965	1963	1965	1964	1965	1967	1967	1967	1969	1966	1962
Number of Lanes	4	4	4	3	4	4	4	4	4	4	4	3	3
Thickness of ATB (ft)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.33	0.33	N/A	N/A
Thickness of CTB (ft)	0.17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Thickness of UB (ft)	0.42	0.92	0.59	0.67	0.67	0.67	0.92	0.92	1.08	0.75	0.58	0.67	0.75
Average IRI (in/mile)	135	159	161	155	175	179	169	121	89	133	103	148	172
Average Faulting (in)	0.09	0.13	0.13	0.12	0.13	0.12	0.12	0.09	0.06	0.08	0.08	0.10	0.12
% of Faulted Slabs	22.4	35.8	38.0	37.4	37.4	29.7	31.5	19.2	10.0	19.2	18.0	21.0	27.5
% of Cracked Slabs	17.44	17.66	19.95	16.25	11.13	11.28	4.40	15.62	13.78	8.53	18.48	17.74	5.54

3.2 2004 I-5 PCCP DISTRESS DATA FAILURE ANALYSIS

For the distress types available for 2004 (IRI, faulting, wheel path wear, and panel cracking), there are generally accepted levels of distress that are associated with pavement rehabilitation and/or replacement. For this report such values will be referred to as trigger values. The 2004 distress data were analyzed by using typical trigger values to determine the total lane miles and percentage of lane miles that exceeded these values.

3.2.1 IRI Trigger Values and Analysis

For IRI, trigger values of 170 and 220 in./mile are used. These trigger values are the result of a study focused on driver-perceived roughness on urban highways (Shafizadeh, 2002). This study determined that an IRI value of 170 in./mile is the upper threshold at which drivers perceive the roughness of the road as acceptable. The 220 in./mile trigger value was determined from a consensus of pavement engineers, who agreed that at this level of roughness the pavement becomes uncomfortable to drive, especially for semi-tractor trailer drivers (Shafizadeh, 2002).

An analysis of the 2004 distress data determined that 16 percent of the I-5 PCCP had an IRI value of between 170 and 220 in./mile and another 16 percent had an IRI value of greater than 220 in./mile. Thus 32 percent of the I-5 analyzed pavement exceeded the trigger values. It is important to note that the average IRI value for all the non-rehabilitated PCCP was 157 in./mile, and much of this PCCP was on the verge of exceeding 170 in./mile (refer to Table 3.3, which shows the lane miles in excess of the trigger values, and Table 3.4, which shows the percentage of lane miles).

Table 3.3. Lanes Miles of I-5 in Excess of Trigger Values

Direction and Lane	IRI of 170 in/mile	IRI of 220 in/mile	Wheel Path Wear Depth of 0.40"	⅛" of Faulting	¼" of Faulting	½" of Faulting	10% of Panels Cracked	5% of Panels with 2 or More Cracks	10% of Panels with 2 or More Cracks
Northbound Lane 1	7.57	4.43	2.42	8.21	1.3	0.00	7.56	3.91	1.51
Northbound Lane 2	12.58	5.9	9.32	13.23	1.3	0.00	13.64	8.2	4.53
Northbound Lane 3	6.18	2.18	15.87	8.57	0.61	0.10	11.52	2.01	0.41
Northbound Lane 4	5.59	2	5.97	3.62	0.77	0.20	4.13	0.46	0.1
Northbound Total	31.92	14.51	33.58	33.63	3.98	0.30	36.85	14.58	6.55
Southbound Lane 1	8.03	6.09	1.85	8.03	0.91	0.00	7.42	3.78	1.48
Southbound Lane 2	8.61	5.71	7.78	10.12	0.9	0.00	12.99	6.56	3.71
Southbound Lane 3	6.74	3.05	8.67	7.87	0.65	0.00	6.61	0.7	0.2
Southbound Lane 4	3.99	0.72	2.92	4.96	0.7	0.20	4.4	0.52	0.12
Southbound Total	27.37	15.57	21.22	30.98	3.16	0.20	31.42	11.56	5.51
Total	**59.29**	**30.08**	**54.8**	**64.61**	**7.14**	**0.50**	**68.27**	**26.14**	**12.06**

Table 3.4. Percentage of I-5 in Excess of Trigger Values

Direction and Lane	IRI of 170 in/mile	IRI of 220 in/mile	Wheel Path Wear Depth of 0.40"	⅛" of Faulting	¼" of Faulting	½" of Faulting	10% of Panels Cracked	5% of Panels with 2 or More Cracks	10% of Panels with 2 or More Cracks
Northbound Lane 1	35.59	20.83	11.38	38.60	6.11	0.00	35.54	18.38	7.10
Northbound Lane 2	47.40	22.23	35.12	49.85	4.90	0.00	51.39	30.90	17.07
Northbound Lane 3	23.78	8.39	61.06	32.97	2.35	0.38	44.32	7.73	1.58
Northbound Lane 4	20.13	7.20	21.50	13.04	2.77	0.72	14.87	1.66	0.36
Northbound Total	31.43	14.29	33.06	33.11	3.92	0.30	36.28	14.35	6.45
Southbound Lane 1	46.74	35.45	10.77	46.74	5.30	0.00	43.19	22.00	8.61
Southbound Lane 2	39.01	25.87	35.25	45.85	4.08	0.00	58.86	29.72	16.81
Southbound Lane 3	30.29	13.71	38.97	35.37	2.92	0.00	29.71	3.15	0.90
Southbound Lane 4	17.51	3.16	12.81	21.76	3.07	0.88	19.31	2.28	0.53
Southbound Total	32.47	18.47	25.17	36.75	3.75	0.24	37.28	13.71	6.54
Total	**31.90**	**16.18**	**29.48**	**34.76**	**3.84**	**0.27**	**36.73**	**14.06**	**6.49**

3.2.2 Average Faulting Trigger Values and Analysis

The faulting trigger values used were ⅛ in. and ¼ in. If faulting is greater than ⅛ in., it can be felt by vehicle occupants. Once faulting exceeds ¼ in., it is noticeably uncomfortable, especially for operators of semi-tractor trailers (Mahoney, 2006).

The average faulting of the non-rehabilitated PCCP determined in the 2004 distress analysis was 0.11 in. In 2004, 31 percent of the non-rehabilitated PCCP exhibited average faulting of between ⅛ in. and ¼ in., while only 4 percent exhibited average faulting of over ¼ in.

At a ½ inch, faulting is very severe, and the conditions are uncomfortable for all using the roadway. Of the 162.8 lane-miles of non-rehabilitated PCCP, only a ½ mile exhibited faulting in excess of a ½ in. Because this is such a small percentage (less than half a percent) of the total non-rehabilitated PCCP, it was not used as a trigger value in this study.

3.2.3 Wheel Path Wear Trigger Value and Analysis

For wheel path wear, a single trigger value is used. Once the wheel path wear exceeds 0.4 in. there is increased risk that standing water could result in hydroplaning (Pierce, 2006). For 2004, the average wheel path wear was 0.34 in., while 29 percent of the non-rehabilitated I-5 PCCP in King County exceeded 0.4 in.

3.2.4 Panel Cracking Trigger Value and Analysis

There are several views about how panel cracking affects the life of a PCCP, as reflected in the decision making process of replacing and rehabilitating PCCP. One criterion is that replacement may be considered when 10 percent of the panels in a section of the trafficked lane (outside lane) exhibit multiple cracks. Another criterion is that once a panel has more than two cracks, the panel has or is losing ability to function structurally (Pierce, 2006; Jackson, 2006). For this study two sets of trigger values were developed on the basis of these two views.

The first set of trigger values was based on the 10 percent method but extended to each lane of traffic. So any given section of PCCP that exceeded 10 percent would satisfy the trigger value. Of the existing non-rehabilitated I-5 PCCP within King County, 37 percent exceeded this trigger value. Since panels with a single longitudinal crack are capable of providing continuing serviceability, this trigger value is not the best for considering the needs of the I-5 PCCP (Pierce, 2006; Jackson, 2006).

The second set of trigger values, based on multiple cracks, is better suited for the I-5 PCCP. Trigger values were set at 5 percent and 10 percent of panels in a section with multiple cracks. This set of trigger values eliminated the panels that had a single longitudinal crack. The results of these trigger values were that in 8 percent of the non-rehabilitated PCCP sections, 5 to 10 percent of panels had multiple cracks, while in 6 percent of the sections, the number of panels with multiple cracks exceeded 10 percent.

3.2.5 Summary of 2004 I-5 PCCP Distress Data Failure Analysis

The eight trigger values provided the opportunity to analyze the 2004 distress data with 12 different sets of trigger values. Table 3.5 illustrates these sets, as well as the resulting lane miles and percentage of roadway that each value triggered. The lane miles are the total lane miles that exceeded at least one of the trigger values. Many sections of the non-rehabilitated PCCP exceeded more than one trigger value.

As the severity of the trigger values increased, the number of lane miles that exceeded those values decreased. For example, in Column 1, the lowest triggers were used, resulting in the highest percentage of roadway exceeding the trigger values. Conversely, the least number of lane miles exceeded the specific trigger values of set column 12, which had the highest trigger values.

Depending on which trigger value set was used, the table indicates that between 43 percent and 70 percent of the non-rehabilitated I-5 PCCP needs to be rehabilitated or replaced. The trigger values that should be selected for use in the decision making process for rehabilitation and reconstruction will ultimately be a function of available funding, timing, and anticipated serviceability of the PCCP.

Table 3.5. Trigger Value Sets and Lane Mile and Percentage of Roadway Exceeding Them

Trigger Sets	1	2	3	4	5	6	7	8	9	10	11	12
IRI of 170 in/mile	x	x			x	x			x	x		
IRI of 220 in/mile			x	x			x	X			x	x
Wheel Path Wear Depth of 0.40"	x	x	x	x	x	x	x	X	x	x	x	x
⅛" of Faulting	x		x		x		x		x		x	
¼" of Faulting		x		x		x		X		x		x
10% of Panels Cracked	x	x	x	x								
5% of Panels with 2 or More Cracks					x	x	x	X				
10% of Panels with 2 or More Cracks									x	x	x	x
Lane Miles	129.18	122.96	122.98	109.97	112.94	104.17	105.34	87.77	107.54	97.32	99.74	79.82
Percentage of Roadway	69.50	66.16	66.17	59.17	60.77	56.05	56.68	47.22	57.86	52.36	53.66	42.95

3.3 2006 I-5 PCCP DISTRESS SUMMARY

The 2006 distress data were summarized by using the same methodology as was used to summarize the 2004 distress data. The data were broken down by pavement rehabilitation method (or none), direction, and lane, and averages were calculated.

A review of the 2006 distress data showed improved values for every pavement distress in comparison to the 2004 distress data. This suggests that something was different in the data collection, or the sections of pavement from the 2004 data used to compare with the 2006 data did not match. Therefore, the 2006 distress data were not used for comparison to the 2004 data.

3.4 PAVEMENT DISTRESS PLOTS FOR 2004 I-5 PCCP DISTRESS DATA

Each of the pavement distresses in the 2004 distress data was plotted to develop a visual tool for assessing the pavement. Seven different sets of distress plots were created, including IRI, average faulting, wheel path wear, percentage of cracked panels, number of cracked panels, percentage of panels with two or more cracks, and percentage of cracked panels and faulting

Each lane of northbound and southbound I-5 was divided into roughly equivalent sections. These sections were used in all the plot sets for ease of comparison.

3.4.1 Distress Plots for IRI, Wheel Path Wear, Average Faulting, and Percentage of Cracked Panels

The distress plots for IRI, wheel path wear, average faulting, and percentage of cracked panels are the basic plots of the 2004 distress data. Each figure contains the trigger values discussed previously as red lines to identify sections that are in poor condition. Figures 3.2, 3.3, 3.4, and 3.5 are examples of what can be found in appendices H, I, J, and K for all of I-5 in King County.

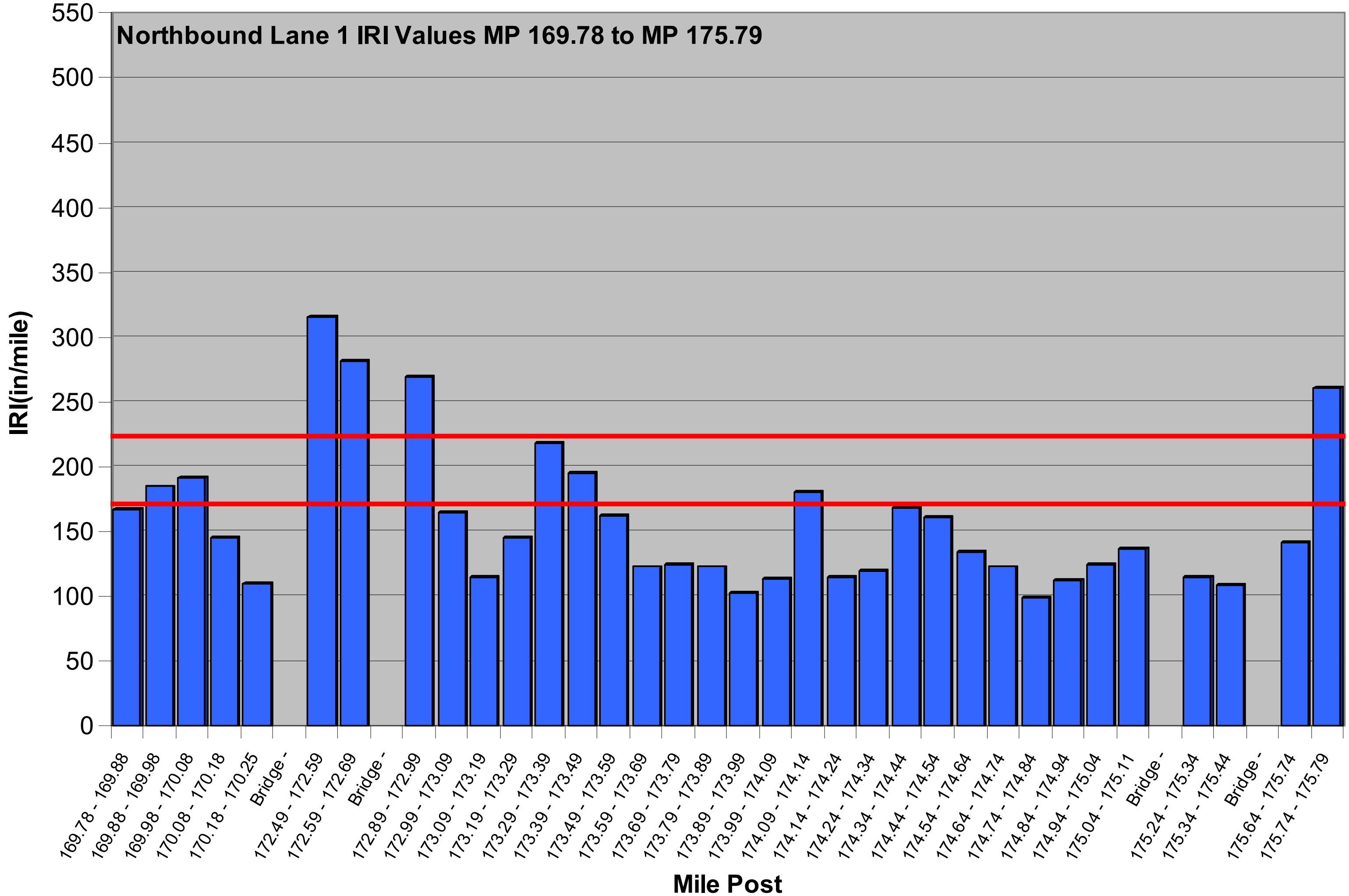

Figure 3.2. Example Plot of IRI

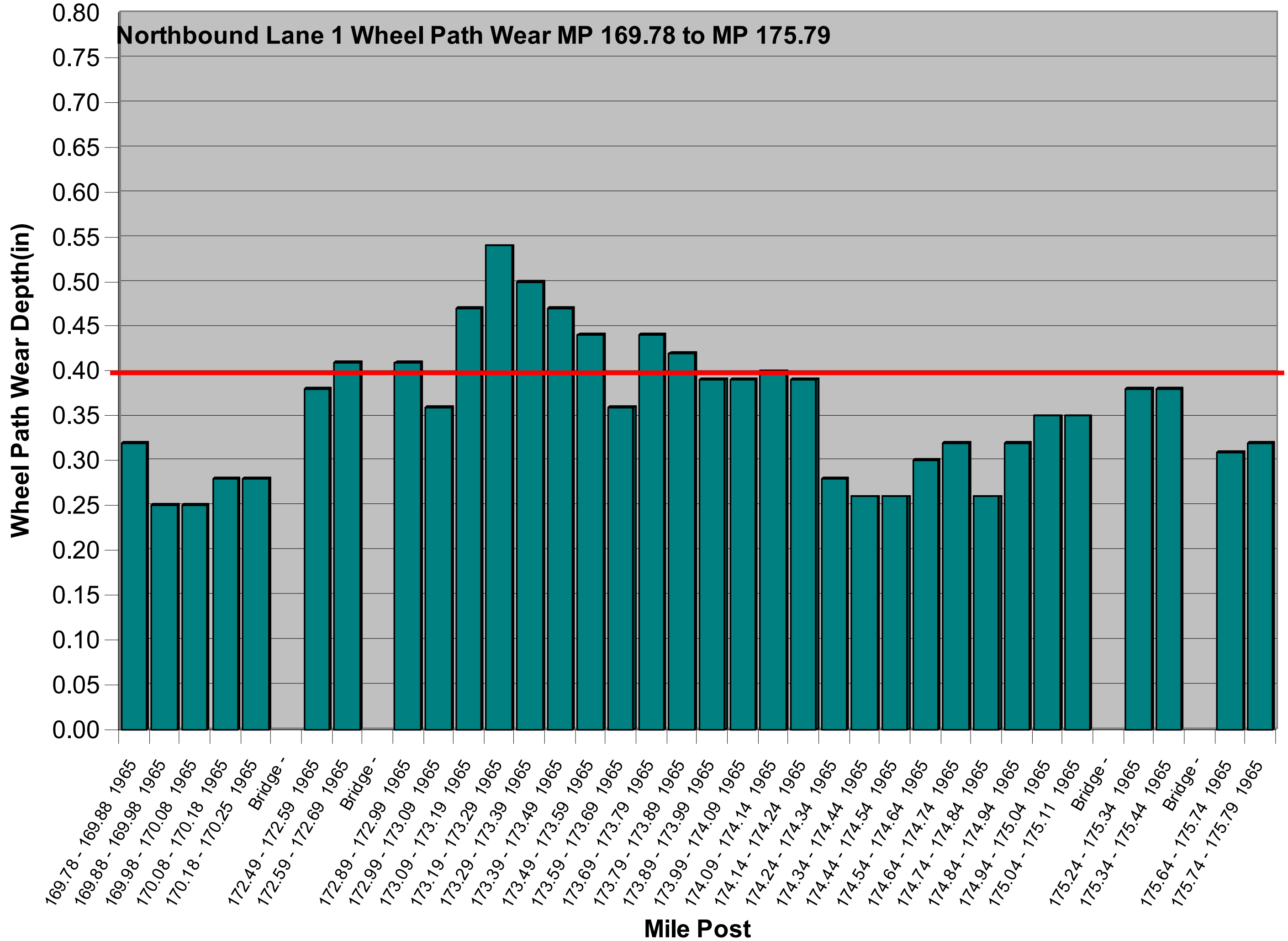

Figure 3.3. Example Plot of Wheel Path Wear

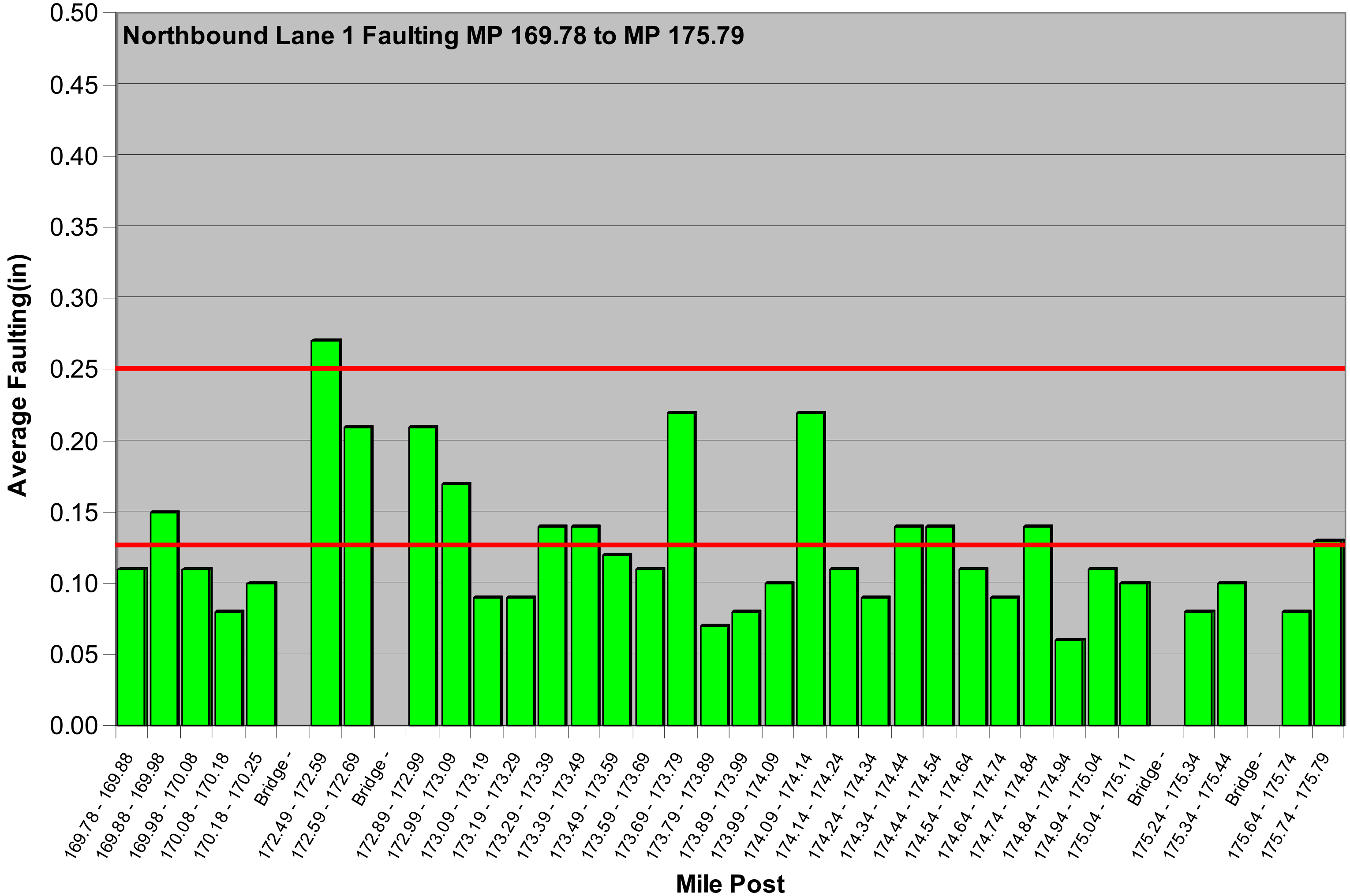

Figure 3.4. Example Plot of Faulting

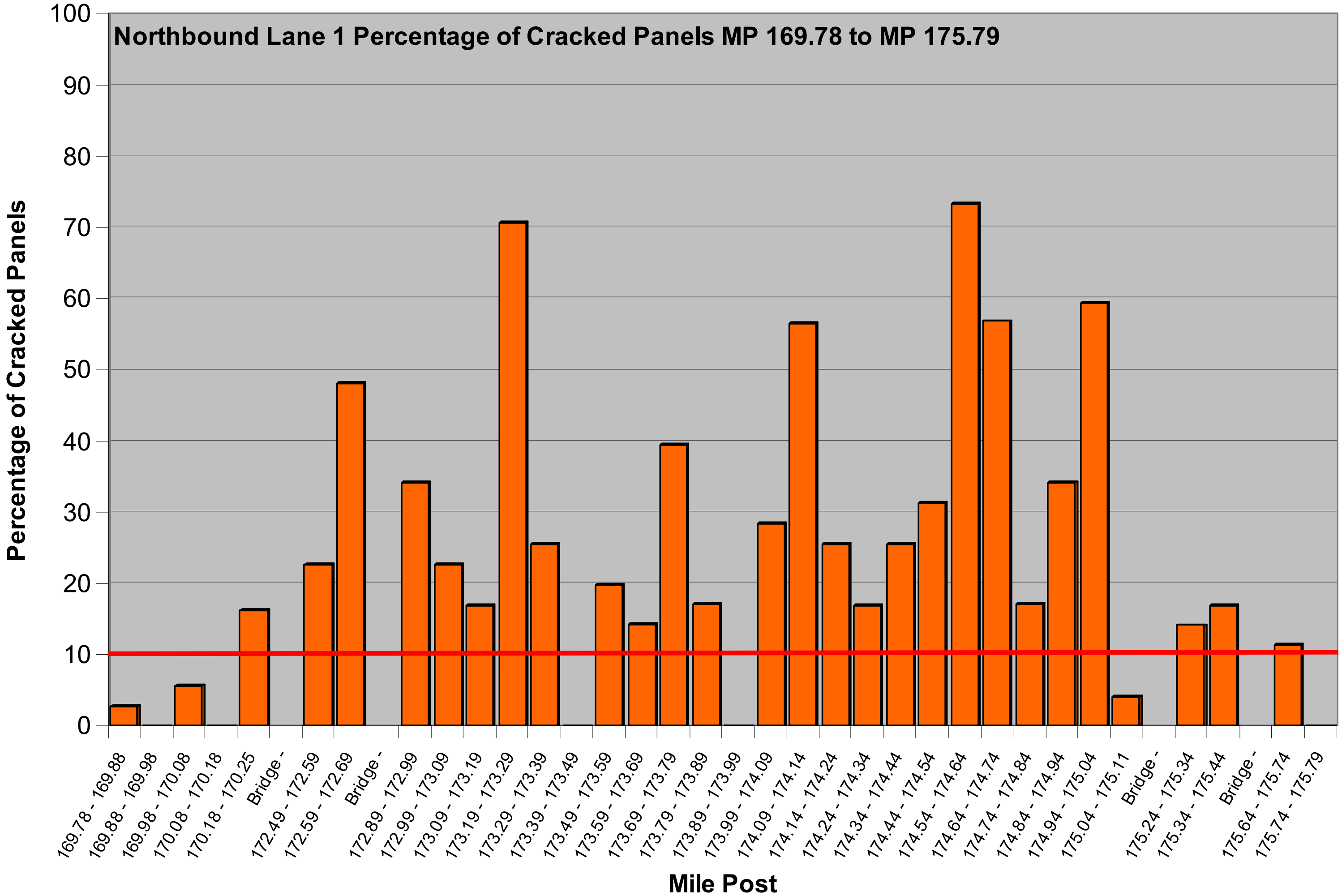

Figure 3.5. Example Plot of Percentage of Cracked Panels

3.4.2 Distress Plots for Cracked Panels

The distress plots for cracked panels are three-dimensional bar charts produced to illustrate the number of panels with 1, 2 to 3, or 4-plus cracks per panel per 1/10-mile section. Figure 3.6 is an example of the set of plots that are in Appendix L.

3.4.3 Distress Plots for Percentage of Panels with Two or More Cracks

The distress plots for percentage of panels with two or more cracks express cracking in terms of panels with multiple cracks. This plot was developed as a result of the prediction that panel serviceability dramatically decreases with the presence of multiple panel cracks. The trigger values of 5 percent and 10 percent of the panels in a given section with multiple cracks are displayed. Figure 3.7 is an example of the distress plots for percentage of panels with two or more cracks that are in Appendix M.

3.4.4 Distress Plots for Percentage of Cracked Panels and Average Faulting

The distress plots for percentage of cracked panels and average faulting were developed to display any relationship between panel cracking and faulting. However, a review of this set of plots did not show any discernable relationship. Figure 3.8 is an example of what can be found in Appendix N.

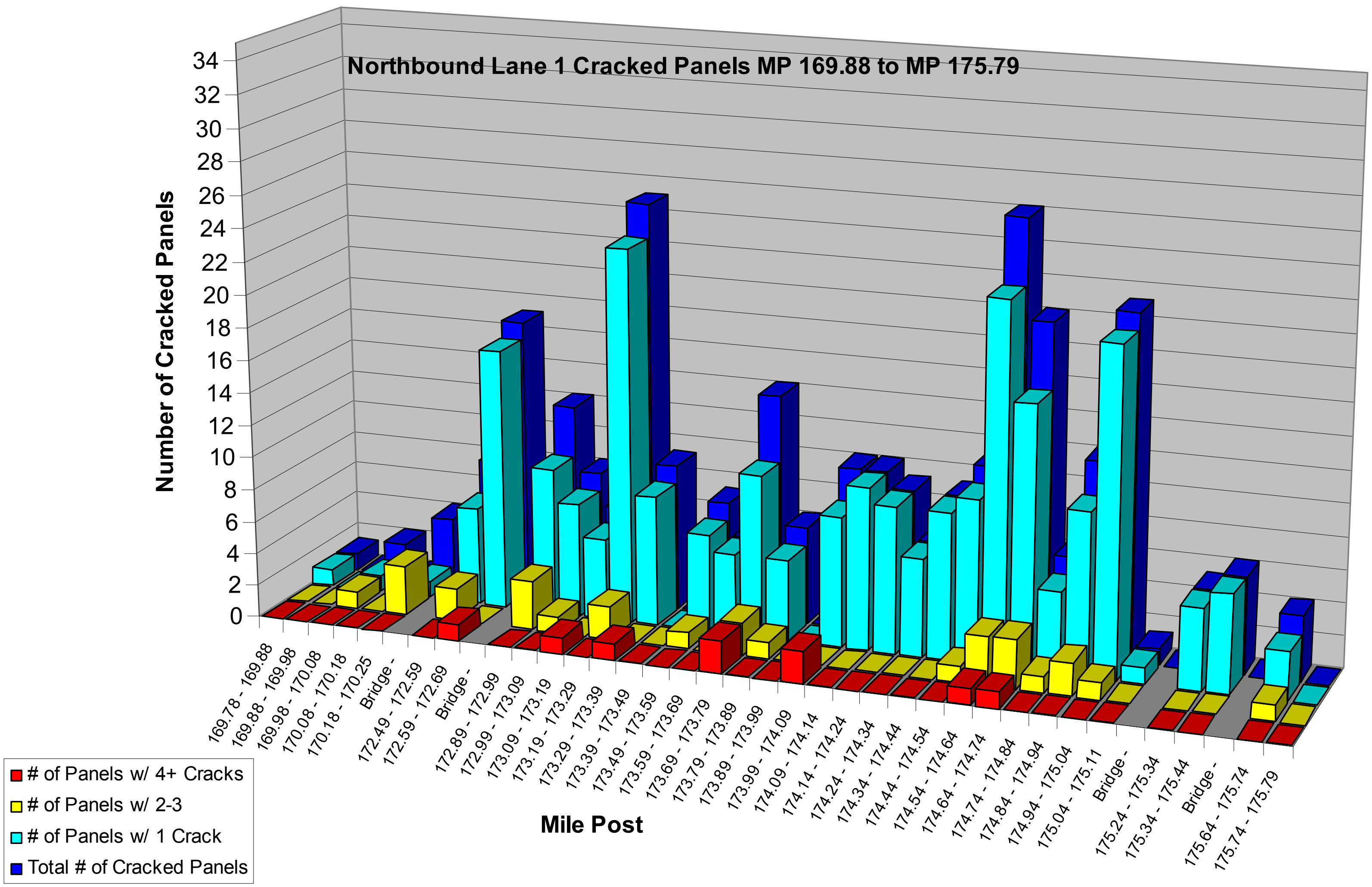

Figure 3.6. Example Plot of Cracked Panels

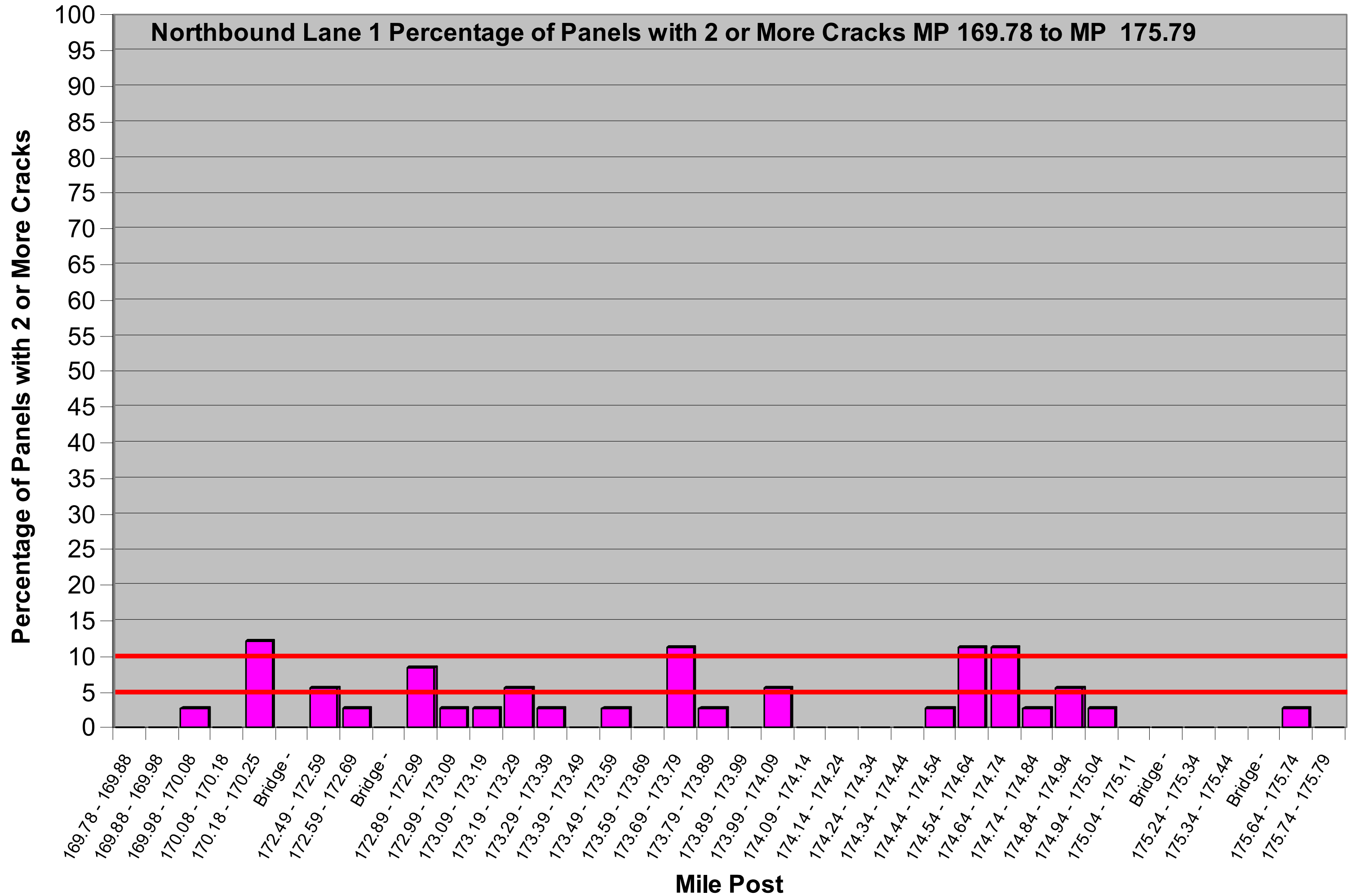

Figure 3.7. Example Plot of Percentage of Panels with Two or More Cracks

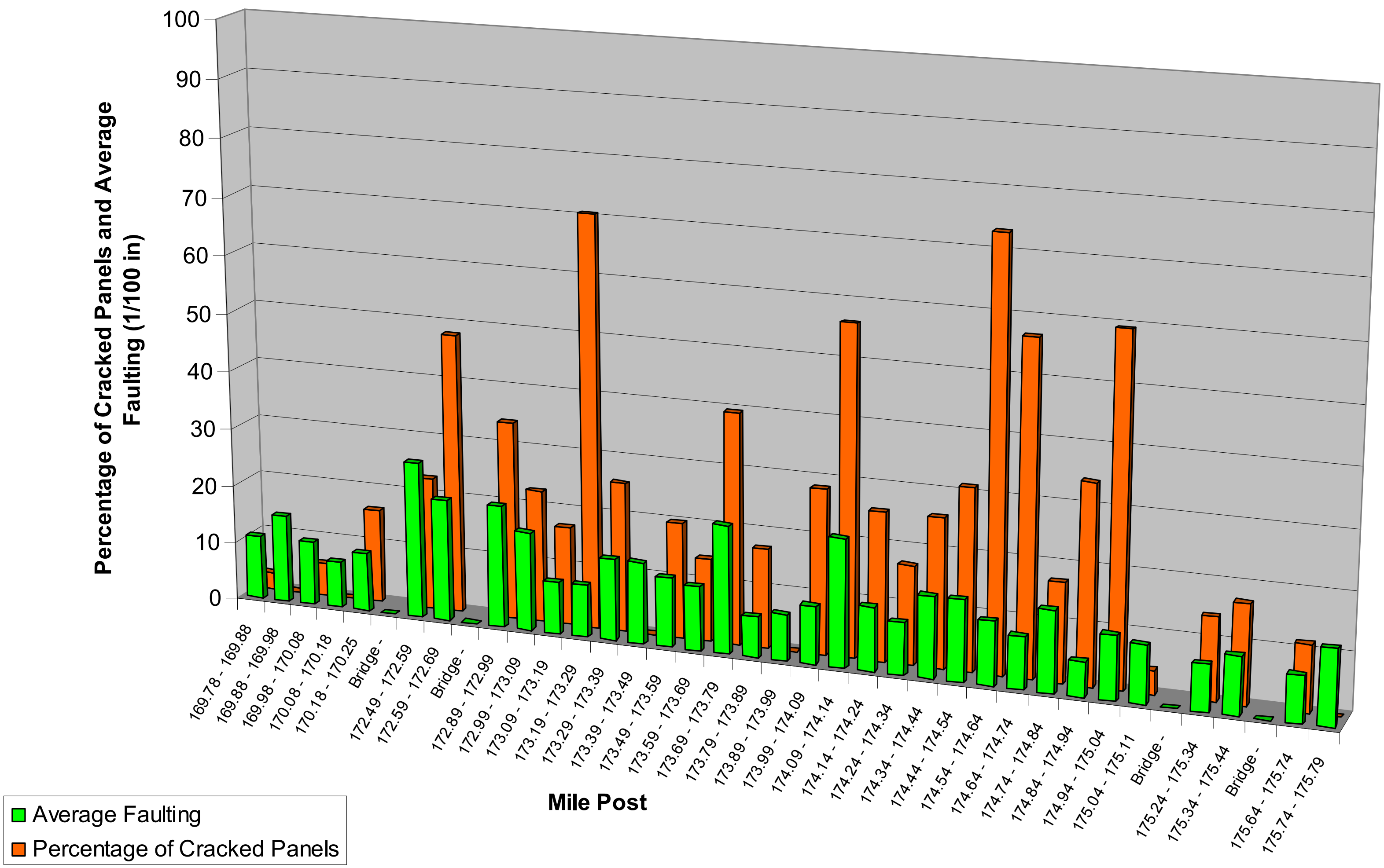

Figure 3.8. Example Plot of Percentage of Cracked Panels and Average Faulting

3.5 ARC GIS MAPPING OF I-5 PCCP DISTRESSES

The 2004 distress data summary and the distress plots are good tools for evaluation purposes, but they do not meet the needs of the decision process for the reconstruction and/or rehabilitation of I-5. Specifically, the data summary and distress plots lack the ability to efficiently compare between lanes and directions of traffic and do not provide the reference to roadways and exits that is necessary for the effective communication of pavement condition.

Several options for filling these gaps were considered, including detailed sectional mapping in Excel, a Flash application, and Arc GIS mapping. The use of Excel would not have produced a product that would be user friendly and meet the communication needs. A Flash application would have been ideal, but unfortunately, it would be too time consuming to develop.

Alternatively, the use of Arc GIS was a reasonable choice for communicating PCCP distress. The WSDOT Geographic Services Office provided assistance in the development of the Arc GIS mapping of the distresses. It provided the data that were used to create the images, including the major roads, cities, water features, and more, for the base map into which the distress data were imported.

3.5.1 Sectioning of I-5 in King County for the Arc GIS Images

I-5 in King County was broken into eleven sections that were used for the Arc GIS images. The eleven sections are as follows:

Section 1 – King Pierce County Line to S. 320^{th}
Section 2 – S. 320^{th} to S.272^{nd} St.
Section 3 – S. 272^{nd} St. to S. 216^{th} St.
Section 4 – S. 216^{th} St. to I-405
Section 5 – I-405 to South Boeing Access Rd,
Section 6 – South Boeing Access Rd. to Michigan St.
Section 7 – Michigan St. to I-90
Section 8 – I-90 to Ship Canal Bridge
Section 9 – Ship Canal Bridge to Northgate Way

Section 10 – Northgate Way to N. 175th St.

Section 11 – N. 175th St. to St. 244th SW.

3.5.2 Arc GIS Pavement Distress Images

Each of the PCCP distresses from the 2004 distress data was imported into the Arc GIS application. The distress data are displayed for each lane (1 through 4) in both the northbound and southbound directions. Each individual 1/10-mile section is displayed with the assigned color for the specific level of distress. The levels of distress are the result of the trigger values that were described previously. These levels of distress can be seen in Table 3.6. Figures 3.9, 3.10, 3.11, and 3.12 are examples of the Arc GIS images that are contained in appendices O (IRI), P (faulting), Q (slab cracking), and R (wheel path wear).

Table 3.6. Levels of Distress and Associated Color in the Arc GIS Distress Images

IRI (in/mile)	Wheel Path Wear	Faulting	Panel Cracking	Color
0 - 170	0 - 0.40”	0 – ⅛”	0 – 5%	Green
170 to 219	N/A	⅛” – ¼”.	5% - 10%	Orange
220+	0.40” +	¼”+	10%+	Red

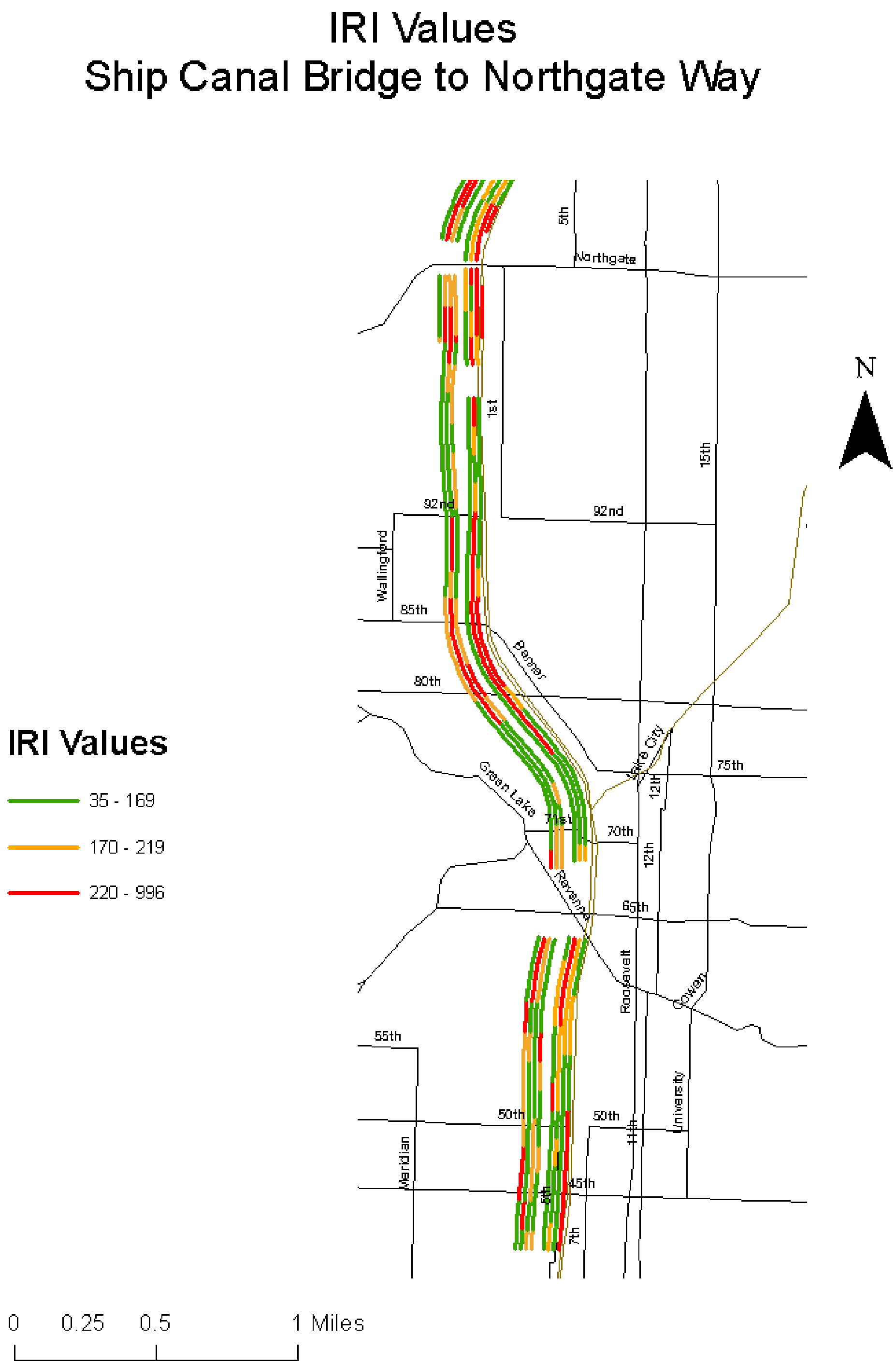

Figure 3.9. Example Image of IRI Values

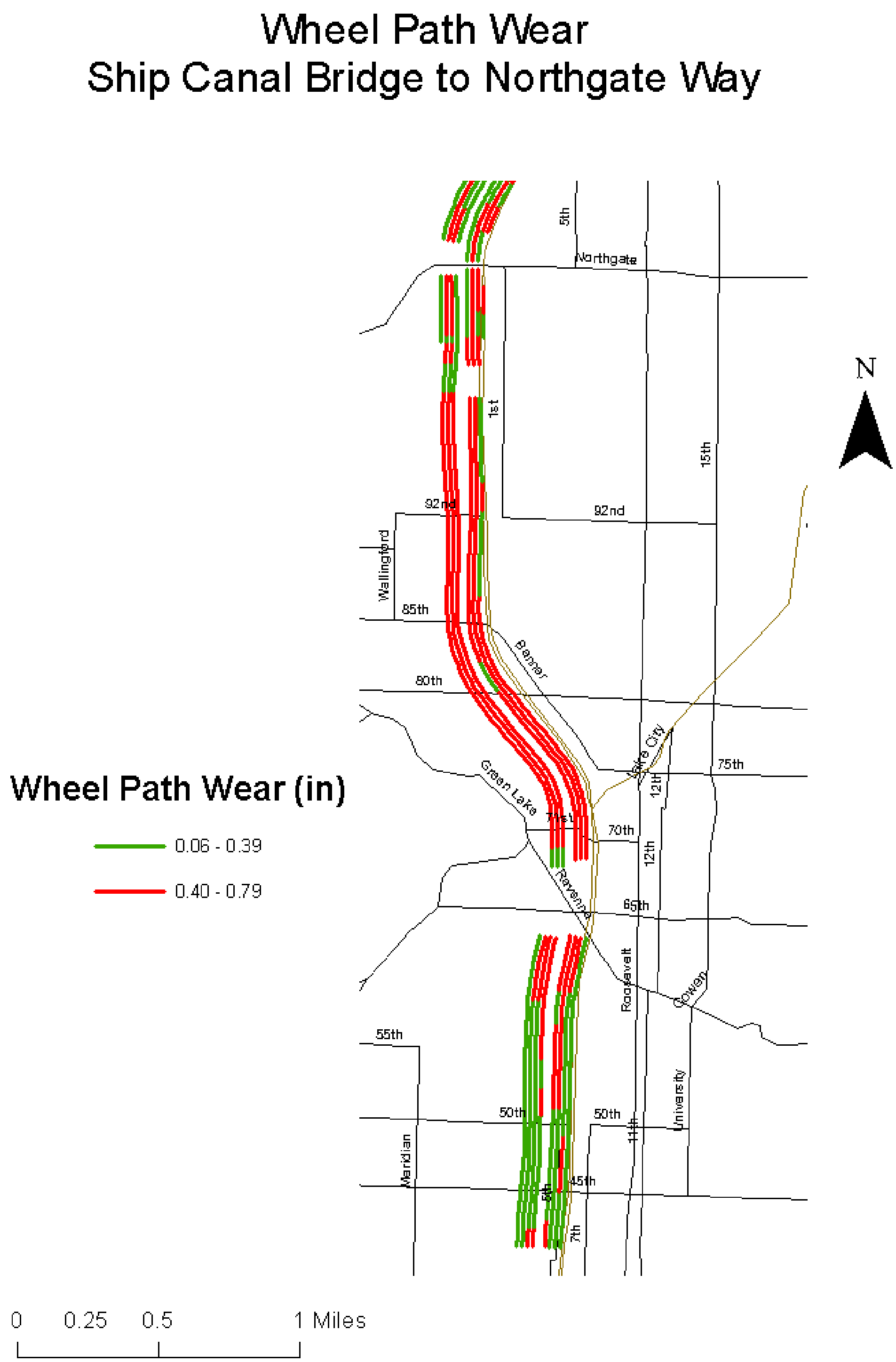

Figure 3.10. Example Image of Wheel Path Wear

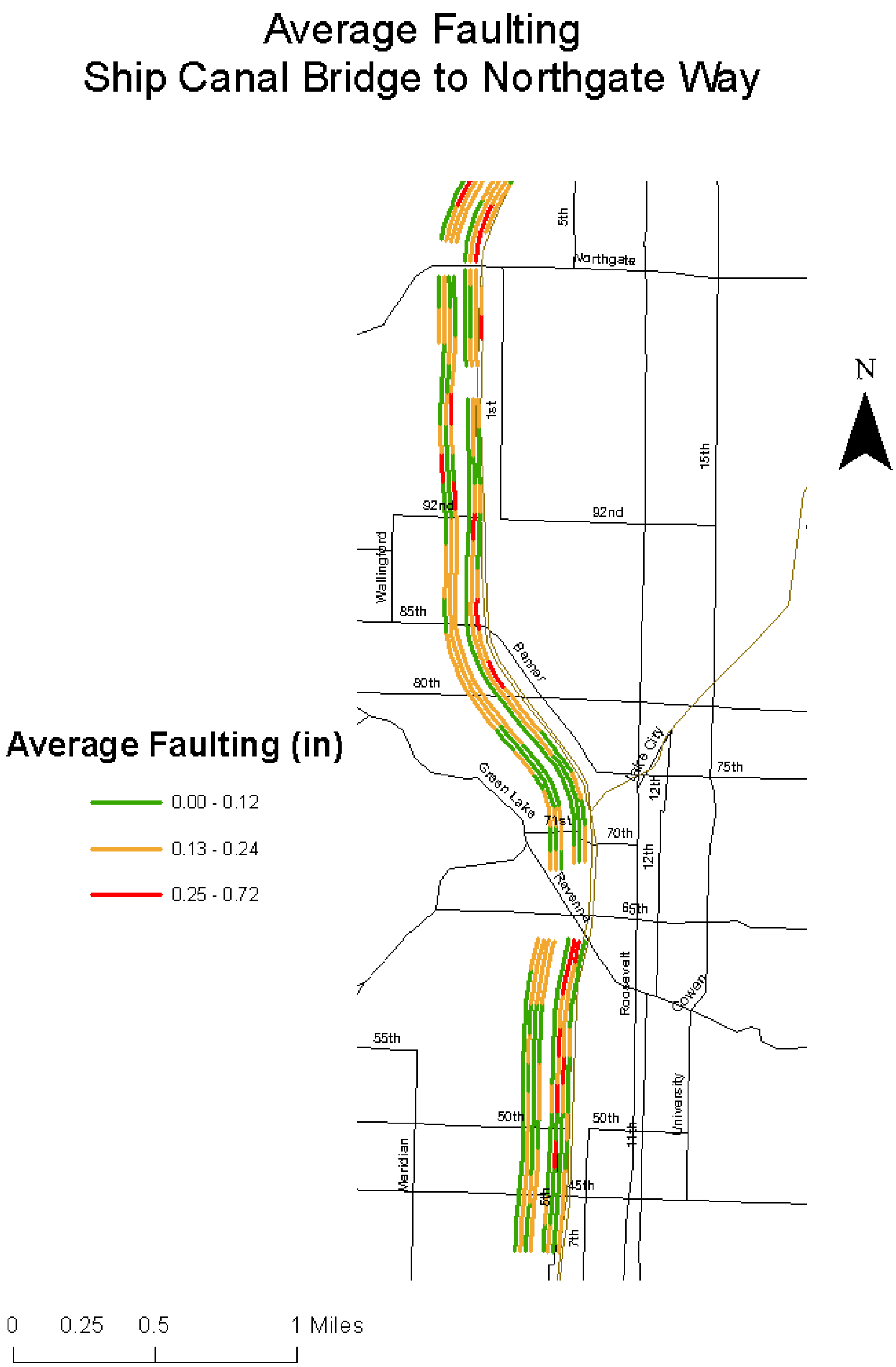

Figure 3.11. Example Image of Average Faulting

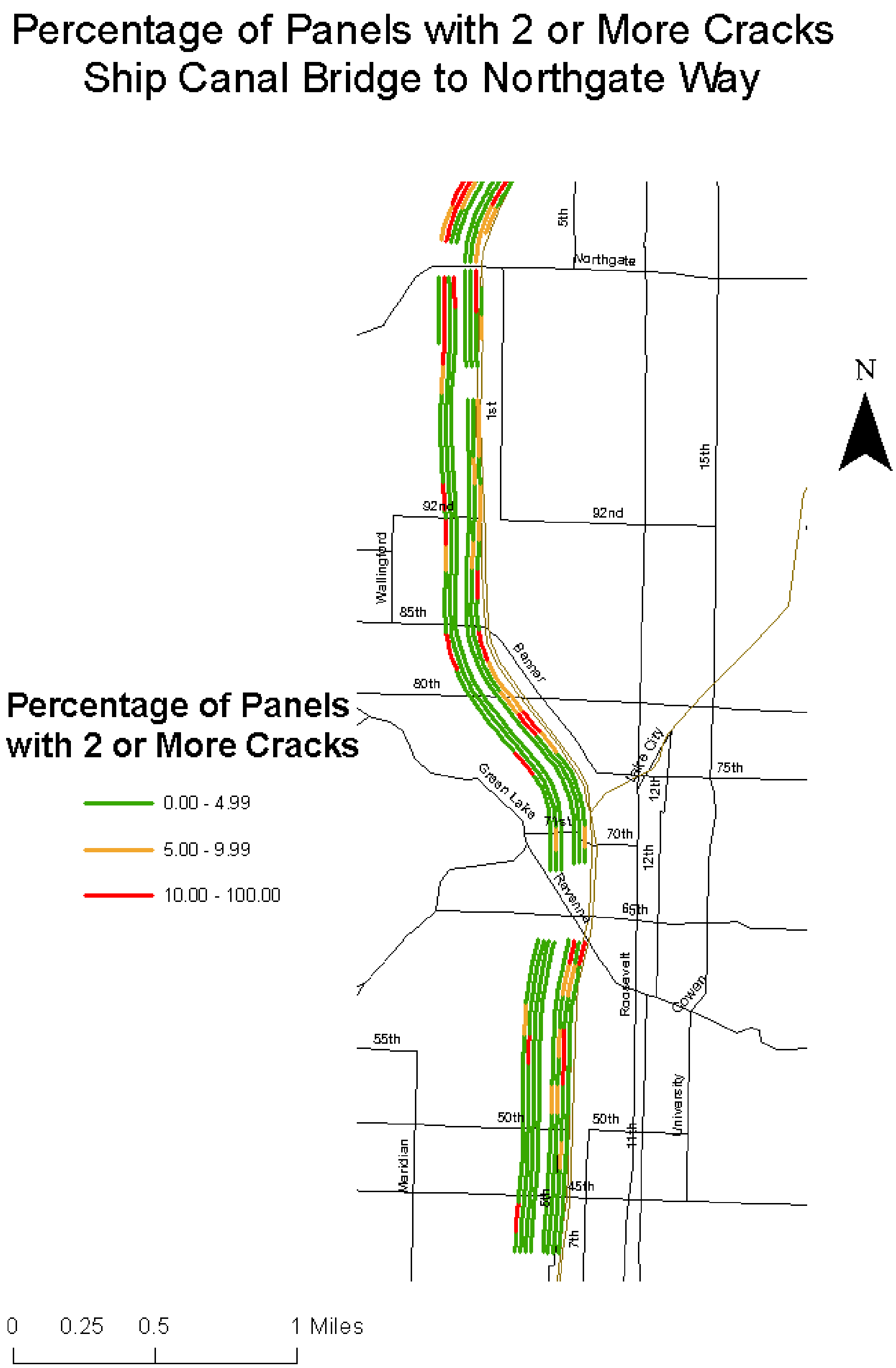

Figure 3.12. Example Image of Percentage of Panels with Two or More Cracks

3.5.3 General Pavement Condition

The 2004 distress data were summarized to develop a straightforward Arc GIS application that would aid in communicating with a non-technical audience. All lanes in each direction and distress types were reduced to a representation of the overall pavement condition.

Only faulting and panel cracking were used to develop the general pavement condition information. IRI was not considered as important as faulting and slab cracking because IRI is essentially a summation of all the pavement distresses (especially faulting). Wheel path wear was also eliminated because it does not result in structural failure of PCC pavement.

Three methods were evaluated for their ability to determine general pavement condition. These methods were (1) worst of the worst, (2) average of dominating distress, and (3) average of distresses. Each method was based on the assumption that particular levels of faulting and cracking result in equivalent pavement distress. These levels of distress were defined by the trigger values. As shown in Table 3.7, faulting of 0 to ⅛ in. was considered equivalent to 0 to 5 percent of panels with two or more cracks, and so on. Each of these levels of distress was assigned a value of 1, 2, or 3, with 1 being the best condition and 3 being the worst.

Table 3.7. Equivalent Levels of Faulting and Cracking with Assigned Values, Colors, and Pavement Condition

Faulting	Cracking	Assigned Value	Color	Pavement Condition
0 – ⅛ n.	0 – 5%	1	green	Good
⅛ in. – ¼ in.	5% - 10%	2	orange	Poor
¼ in.+	10%+	3	red	Extremely Poor

3.5.3.1 Worst of the Worst

Worst of the worst was based on the concept that all lanes of a roadway are controlled by the condition of the single worst lane. The worst condition observed for any lane for a 1/10-mile section was selected to represent the pavement condition of that section of I-5.

By definition, this method depicted I-5 pavements in their worst-case condition. Figure 3.13 is an example of the Arc GIS images for general pavement conditions resulting from the worst of the worst method that are contained in Appendix S.

3.5.3.2 Average Dominating Distress

With this method the dominating distress of each lane in each 1/10-mile section was determined. The value of the dominating distress was then assigned to represent the condition of that lane. The average of the values assigned to each lane was taken to produce a representative value for the pavement condition.

This method did not have any significant basis for decision-making but was considered, calculated, and plotted. The associated Arc GIS plots are not shown in this report.

3.5.3.3 Average of Distresses

For the average of distresses method, the distress values of all lanes were averaged for each 1/10-mile section. Eight values were produced: one for cracking and one for faulting for each of the four lanes.

This method was the most straightforward but did not have any significant basis in decision making and, therefore, was not used and is not shown in this report.

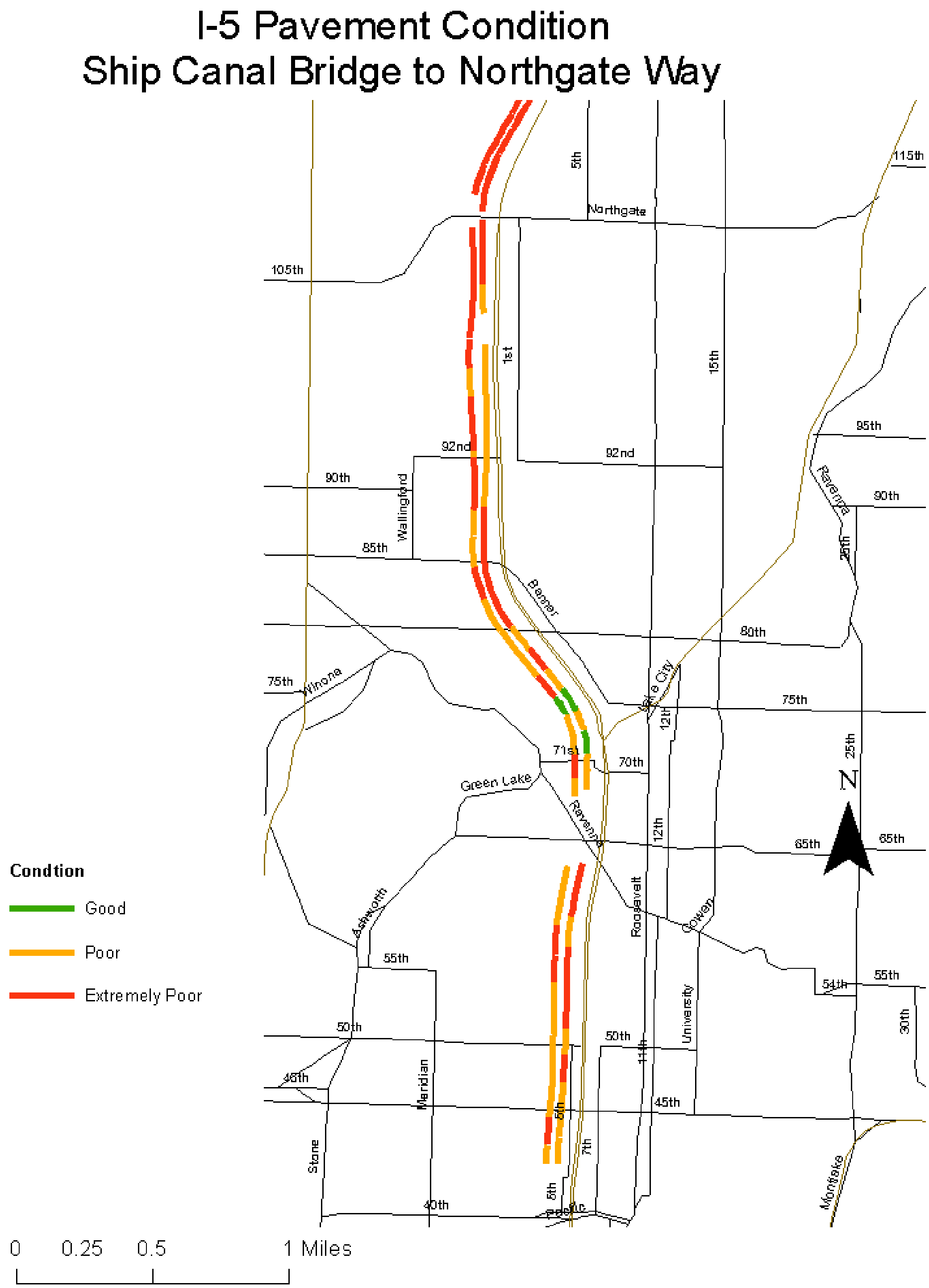

Figure 3.13. Example Image of General Pavement Condition

3.5.3.4 Updates to Arc GIS Images for General Pavement Conditions

The data used to develop the general pavement condition Arc GIS application were collected in July 2004. Since then, the pavements of northbound and southbound I-5 from the Pierce-King County line to Federal Way have been rehabilitated (MP 139.5 to MP 144.74). Most of the construction consisted of diamond grinding and dowel bar retrofitting. Therefore, the faulting that was recorded in 2004 has most likely been reduced to below ⅛ in. In the Arc GIS images for general pavement conditions, the faulting south of MP 144.74 was assumed to be below ⅛ in.

While the grinding and dowel bar retrofitting would have reduced the faulting, it would not have changed any of the existing cracking conditions. As a result, any distress that was noted in the pavement condition south of Federal Way would be panel cracking.

3.6 ARC GIS MAPPING OF REHABILITATION AND RECONSTRUCTION OPTIONS

The 2004 distress data were subjected to various sets of trigger values that are associated with certain rehabilitation options in an effort to identify how sections of PCCP could be managed. This allowed for the quantification and identification of non-rehabilitated PCCP that would require rehabilitation or reconstruction.

3.6.1 Arc GIS Images Based on WSDOT's Trigger Values for Pavement Distress-Based Rehabilitation

WSDOT has established levels of cracking and faulting that are used to determine how a pavement should be rehabilitated or reconstructed. These levels of distress are reflected in the trigger values that were used throughout this study.

Currently WSDOT utilizes three distinct rehabilitation options for improving PCC pavements:

- diamond grinding
- dowel bar retrofit with diamond grinding

- reconstruction or panel replacement
- hot mix asphalt (HMA) overlay.

Pavements that exhibit less than ⅛ in. of faulting at transverse joints and that have two or more cracks in less than 10 percent of the panels are usually not considered for rehabilitation (Pierce, 2006). Once faulting exceeds ⅛ in., dowel bar retrofitting with grinding is considered as a rehabilitation option. If the percentage of panels with two or more cracks exceeds 10 percent of the panels in a section, reconstruction or panel replacement is considered as a pavement option (Pierce, 2006). Table 3.8 summarizes WSDOTs rehabilitation trigger values.

Table 3.8. WSDOT Rehabilitation Trigger Values

Trigger Activity	Faulting	Cracking	Wear
Nothing	<⅛"	<10%	0 - 0.39"
Grinding	-	-	0.4"+
DBR + Grinding	⅛" - ½"	<10%	-
Reconstruction	>½"	>10%	1"+

Along with faulting and cracking, wheel path wear is a pavement distress that could trigger PCC pavement rehabilitation. If wheel path wear exceeds 0.4 in., grinding the pavement is a good rehabilitation option to reduce water ponding . If wheel path wear is greater than an inch, it may be appropriate to replace the PCC pavement (Pierce, 2006).

WSDOT's distress triggers were used to decide on pavement rehabilitation for each of the 1/10-mile sections of I-5. For each 1/10-mile section, the distress that triggered the highest order of rehabilitation was used to represent that section. Figure 3.14 is an example of the images, shown in Appendix T, that were developed by using the WSDOT trigger values. Note that actual rehabilitation project lengths will likely differ because of traffic control, funding constraints, and so on.

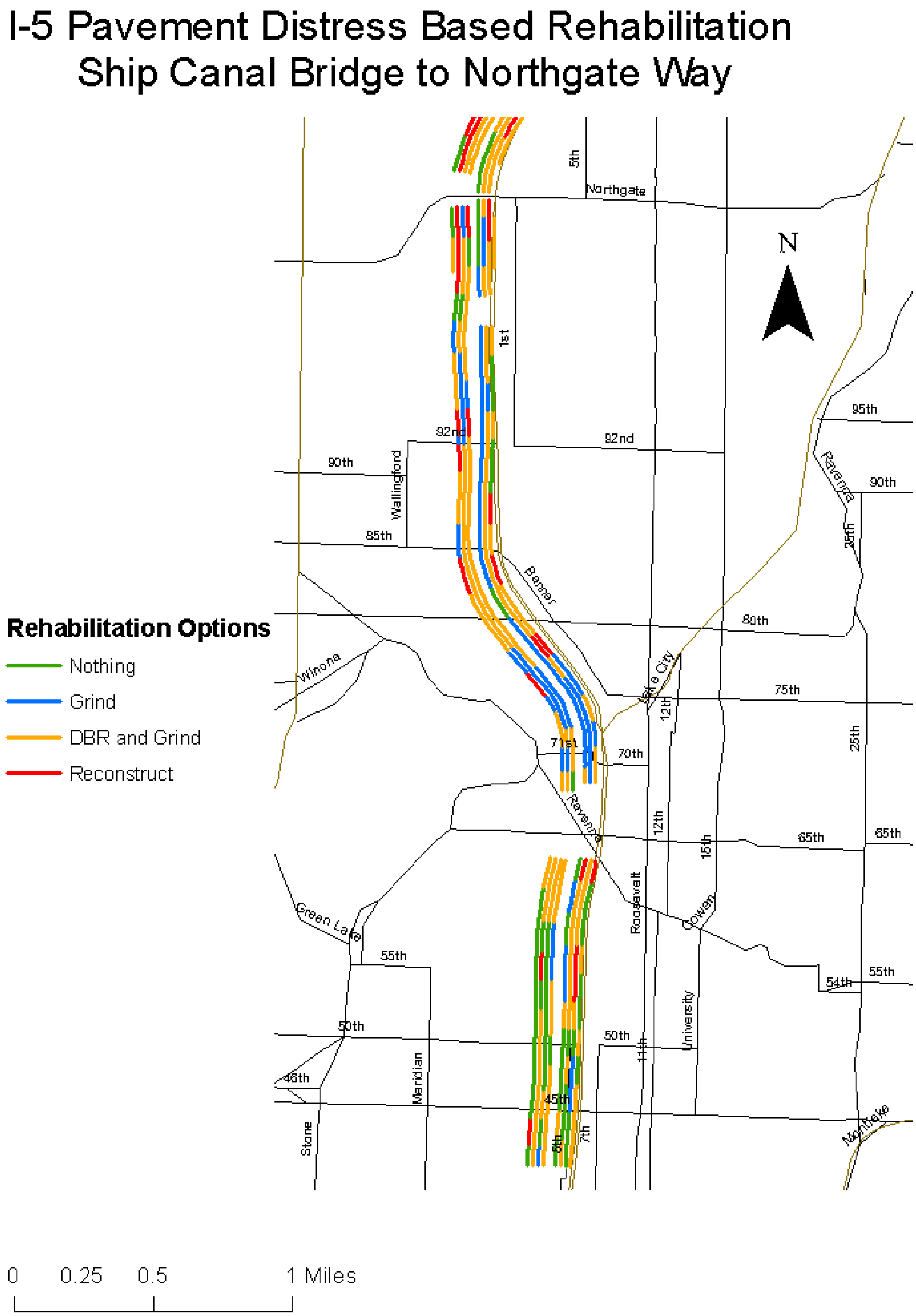

Figure 3.14. Example Image of Pavement Distress-Based Rehabilitation

Table 3.9 breaks down the rehabilitation strategies in lane miles and percentages of lanes for each direction of I-5 according to the WSDOT trigger values. The result is about 26 lane miles of grinding, 47 lane miles of DBR and grinding, and 14 miles of reconstruction.

Table 3.9. Triage Project Quantitative Rehabilitation Trigger Value Analysis

Direction and Lane		Nothing	Grind	DBR+Grind	Reconstruct	Lane Miles
Northbound Lane Miles	Lane 1	17.69	1.22	6.30	1.61	26.82
	Lane 2	16.68	2.75	8.04	4.83	32.30
	Lane 3	15.64	7.96	7.94	0.82	32.36
	Lane 4	23.32	5.47	3.04	0.30	32.13
	Total	73.33	17.40	25.32	7.56	123.61
Northbound Percentage of Lane Miles	Lane 1	65.96%	4.55%	23.49%	6.00%	
	Lane 2	51.64%	8.51%	24.89%	14.95%	
	Lane 3	48.33%	24.60%	24.54%	2.53%	
	Lane 4	72.58%	17.02%	9.46%	0.93%	
	Total	59.32%	14.08%	20.48%	6.12%	
Southbound Lane Miles	Lane 1	19.72	0.4	4.1	1.48	25.70
	Lane 2	19.68	2.44	5.26	4.21	31.59
	Lane 3	20.76	4.31	6.92	0.3	32.29
	Lane 4	25.55	1.01	5.4	0.42	32.38
	Total	85.71	8.16	21.68	6.41	121.96
Southbound Percentage of Lane Miles	Lane 1	76.73%	1.56%	15.95%	5.76%	
	Lane 2	62.30%	7.72%	16.65%	13.33%	
	Lane 3	64.29%	13.35%	21.43%	0.93%	
	Lane 4	78.91%	3.12%	16.68%	1.30%	
	Total	70.28%	6.69%	17.78%	5.26%	
Total Lane Miles	Lane 1	37.41	1.62	10.40	3.09	52.52
	Lane 2	36.36	5.19	13.30	9.04	63.89
	Lane 3	36.40	12.27	14.86	1.12	64.65
	Lane 4	48.87	6.48	8.44	0.72	64.51
	Total	159.04	25.56	47.00	13.97	245.57
Total Percentage of Lane Miles	Lane 1	71.23%	3.08%	19.80%	5.88%	
	Lane 2	56.91%	8.12%	20.82%	14.15%	
	Lane 3	56.30%	18.98%	22.99%	1.73%	
	Lane 4	75.76%	10.04%	13.08%	1.12%	
	Total	64.76%	10.41%	19.14%	5.69%	

3.6.2 Pavement Distress-Based Rehabilitation Arc GIS Images Based on Modified Triggers for the I-5 Triage Project

The I-5 Triage Project is a PCCP rehabilitation project that is planned for design and bid in 2008 and construction during 2009. For the purposes of this project the rehabilitation triggers were modified to accommodate the budget of the project. Specifically, grinding was considered for pavements that exhibit between ⅛ in. and ¼ in. of faulting, and DBR and grinding was considered for pavements with faulting of between ¼ in. and ½ in. Pavements with faulting of over ½ in. were considered for grinding only but would be some of the first pavements addressed in the next round of rehabilitation and reconstruction.

Table 3.10 Modified Trigger Values for the I-5 Triage Project

Trigger Activity	Faulting	Cracking	Wear
Nothing	<⅛"	<10%	0 - 0.39"
Grinding	⅛"- ¼", >½"	<10%	0.4"+
DBR + Grinding	¼" - ½"	<10%	-
Reconstruction	-	>10%	1"+

Altering the faulting triggers shifted the lane miles of rehabilitation. The lane miles of grinding increased from 26 to about 69, while lane miles of DBR and grinding decreased from 47 to 4 miles. There was also a slight decrease in the lane miles of reconstruction. Table 3.11 provides the number of lane miles and percentage of roadway predicted to need rehabilitation on the basis of the triage triggers. Appendix U contains these data for I-5 though King County from I-90 to the Pierce County Line.

3.7 ARC GIS IMAGES FOR WET SURFACE CONDITION ACCIDENTS

The WSDOT wet condition accident data were imported into Arc GIS, and images mapping the number of accidents per roadway section were produced. Figure 3.15 is an <u>example</u> of the images that are in Appendix V.

Table 3.11 WSDOT Quantitative Rehabilitation Modified Triage Trigger Value Analysis

Direction and Lane		Nothing	Grind	DBR+Grind	Reconstruct	Lane Miles
Northbound Lane Miles	Lane 1	17.79	7.11	0.31	1.61	26.82
	Lane 2	16.38	10.49	0.6	4.83	32.3
	Lane 3	15.66	15.12	0.78	0.8	32.36
	Lane 4	23.52	8.01	0.5	0.1	32.13
	Total	73.35	40.73	2.19	7.34	123.61
Northbound Percentage of Lane Miles	Lane 1	66.33%	26.51%	1.16%	6.00%	
	Lane 2	50.71%	32.48%	1.86%	14.95%	
	Lane 3	48.39%	46.72%	2.41%	2.47%	
	Lane 4	73.20%	24.93%	1.56%	0.31%	
	Total	59.34%	32.95%	1.77%	5.94%	
Southbound Lane Miles	Lane 1	19.72	4.39	0.11	1.48	25.7
	Lane 2	19.68	7.2	0.6	4.11	31.59
	Lane 3	20.76	10.51	0.82	0.2	32.29
	Lane 4	25.65	5.81	0.7	0.22	32.38
	Total	85.81	27.91	2.23	6.01	121.96
Percentage of Lane Miles	Lane 1	76.73%	17.08%	0.43%	5.76%	
	Lane 2	62.30%	22.79%	1.90%	13.01%	
	Lane 3	64.29%	32.55%	2.54%	0.62%	
	Lane 4	79.22%	17.94%	2.16%	0.68%	
	Total	70.36%	22.88%	1.83%	4.93%	
Total Lane Miles	Lane 1	37.51	11.5	0.42	3.09	52.52
	Lane 2	36.06	17.69	1.2	8.94	63.89
	Lane 3	36.42	25.63	1.6	1	64.65
	Lane 4	49.17	13.82	1.2	0.32	64.51
	Total	159.16	68.64	4.42	13.35	245.57
Total Percentage of Lane Miles	Lane 1	71.42%	21.90%	0.80%	5.88%	
	Lane 2	56.44%	27.69%	1.88%	13.99%	
	Lane 3	56.33%	39.64%	2.47%	1.55%	
	Lane 4	76.22%	21.42%	1.86%	0.50%	
	Total	64.81%	27.95%	1.80%	5.44%	

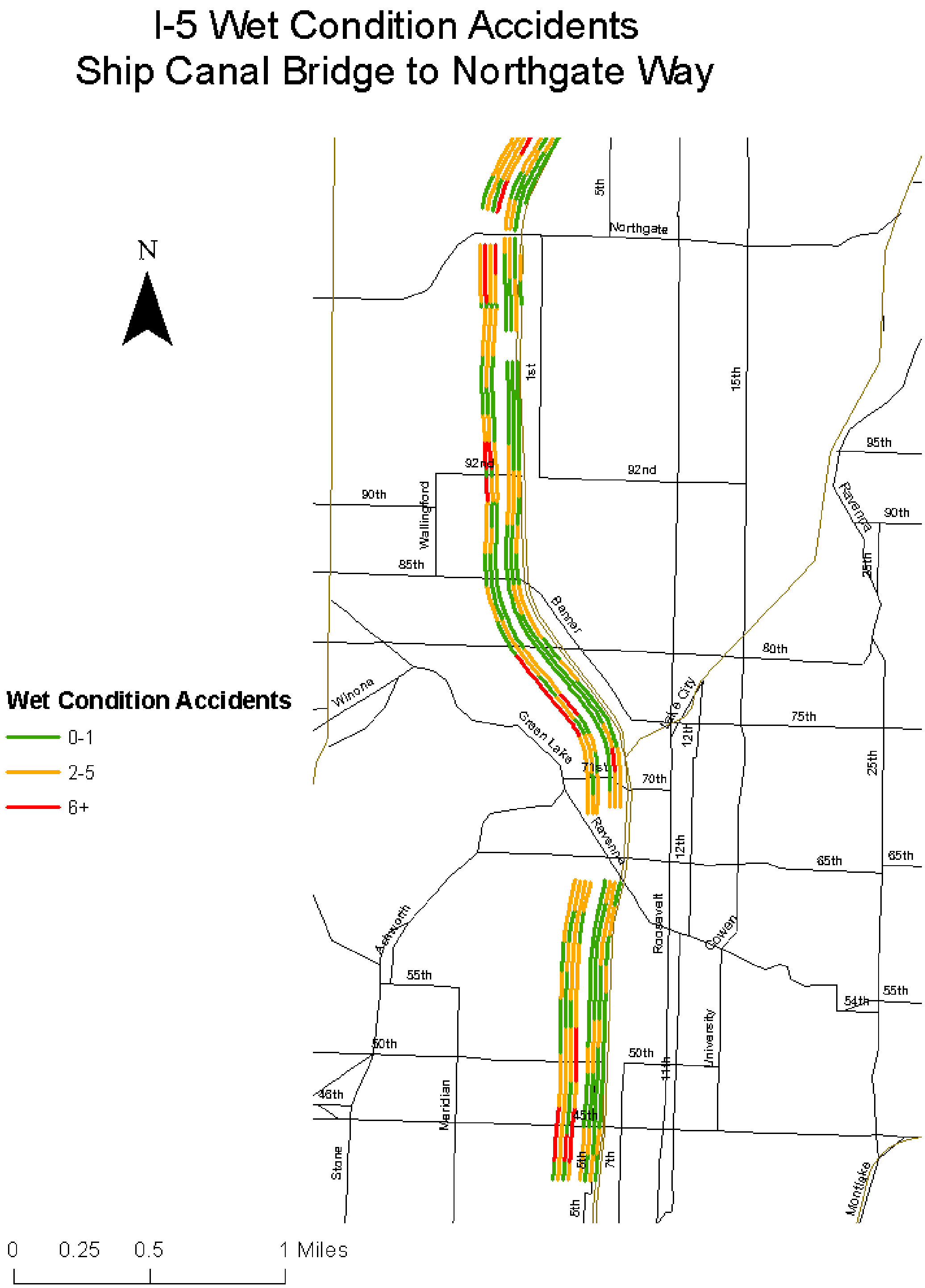

Figure 3.15 Example Image of Wet Surface Condition Accidents

3.8 ACCIDENT DATA ANALYSES

A roadway that is wet has a decreased coefficient of friction between the tire and pavement, sometimes resulting in friction conditions that can contribute to accidents. This section describes an analysis of the accident data provided by WSDOT, along with an exploration of diamond grinding and its possible relationship to reducing wet condition accidents.

3.8.1 Summary of Accident Data Analysis

The original data obtained from WSDOT were modified for the purpose of this study, which was concerned with accidents that were potentially related to the pavement surface in wet conditions. Accidents in non-wet conditions and those involving alcohol were removed, leaving a total of 4,485 accidents accumulated over six years. These accidents involved 10,554 vehicles, yielding an average of 2.35 vehicles per accident. Of the 4,485 accidents, 98 percent occurred on a wet surface, and 2 percent occurred when there was standing water on the roadway.

The majority of these accidents occurred during daylight or at night under street lights (see Table 3.12). The remaining 13 percent of the wet surface accidents occurred in low lighting conditions. Despite the potential contribution of low light conditions, the number of these accidents was such a small percentage that they were included in the analysis.

Table 3.12 I-5 Wet Surface Accidents Lighting Conditions

Conditions	Percentage
Street Lights Off	0.69%
Street Lights On	**27.51%**
Dawn	3.24%
Daylight	**64.31%**
Dusk	3.83%
Other	0.43%

Most of the vehicles in the wet condition accidents were passenger cars and light pickups. In Table 3.13, Vehicle I is the following vehicle and Vehicle 2 is the lead vehicle. In general, Vehicle 1 was usually at fault because of striking a vehicle from behind. This scenario would generally result from Vehicle 1 being unable to control its deceleration in the event that Vehicle 2 slowed or completely stopped.

Table 3.13 I-5 Wet Surface Accidents Vehicle Type

Vehicle Type	Vehicle 1	Vehicle 2
Bus or Motor Stage	0.32%	0.15%
Motorcycle	0.35%	0.09%
Not Stated	4.01%	3.19%
Passenger Car	**57.79%**	**44.09%**
Pickup/Truck< 5 Ton	**30.54%**	**47.48%**
Truck Db. Trailer Combo	0.16%	0.20%
Truck Trailer	1.08%	1.00%
Truck Van, flatbed, etc.	2.15%	1.33%
Truck Tractor	0.30%	0.20%
Truck Tractor semi trailer	3.31%	2.28%

Most of the I-5 wet condition accidents involved two or more vehicles. Table 3.14 shows that about 75 percent of wet condition accidents consisted of two vehicles.

Table 3.14 Number of Vehicles per I-5 Wet Condition Accidents

Number of Vehicles	% of Accidents
1	2.19%
2	**75.45%**
3	21.72%
4	0.36%
5+	0.28%

According to the WSDOT data, the number of wet surface accidents steadily decreased from 2001 to 2005. Factors that could have contributed to the drop include decreases in traffic volume, number of days of rain, and construction. Table 3.15 shows that annual average weekday traffic (AAWDT) gradually deceased at MP 158 near Boeing Field for all lanes northbound and southbound from 2001 to 2006. The decreases are small in AAWDT and the changes are unlikely to affect the number of accidents on I-5..

Along with a decrease in AAWDT, a change in annual days of rain would be expected to affect the annual number of wet surface accidents. Table 3.15 shows decreases in days of rain between 2001 and 2002, 2003 and 2004, and 2004 and 2005 that correlate with decreases in the annual number of wet surface accidents. From 2005 to 2006 the large increase in accidents was mirrored by an increase in days of rain; however, in 2003 there was a substantial increase in days of rain but a gradual decrease in accidents.

Table 3.15 Wet Condition Accidents, Days of Rain, and AAWDT

Year	2001	2002	2003	2004	2005	2006
Accidents	768	758	736	704	693	826
% Change of Accidents	N/A	-1.30%	-2.90%	-4.35%	-1.56%	19.19%
Days of Rain	138	119	141	135	131	138
% Change of Days of Rain	N/A	-13.77%	18.49%	-4.26%	-2.96%	5.34%
AAWDT	217,117	197,119	198,025	190,952	193,248	192,200
% Change of AADWT	N/A	-9.21%	0.46%	-3.57%	1.20%	-0.54%

In 2006 the increase in wet surface accidents may have been the result of an increased number of rainy days, construction near Federal Way, and/or the weather of November and December, which was marked by especially heavy rains and snow.

The wet surface accidents occurred relatively uniformly over lane and direction. The accidents were almost evenly divided between northbound, 48.8 percent, and southbound, 51.2 percent (refer to Table 3.16). The percentage of accidents by lane was also well balanced. Lanes 1 and 2 had slightly more accidents than lanes 3 and 4.

Table 3.16 Wet Surface Accidents by Direction and Lane

Direction	Lane 1	Lane 2	Lane 3	Lane 4	Total
Northbound	26.82%	26.95%	20.88%	25.35%	48.81%
Southbound	24.61%	27.79%	22.69%	24.91%	51.19%
Total	25.69%	27.38%	21.81%	25.13%	

A comparison of the percentage of AAWDT by lane and direction from MP 158 near Boeing Field suggests that other factors contributed to the distribution of accidents by direction and lane. Table 3.17 shows an even division of AAWDT between northbound and southbound directions, along with a steady increase in AAWDT from lanes 1 to 4.

Table 3.17 Percentage of AAWDT at Boeing Field

Direction	Lane1	Lane 2	Lane 3	Lane 4	Total
Northbound	22.79%	23.12%	25.58%	28.51%	49.96%
Southbound	22.86%	23.11%	25.54%	28.49%	50.04%
Total	22.82%	23.12%	25.56%	28.50%	

3.8.2 Wet Surface Accidents and Diamond Ground PCCP

Three sections of diamond grinding exist in the southbound lanes and not in the adjacent northbound lanes, creating the opportunity to compare wet surface accidents on diamond ground PCCP to those on non-rehabilitated PCCP. Tables 3.18, 3.19, and 3.20 provide a comparison of the wet surface accidents in the northbound (not ground) and southbound (ground surface) lanes.

It is recognized that numerous variables contribute to wet surface accidents. As discussed in the accident data analysis, traffic volumes and annual days of rain can affect accidents, as can alignment, grade, traffic patterns, and on/off ramp configuration; however, it is fair to compare sections of Interstate with similar design and traffic characteristics.

The three sections of diamond grinding in the southbound lanes extended from mileposts 144.45 to146.18, mileposts 147.67 to149.69, and mileposts

158.47 to 161.50. The two southern sections of diamond grinding were constructed in 2001 in association with dowel bar retrofitting in lanes 1 and 2, while the northern section was constructed in 1999. Each of these sections of diamond grinding included all lanes.

Table 3.18 Diamond Ground PCCP and Wet Surface Accidents (MP 144.45 to 146.18 and MP 147.47 to 149.18)

Lane	2001	2002	2003	2004	2005	2006	Total 02-06	Accidents/Mile 02-06	% Change in Accidents/Mile
	Southbound Diamond Ground MP 144.45 to MP 146.18								
Lane 1	1	3	0	4	5	3	15	8.67	66.67%
Lane 2	1	5	5	2	1	2	15	8.67	15.38%
Lane 3	0	2	0	0	0	6	8	4.62	0.00%
Lane 4	0	1	1	1	2	1	6	3.47	-50.00%
Total	2	11	6	7	8	12	44	6.36	**4.76%**
	Southbound Diamond Ground MP 147.67 to MP 149.69								
Lane 1	5	5	1	2	3	0	11	5.00	-45.00%
Lane 2	7	3	1	1	1	3	9	4.09	0.00%
Lane 3	3	2	2	0	0	2	6	2.73	-60.00%
Lane 4	8	5	2	3	2	2	14	6.36	-48.15%
Total	23	15	6	6	6	7	40	4.55	**-43.66%**
	Northbound MP 144.45 to MP 146.18								
Lane 1	3	2	1	3	1	2	9	5.20	
Lane 2	3	2	1	3	3	4	13	7.51	
Lane 3	2	2	3	0	0	3	8	4.62	
Lane 4	0	2	2	5	2	1	12	6.94	
Total	8	8	7	11	6	10	42	6.07	
	Northbound MP 147.47 - MP 149.69								
Lane 1	4	4	3	4	4	5	20	9.09	
Lane 2	3	0	2	0	4	3	9	4.09	
Lane 3	1	8	1	2	2	2	15	6.82	
Lane 4	6	12	5	5	4	1	27	12.27	
Total	14	24	11	11	14	11	71	8.07	

For each of these sections the number of wet surface accidents was counted in each lane and direction for each year from 2001 to 2006 (refer to tables 3.18, 3.19, and 3.20).

Table 3.19. Diamond Ground PCCP and Reduction of Wet Surface Accidents (MP 158.47 to 161.50)

Lane	2001	2002	2003	2004	2005	2006	Total 01-06	Accidents/Mile 01-06	% Change in Accidents/Mile
	Southbound Diamond Ground MP 158.47 to MP 161.50								
Lane 1	1	0	2	0	0	2	5	1.65	-75.00%
Lane 2	1	2	3	1	0	4	11	3.63	-15.38%
Lane 3	1	2	2	1	2	2	10	3.30	-64.29%
Lane 4	0	2	2	3	4	1	12	3.96	-77.78%
Total	3	6	9	5	6	9	38	3.14	**-66.96%**
	Northbound MP 158.47 to MP 161.50								
Lane 1	2	3	5	3	3	4	20	6.60	
Lane 2	1	0	2	6	3	1	13	4.29	
Lane 3	3	1	5	10	5	4	28	9.24	
Lane 4	6	8	8	13	8	11	54	17.82	
Total	12	12	20	32	19	20	115	9.49	

Table 3.20. All Diamond Ground PCCP and Wet Surface Accidents

Lane	2001	2002	2003	2004	2005	2006	Total	Accidents/Mile	% Change in Accidents/Mile
	Southbound Diamond Ground								
Lane 1	7	8	3	6	8	5	31	4.57	-36.73%
Lane 2	9	10	9	4	2	9	35	5.16	0.00%
Lane 3	4	6	4	1	2	10	24	3.54	-52.94%
Lane 4	8	8	5	7	8	4	32	4.72	-65.59%
Total	28	32	21	18	20	28	122	4.53	**-46.49%**
	Northbound								
Lane 1	9	9	9	10	8	11	49	7.23	
Lane 2	7	2	5	9	10	8	35	5.16	
Lane 3	6	11	9	12	7	9	51	7.52	
Lane 4	12	22	15	23	14	13	93	13.72	
Total	34	44	38	54	39	41	228	8.46	

The southern diamond ground section of PCCP from MP 144.45 to MP 146.18 had slightly more wet surface accidents than the adjacent northbound section. Wet surface accidents in lanes 1 and 2 in the southbound section increased by 67 percent and 15 percent, respectively; those in Lane 3 remained unchanged; and those in Lane 4 decreased by 50 percent. Overall, this section showed a 5 percent increase in wet surface accidents (refer to Table 3.18).

The two sections from mileposts 147.67 to 149.69 and mileposts 158.47 to 161.18 experienced fewer accidents per mile than the non-rehabilitated PCCP in the northbound lanes. Table 3.18 shows that from MP 147.47 to 149.69 the southbound directions had, on average, 4.55 accidents per mile, whereas the northbound lanes had 8.07 accidents per mile. This indicates that the southbound diamond ground lanes had 44 percent fewer wet surface accidents for this portion of I-5 (refer to tables 3.18 and 3.19).

The section of diamond grinding from mileposts 158.47 to 161.50, near Boeing Field, exhibited the largest difference between northbound and southbound accidents per mile. The northbound non-rehabilitated PCCP experienced 9.49 accidents per mile, whereas the diamond ground southbound sections had 3.14 accidents per mile; thus there were 67 percent fewer accidents per mile on the diamond ground PCCP.

Overall, the three sections of diamond grinding experienced fewer wet condition accidents than the adjacent northbound non-rehabilitated PCCP. As seen in Table 3.20 there were 46 percent fewer wet surface accidents on the diamond ground PCCP.

While it appears that diamond grinding might have resulted in fewer wet surface accidents, it is not possible to prove this relationship. As previously discussed, numerous factors contribute to vehicle accidents on any Interstate highway. This study tried to reduce the effects of multiple factors by comparing similar adjacent sections of I-5. Such data suggest that benefit is gained from a recently ground PCC surface.

3.9 I-5 FIELD STUDY ANALYSIS

The I-5 field study provided a unique opportunity to collect information on the condition of I-5 in King County. This section is used to present an analysis of the data collected during the 2007 field study along with a comparison to the data gathered in 1986. The location was MP 175 NB. The slab ages were 43 years old at the time of testing on July 28-29, 2007. The weather at the time of testing was mild with an air temperature of 67°F.

3.9.1 Field Study Cracking Survey

The 2007 I-5 field study cracking survey revealed that 19 of the 24 slabs observed had at least one crack (79 percent), for a total of 24 longitudinal cracks (no transverse). Panels in Lane 1 exhibited twice as many cracks (16) as in Lane 2 (8). In Lane 1 two panels had multiple cracks, while in Lane 2 only one panel had multiple cracks.

Of the 13 newly observed cracks in the 2007 survey, 10 did not extend the full length of the panel (77 percent). These new cracks had developed at the transverse joint adjacent to existing longitudinal cracking in the neighboring slab.

The longitudinal cracking location within the lane was strongly related to the lane number. All of the longitudinal cracking in Lane 1 occurred in the inside half of the lane, whereas in Lane 2 all the longitudinal cracking was observed in the outside half of the lane. Detailed crack locations can be seen in Appendix B.

When the 2007 field study cracking survey data were compared to the 1986 cracking data, a large increase in cracking became evident. In 1986, 11 of the 24 slabs exhibited one crack. After 21 years, eight more panels had developed cracks, and three exhibited multiple cracks. In total, there were 13 more cracks, from 11 to 24, an increase of about 120 percent. Lane 1 increased from seven to 16 cracks, while Lane 2 doubled from four to eight cracks (refer to Table 3.21).

If it is assumed that the increase in cracking over the past 21 years (time since the first slab survey) is linear, then the average increase is about 6 percent per year. This suggests, at a minimum, that over the next 5 years the increase in cracking will be at least 30 percent and for the next 10 years at least 60 percent. This will result in more slabs with multiple cracks and the need for complete slab removal.

As noted in Chapter 2, the 2007 cracking survey was cut short because of safety concerns during the data collection process, and slabs 26, 27, and 28 were not completely surveyed. The field team noted that more cracks had developed since 1986, but the location and extent of those cracks were not fully documented.

Table 3.21. 1986 and 2007 Cracking Survey Number of Cracked Slabs

Slab	1986			2007			Increased # of Cracks
	Lane 1	Lane 2	Total	Lane 1	Lane 2	Total	
1	0	0	0	3	0	3	3
2	1	0	1	1	0	1	0
3	1	0	1	1	1	2	1
4	0	0	0	3	1	4	4
[redacted]							
18	0	0	0	1	2	3	3
19	1	0	1	1	0	1	0
20	1	0	1	1	0	1	0
21	0	0	0	1	0	1	1
[redacted]							
25	1	1	2	1	1	2	0
26	1	1	2	1	1	2	0
27	1	1	2	1	1	2	0
28	0	1	1	1	1	2	1
Total	7	4	11	16	8	24	13

3.9.2 Field Study Spalling Survey

The spalling surveys were conducted so that a comparison of the 1986 and 2007 results could be directly compared.

In the 2007 survey, spalling was identified on cracks that had existed in the 1986 survey and on new cracks. In 1986, the cracks had an average spalling width of 2.0 in. and depth of 1.9 in. In 2007 the same cracks exhibited an average width of 2.7 in. and a depth of 1.9 in., increasing 36 percent in width see Table 3.22).

Table 3.22. Spalling in 1986 and 2007

	1986	2007	% Increase	New Spalls
Average Spall Width (in)	2.0	2.7	36%	1.53
Average Spall Depth (in)	1.9	1.9	0%	1.25

The new cracks had an average width of 1.5 in. and depth of 1.2 in. All of the locations and measurements of spalling from the 1986 and 2007 I-5 field studies are shown in Appendix B.

3.9.3 Field Study Faulting Survey

The 2007 field study faulting survey revealed an increase in faulting since 1986 (Table 3.23). In 1986 the average faulting in the test section was 0.085 in. This had increased to 0.122 in. in 2007, or 44 percent.

The largest increase in faulting was noted in the wheel paths of Lane 1. The outside wheel path increased from 0.050 in. in 1986 to 0.136 in. in 2007, and the inside wheel path increased from 0.050 in. to 0.135 in. The faulting increase at the wheel path was surprising, given that this was where studded tire wear is greatest and might reduce the faulting displacement between the lead and leave slab. This might have been the result of slab curling, but this is uncertain.

Table 3.23. 1986 and 2007 Average Faulting and Locations

		Average (in)		Increase (in)	% Increase
		1986	2007		
Lane 1	**Middle of Lane**	-	0.140	-	-
	Outside Wheel Path	-	0.119	-	-
	Outside Panel Edge	0.091	0.118	0.027	29.24%
Lane 2	**Inside Panel Edge**	0.094	0.114	0.020	21.21%
	Inside Wheel Path	0.050	0.136	0.086	172.73%
	Middle of Panel	0.063	0.125	0.063	100.00%
	Outside Wheel Path	0.050	0.135	0.085	170.83%
	Outside Panel Edge	0.104	0.094	-0.010	-10.00%
	Total	0.085	0.122	0.037	44%

The outside edge of the panels exhibited the least faulting and smallest increase since 1986. The inside edge of Lane 1 averaged 0.118 in. of faulting in 2007, an increase of 0.027 in. (21 percent) since 1986, whereas the outside edge of Lane 1 showed a 10 percent decrease in faulting from 1986 to 2007. In over 21 years the faulting on the outside panel edge decreased 0.010 in.

If it is again assumed that the increase in faulting over the past 21 years is linear, then the average increase is about 2 percent per year. This suggests, at a minimum, that over the next 5 years the increase in faulting will be at least 10 percent. The average faulting will then exceed the lower threshold of acceptability (0.125 in.). Unfortunately, there is little reason to expect a linear increase for future years given the high levels of distress observed for these slabs. A much more likely scenario is an acceleration of faulting severity.

3.9.4 Field Study Coring

A total of 12 cores were taken for further analysis. Most of the cores that were collected at the transverse joint broke vertically at the joint and occasionally split horizontally in the lower few inches of the core. Compressive strengths were determined for four intact cores at the Materials Laboratory at the University of Washington in accordance with ASTM C42. The average compressive strength was 11,875 psi. In 1986 the average for a set of cores taken at the same location was 11,406 psi. Specific test results are shown in Table 3.24. Only Core Nos. 2 taken in both 1986 and 2007 were adjacent to each other. Those results suggest a slight increase in PCC compressive strength over the 21 year span.

Table 3.24. 1986 and 2007 PCC Cores Compressive Strengths

1986 Core No.	2007 Core No.	Compressive Strength (psi)	
		1986	2007
2	2	11,141	12,700
9	4	11,495	10,900
25	6	11,491	11,100
39	11	11,495	12,800
Means		11,406	11,875
Standard Deviation		176	1,014

The differences in compressive strengths spanning the 21 year period are insignificant. The fact that the standard deviation is higher in 2007 is of limited interest. This could be due to sampling or testing variability. The 1986 results appear to have an unusually low standard deviation.

The images in the Appendix B can be used to find the core locations.

3.9.5 Nondestructive Deflection Testing

The nondestructive deflection tests obtained with the WSDOT FWD were used to evaluate load transfer efficiency at joints and cracks. When a wheel load is applied at a joint or crack, both the loaded slab and the adjacent unloaded slab deflect. The amount the unloaded slab deflects is directly related to joint performance. If the joint is performing perfectly, both the loaded and unloaded slabs deflect equally. The amount the pavement deflects is important because when deflection occurs, tensile stresses are induced in the slab. The magnitude of these tensile stresses has a direct impact on pavement performance, i.e., the lower the stress, the longer the fatigue life (Mindess and Young, 1981).

Joint performance can be evaluated by using the FWD deflection data to calculate load transfer efficiency (LTE) across a joint or crack. LTE can be calculated by using the following equation:

$$LTE = (\Delta_u/\Delta_l)(100)$$

where

LTE = load transfer efficiency, percent

Δ_u = deflection of the unload slab, mils

Δ_l = deflection of the loaded slab, mils

Joint efficiency depends on several factors, including temperature (which affects joint opening), number and magnitude of load applications, foundation support, aggregate particle angularity, and the presence of mechanical load transfer devices (Darter, 1977). No mechanical load transfer devices (such as dowel bars) were installed in the originally constructed I-5 pavements, so load transfer is provided solely by aggregate interlock across the joint or crack.

As noted, temperature plays a major role in determining joint effectiveness. In general, the lower the temperature, the lower the load transfer efficiency. This results from the increased opening of the joints during cooler weather, which reduces the contact between the slab faces (Foxworthy, 1985). Joint load transfer efficiency has also been shown, in both laboratory and field studies, to decrease with increasing load applications (Colley et al., 1967, and Stelzenmulter et al., 1973).

Deflections were measured across the transverse joint, with the load applied on both the approach and leave slabs and across three longitudinal cracks. The 2007 testing was conducted between about midnight and 4:00 am, when the air temperature was approximately 67°F (the 1986 testing was done between the same hours but at a slightly lower air temperature of 60°F). Refer to Appendix B for specific locations. Specific load transfer results are shown in Table 3.25.

Table 3.25. 1986 and 2007 Load Transfer Efficiencies in the Outer Lane, I-5, MP 175

Deflection Testing Location	Slab Location	LTE (%)	
		1986	2007
Edge of Slab (Row 1)	Approach	91	86
	Leave	91	91
Outer Wheelpath (Row 2)	Approach	93	88
	Leave	91	95
Between Wheelpaths (Row 3)	Approach	--	85
	Leave	--	93
New Longitudinal Crack (Slab 18—formed since 1986 survey)	Left	--	77
	Right	--	51
Existing Longitudinal Crack (Slab 25—preexisting during 1986 survey)	Left	--	48
	Right	63	26
Existing Longitudinal Crack (Slab 26—preexisting during 1986 survey)	Left	--	71
	Right	--	60

These limited results show that the load transfer at the transverse joints decreased slightly from 1986 to 2007 at this location. The load transfer across the longitudinal cracks is much lower than the transverse joints. The LTEs of the cracks appear to have decreased significantly (but the comparisons between 1986 and 2007 are quite limited).

The question is, what are acceptable (or conversely, unacceptable) LTEs?

- The Asphalt Institute MS-17 notes three levels of LTE ranges: (1) greater than 75 percent is adequate, (2) 60 to 75 percent is fair, and (3) less 60 percent is poor. Furthermore, it notes that for "thin" HMA overlays to perform successfully on PCCP, the LTE of an existing PCC pavement should be 80 percent or higher.
- The first dowel bar retrofit project in Washington State was on I-90 near Cle Elum. The slab thicknesses and base are similar to those on I-5 in King County. The initial LTE was about 30 percent before DBR. Following DBR, the LTEs ranged from 80 to 90 percent for a span of about 8 years. Following this, the LTEs decreased and faulting increased.

The bottom line on LTEs at MP 175 is that the LTEs show a limited need for DBR at this time and that additional trafficking can be accommodated before major faulting increases. This test section represents only a small portion of I-5. A larger deflection survey will likely produce different results and conclusions.

CHAPTER 4
PORTLAND CEMENT CONCRETE REHABILITATION OPTIONS FOR I-5

Several approaches can be used to rehabilitate PCCP. This chapter covers rehabilitation options and their relevance to I-5. WSDOT has used mostly diamond grinding, dowel bar retrofitting (DBR), and panel replacement on I-5 within King County thus far. Some portions of I-5 outside of King County have received HMA overlays.

4.1 DIAMOND GRINDING

Grinding is an effective option for improving the smoothness of the existing PCCP. While it does not address panel cracking or the causes of faulting, the result is a smoother pavement. Depending on the depth of grind, faulting can be reduced, which reduces dynamic loading from heavy traffic and reduces the progression of cracks (Mahoney, 2006). Diamond grinding also reduces the thickness of the slab, decreasing the structural capacity and life of the panels.

4.1.1 The Process of Diamond Grinding

Diamond grinding is accomplished with gang-mounted, diamond-tipped blades to remove up to ¾ in. (Pavement Interactive, 2007). Typically, the depth of the grind is determined by the vertical displacement of the faulting at the transverse joint (Pierce, 2006). Because wheel path wear is often deeper than the vertical displacement of faulting, not all wheel path wear may be removed.

When a PCCP is diamond ground, the roadway's drainage must be managed. To avoid altering the drainage design, it is preferred that all lanes be diamond ground.

4.1.2 When Should a PCCP Be Diamond Ground?

Diamond grinding is often considered for a section of PCCP on the basis of surface roughness. Poor surface roughness can often be a result of faulting, wheel path wear, or panel curling (Pavement Interactive, 2007). As discussed earlier in this report, diamond grinding is generally considered when faulting exceeds ⅛ in. or when wheel path wear is in excess of 0.4 in.

4.1.3 Diamond Grinding Issues and Benefits Specific to I-5

Currently, diamond grinding is WSDOT's least expensive rehabilitation option for existing PCCP. In 2006 WSDOT spent about $100,000 per lane mile (Pierce, 2006). With that cost per lane mile, diamond grinding is an effective method for extending the life of a PCCP. Diamond grinding has been estimated to extend the life of I-5 PCCP by five to ten years (Pierce, 2007).

4.2 DOWEL BAR RETROFITTING

DBR has been actively used by WSDOT as a PCCP rehabilitation option for about 15 years. Since 1993 WSDOT has dowel bar retrofit over 300 lane miles of PCCP, and it is predicting a need to dowel bar retrofit another 600 lane miles in the next 20 years (WSDOT, 2007).

Unlike diamonding grinding alone, DBR addresses the issues that cause faulting. DBR improves the panel's ability to transfer loads from slab to slab, thus reducing panel movements that result in faulting.

4.2.1 The Process of Dowel Bar Retrofitting

Typically, three or four bars are placed in the wheel paths at the transverse joints (although WSDOT has almost exclusively used three bars per wheel path). The entire process can be summarized in four steps:

Step 1: Cut and jack hammer the slots for the dowel bars (Figure 4.1).

Figure 4.1. Dowel Bar Slots (Image Courtesy Pavement Interactive)

Step 2: Place the of dowel bars (Figure 4.2).

Figure 4.2. Placement of Dowel Bars (Image Courtesy Pavement Interactive)

Step 3: Grout the dowel bars in slots (Figure 4.3).

Figure 4.3. Placing Grout in Dowel Bar Slots (Image Courtesy Pavement Interactive)

Step 4: Diamond grind the entire pavement surface (Figure 4.4).

Figure 4.4. Dowel Bar Retrofit PCCP After Diamond Grinding (Image Courtesy Pavement Interactive)

4.2.2 When Should a PCCP Be Dowel Bar Retrofit?

Dowel bar retrofitting is often needed when the aggregate interlock at the transverse joint is marginal (WSDOT, 2007). If faulting has exceeded ½ in., the aggregate interlock is usually quite low, suggesting that a dowel bar retrofit is necessary to keep faulting from returning after grinding (Pierce, 2007).

WSDOT trigger values for dowel bar retrofit can be seen in Table 3.7. Typically, at faulting of ⅛ in. or ¼ in., dowel bar retrofitting is considered a rehabilitation option.

4.2.3 Dowel Bar Retrofit Issues and Benefits Specific to I-5

In comparison to diamond grinding alone, dowel bar retrofitting is more expensive per lane mile. In 2006, dowel bar retrofitting cost WSDOT about $450,000 per lane (WSDOT, 2007). Currently, it is estimated that WSDOT's DBR PCCP will have an extended serviceability of about 10 years (WSDOT, 2007) but that estimate assumes very limited slab cracking.

Because of WSDOT's extensive use of dowel bar retrofitting, lessons have been learned. Extensive cracking has developed at the DBR slots at some Washington projects (Pierce, 2006). This could be the result of the slots being cut too deeply and/or the jack hammer punching through the slab. Therefore, it is very important that the contractor saw the slots to the appropriate depth and that a jack hammer of appropriate weight be used.

It is also important that the dowel bars are placed perpendicular to the transverse joint. Dowel bars that are placed at a slight skew can cause the joint to lock up (WSDOT, 2007).

4.3 RECONSTRUCTION AND PANEL REPLACEMENT

Much of I-5 is in need of replacement or rehabilitation. Reconstruction is the most expensive, while selective panel replacement can reduce costs and extend the life of the pavement (Muench, 2007).

4.3.1 The Process of Panel Replacement

After panels have been identified for replacement, the damaged panels are removed. There are two main methods of demolition, impact and non-impact (Muench, 2007). Non-impact demolitions consist of cutting the existing slabs into manageable chunks. Impact removal utilizes full-depth relief cuts 12 to 18 inches from the panel's longitudinal and transverse joints. The relief cuts reduce damage to adjacent panels when either hoe-rams, hammers, or a guillotine breaker are used to break the PCCP for removal (Muench, 2007).

Once demolition has been completed, dowel and tie bars must be placed in the adjacent slabs. Placement of tie and dowel bars requires drilling and inserting the bars into the slabs before the concrete is placed. This is followed by a bond breaker that is applied to the base material and adjacent panels (Muench, 2007). Typically, a fast setting concrete is used, depending on how quickly the road must be opened. After the concrete has cured, spot grinding is necessary to smooth the joints of the new slab (Pierce, 2006).

4.3.2 When Should a PCCP Have Panel Replacement or Be Replaced?

Reconstruction and panel replacement are often considered when cracking is so extensive that the panel is unable to effectively support traffic loads. Once a panel has developed more than two cracks, the panel's ability to transfer load is reduced, and reconstruction or panel replacement should be considered (Jackson, 2006).

The decision to either reconstruct or replace a panel depends on the number of panels in a section that warrant replacement. It is typically economically viable to replace panels when less than 5 percent of the panels in a given section require replacement (Muench, 2007). If more than 5 percent of a given section needs replacement, then the section should be considered for reconstruction or some type of major rehabilitation.

4.3.3 Reconstruction and Panel Replacement Issues and Benefits Specific to I-5

WSDOT has been utilizing panel replacement on I-5 typically to replace panels that have been extensively damaged as a result of poor base and sub-grade conditions (Pierce, 2006).

Recent experience suggests that it costs WSDOT about $20,000 per panel in a rehabilitation project that uses rapid concrete construction methods (Muench, 2007). If 5 percent of the panels in a lane mile were replaced, the cost would be about $350,000 per lane mile, in comparison to about $850,000 to $1.2 million per lane mile for complete reconstruction (Muench, 2007). Replacing 5 percent of the panels in a given section extends serviceability by about 10 years (Muench, 2007).

4.4 HMA OVERAYS

Another possibility that WSDOT should consider for major rehabilitation of I-5 is HMA overlays. HMA has been used to overlay much of the original PCC from about MP 1 to MP 109 on I-5 (Vancouver to Olympia). It is of value to examine how these overlays performed.

The originally constructed PCC for I-5 from about MP 1 to MP 109 was built from about 1955 to the 1980s and is mostly 9.0-in.-thick PCC, non-doweled joint concrete pavement (at some locations thicknesses of 8 in. were used). Starting in the 1970s and into the early 1990s, these PCC pavements were overlaid with HMA along portions of this corridor. These HMA overlays ranged in thickness from about 1.8 to 4.8 in. and included, at some locations, interlayer treatments (either fabric or asphalt-rubber). Through this corridor the ADT varies widely, but it is typical for about 4,000 trucks to pass per day in each direction. This certainly constitutes heavy traffic. Table 4.1 illustrates the performance of these overlays subdivided by interlayer treatment.

The data in Table 4.1 illustrate that a wide range of performance can be expected for HMA overlays over PCC, but, on average, a life of 10 to 15 years is reasonable. Furthermore, most of the initial overlays placed on the PCC have now received a subsequent overlay (or overlays). The data also show the miles and percentages associated with how the overlays reached an unacceptable condition. Almost 60 percent of the HMA overlays reached a rutting threshold first. The remainder reached pavement structural condition (PSC) thresholds that are largely due to various types of cracking. Rutting of HMA over PCC is a mix issue (not thickness), and this has been improved during the 1990s until today through new a mix design system and enhanced specifications and construction techniques.

Table 4.1 Performance of HMA Overlays on I-5 over PCC

Treatment	Overlay Thickness (ft)	Average Age (years)	Total Miles	Rutting (miles)	PSC (miles)	Rutting (%)	PSC (%)
Fabric	All	14.40	29.19	14.34	14.85	49	51
	0.30	14.25	11.62	8.19	3.43	70	30
	0.35	15.12	9.21	4.86	4.35	53	47
	0.40	13.80	8.36	1.29	7.07	15	85
Asphalt-rubber	All	10.31	7.44	7.44	0.00	100	0
	0.15	14.00	0.11	0.11	0.00	100	0
	0.30	14.00	1.53	1.53	0.00	100	0
	0.35	7.41	2.64	2.64	0.00	100	0
	0.40	10.82	3.16	0.14	3.02	4	96
HMA only	All	15.25	17.25	17.25	0.00	100	0
	0.15	19.00	0.34	0.00	0.34	0	100
	0.30	15.81	15.06	11.36	3.70	75	25
	0.35	10.00	0.86	0.86	0.00	100	0
	0.40	10.00	0.99	0.00	0.99	0	100
		Totals	**53.88**	**30.98**	**22.90**	**57**	**43**

Data contained in tables 4.2 and 4.3 further illustrate typical HMA overlay performance for WSDOT Interstate highways. Table 4.2 shows that overlay performance improves somewhat with each overlay addition. This should not be a surprise. What is interesting is that the overlay performance does not get worse with each application.

Table 4.3 shows that a wide range of overlay thicknesses perform about the same. These data are only for the first overlay placed on a PCC surface. However, the selection of an overlay thickness is influenced by the condition of the underlying PCC. As such, it is incorrect to assume that overlay thickness does not matter.

Table 4.2 Performance of HMA Overlays on PCC for All WSDOT Interstates

Overlay Sequence	**Average Age (years)**	**Total Miles**
All HMA Overlays	12.6	172.2
1st Overlay over PCC	12.4	107.8
2nd Overlay over PCC	12.8	54.2
3rd Overlay over PCC	**13.2**	**10.2**

Table 4.3 Performance of First HMA Overlay Placed on PCC for All WSDOT Interstates

HMA Overlay Thickness (ft)	Average Age (years)	Number of Sections
< 0.15	13.0	8
0.15 to 0.20	11.0	36
0.21 to 0.30	14.0	35
0.31 to 0.40	13.0	114
> 0.40	13.0	10

I-5 between approximately MP 102 and 109 is a good illustration of an HMA overlay over PCC. This portion of I-5 is from Tumwater through Olympia. Following an attempt by WSDOT to ensure that zero or only limited voids existed under the preexisting PCC via grout injection, a 4.3-in.-thick HMA overlay was placed. This construction was done from about 1991 to 1993. Subsequently, an open graded wearing course was removed and replaced with a dense graded

HMA during 2000 to 2001. The general performance of this portion of I-5 has been quite good.

What are some of the issues associated with placing HMA overlays on portions of I-5 in King County?

- Depending on the HMA overlay thickness, clearances must be checked.
- All lanes and shoulders must be overlaid—there is no possibility that isolated lanes can receive HMA and others not for a given segment of I-5.
- What is the best pretreatment for the existing PCC slabs? Virtually all of the previous HMA overlays placed on I-5 PCC have been constructed with limited slab treatments (such as pressure grouting to fill any voids under the slabs).
    - Some states such as California do a PCC slab pretreatment called "crack and seat" before placing the HMA overlay. However, all of the PCC in California has been placed on cement-treated bases (CTB), which have been susceptible to pumping (erosion of the CTB material). This makes the use of crack and seat quite logical for California. This type of base (CTB) has been used on a very limited basis for WSDOT I-5 PCCP. The crack and seat pretreatment also reduces the potential for temperature movement in the slab, thus reducing the rate of reflection cracking. Given the high PCC strength of these slabs, lack of use of CTB in King County, and generally good transverse joint LTEs, it is unlikely that this type of pretreatment needs to be applied to I-5. However, a more extensive FWD survey would either confirm or alter this view.
    - A visit by project staff (Joe Mahoney and Linda Pierce) during November 2007 to California revealed that the Caltrans crack and seat HMA overlays have performed well over a span of

about 25 years. Those original overlays are typically 4 to 6 in. thick.

- o Some states rubbilize the existing PCC, thus creating a high stiffness base course. This results in a much thicker HMA overlay than WSDOT has typically used. Rubbilization creates a less stiff base for the HMA (in comparison to leaving the existing PCC slabs in place), thus requiring a thicker overlay. Furthermore, the current condition of I-5 in King County does not, at this time, require such a drastic pretreatment.

Bridge clearances were checked to see what kind of restrictions would need to be applied in relation to HMA overlay thickness. The data for this assessment are contained in Appendix W. RCW 46.44.020 notes that the maximum height of trucks in Washington State is 14 ft. WSDOT, of course, has set bridge clearances higher. The major constraint with respect to clearances in King County along I-5 is a 3.5-mile portion (about 10 percent of the centerline mileage in King County) from downtown Seattle to just north of the Ship Canal Bridge (MP 166.16 to 169.67). The lowest clearance through this corridor is 14.75 ft. at NE 50th Street. The northbound lanes have lower clearances than the southbound lanes. Appendix W contains these clearances along with the reduced clearances associated with 4- and 5-in.-thick HMA overlays.

CHAPTER 5
CONCLUSIONS AND RECOMMENDATIONS

This chapter covers the conclusions and recommendations that have developed from available WSDOT data or obtained during the study.

5.1 CONCLUSIONS

This study has resulted in several deliverables that will aid WSDOT in managing I-5 rehabilitation in King County, including

(1) assessment tools for I-5 PCCP

(2) further knowledge of the conditions of I-5 PCCP

(3) limited evidence linking diamond grinding and accident reduction

(4) a comparison of 1986 and 2007 pavement evaluations.

The assessment tools include the distress plots and images produced with Arc GIS. These tools provide WSDOT with an improved understanding of I-5 conditions through straightforward visual presentation.

The summary analyses of the 2004 distress data provide a quantitative understanding of the performance of the non-rehabilitated, diamond ground, and dowel bar retrofit PCCP on I-5 in King County. As expected, the rehabilitation efforts thus far have extended the life of I-5. As the trigger failure analysis highlighted, at least 80 lane miles of I-5 (and possibly up to 129 lane miles, out of 195 total lane miles, depending on the trigger values used) need rehabilitation.

The analysis of wet surface accidents suggests a possible reduction in accidents attributable to diamond grinding. As stated earlier, this is difficult to prove but suggests further reasons for how and why I-5 PCCP needs to be rehabilitated.

The field study on I-5 at MP 175 suggests that the condition of I-5 PCCP is deteriorating. The faulting, cracking, and spalling observed are worse than recorded in 1986—as expected. Furthermore, many of the new cracks are currently propagating across the slabs, suggesting that panel cracking is accelerating. The PCC in I-5 is still quite strong as measured by compressive strength and, indirectly, by overall performance. The relatively high transverse joint LTE values at the MP 175 test section are encouraging. However, they are countered somewhat by the low LTEs for the longitudinal cracks. This suggests that major rehabilitation may include an HMA overlay of the existing PCC.

Analyses of the data provided by WSDOT reveals that the I-5 PCCP in King County is in poor condition. Diamond grinding and other rehabilitation efforts will help this condition, but only temporarily. Ultimately, I-5 must receive major rehabilitation or complete reconstruction.

5.2 RECOMMENDATIONS

This study has shown how diamond grinding and dowel bar retrofitting has enhanced the performance of the PCCP and extended its service life. While it may not be feasible to reconstruct all of I-5 in King County, rehabilitating portions of I-5 will extend the life of the pavements and improve traffic safety. Currently, with WSDOTs limited budget and the eventual need for major rehabilitation or reconstruction, diamond grinding appears to be the single best option to extend the life of the majority of I-5 in King County.

5.3 CONSENSUS VIEW

Table 5.1 was prepared by the WSDOT, University of Washington, and Nichols Consulting team to provide expected I-5 conditions for three broad time periods: 0 to 5 years, 5 to 10 years, and beyond 10 years. The assessment is based on existing conditions and the best estimate of how I-5 will continue to perform and the WSDOT actions the will be needed.

Table 5.1 Interstate 5 Estimates for King County—A Consensus View

Time Frame (years)	Expected PCC Distress During Time Frame	Required WSDOT Activities
0 to 5	Increased faulting of the transverse joints and, to a lesser degree, slab cracking, with localized areas of increased cracking. Pavement wear depths due to studded tires generally exceed safe levels (main concern is hydroplaning). Surface friction is low throughout the corridor for PCCP that has not been ground or resurfaced.	Continuing WSDOT maintenance will be required to address localized problem areas—mostly broken slabs. Contract rehabilitation should include a focus on grinding the PCC surface to remove/reduce faulting and broken slab replacement. Major rehabilitation or reconstruction should be designed, funded, and under way. The traveling public will complain about the pavement condition and related noise.
5 to 10	If only limited work is performed during the preceding 5 years, major faulting of the transverse joints throughout I-5 in King County is expected. A significant increase in slab cracking will occur. Without extensive grinding, pavement wheel path wear depths will continue to worsen, but slowly.	WSDOT Maintenance will be challenged to keep up with replacement/repair of broken slabs. Major rehabilitation or reconstruction must be designed, funded, and well under way. The traveling public will express increasing concern about the condition of the roadway, including pavement related noise. Trucking interests will have special concerns.
Greater than 10	If limited work is performed during the preceding 10 years, I-5 will be highly distressed, largely in the form of major faulting of the transverse joints, extensive slab cracking, and wheel path wear depths. In essence, a fully “failed” condition.	WSDOT will be in a triage mode with respect to I-5. The required repair work will be extensive. The structural capacity of I-5 will be at risk. WSDOT can expect strong public complaints about the condition of the roadway.

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Appendix A –
Mile Post Breakdown Northbound and Southbound

Northbound MP 139.50 to MP 177.75

MPB	MPE	Year Constructed	Construction	Notes
139.5	142	1962	0.75 PCCP, 0.75 UB	1970 Rt. Ln, *
142	142.04	1959	N/A	BRIDGE
142.04	142.79	1962	0.75 PCCP, 0.75 UB	1970 Rt. Ln, *
142.79	142.82	1960		BRIDGE
142.82	143.51	1962	0.75 PCCP, 0.75 UB	1970 Rt. Ln., *
143.51	144.19	1962	0.75 PCCP, 0.75 UB	1970 Rt. Ln.
144.19	144.65	1962	0.75 PCCP, 0.75 UB	1970 Rt. Ln
144.65	144.69	1960	N/A	BRIDGE
144.69	144.74	1962	0.75 PCCP, 0.75 UB	1970 Rt. Ln.
144.74	144.94	1962	0.75 PCCP, 0.75 UB	1970 Rt. Ln.
144.94	145.59	1962	0.75 PCCP, 0.75 UB	1970 Rt. Ln.
145.59	145.79	1962	0.75 PCCP, 0.75 UB	1970 Rt. Ln.
145.79	145.82	1961	N/A	BRIDGE
145.82	146	1962	0.75 PCCP, 0.75 UB	1970 Rt. Ln.
146	146.44	1962	0.75 PCCP, 0.75 UB	1970 Rt. Ln.
146.44	146.48	1960	N/A	BRIDGE
146.48	146.81	1962	0.75 PCCP, 0.75 UB	1970 Rt. Ln.
146.81	146.85	1961	N/A	BRIDGE
146.85	147.64	1962	0.75 PCCP, 0.75 UB	1970 Rt. Ln.
147.64	147.67	1960	N/A	BRIDGE
147.67	149.17	1962	0.75 PCCP, 0.75 UB	1970 Rt. Ln.
149.17	149.22	1962	N/A	BRIDGE
149.22	149.39	1962	0.75 PCCP, 0.75 UB	1970 Rt. Ln.
149.39	152.26	1966	0.75 PCCP, 0.67 UB	1970 Rt. Ln.
152.26	152.29	1965	N/A	BRIDGE
152.29	152.65	1966	0.75 PCCP, 0.67 UB	1970 Rt. Ln.
152.65	153.65	1969	0.75 PCCP, 0.33 ATB, 0.58 UB	
153.65	153.74	1968	N/A	BRIDGE
153.74	154	1969	0.75 PCCP, 0.33 ATB, 0.58 UB	
154	154.14	1969	0.75 PCCP, 0.33 ATB, 0.58 UB	
154.14	154.4	1969	0.75 PCCP, 0.33 ATB, 0.58 UB	DG 1999
154.4	154.44	1968	N/A	BRIDGE
154.44	154.65	1969	0.75 PCCP, 0.33 ATB, 0.58 UB	DG 1999
154.65	154.67	1965	N/A	BRIDGE
154.67	155.43	1969	0.75 PCCP, 0.33 ATB, 0.58 UB	1991 Rt. Ln., DG 1999
155.43	155.98	1969	0.75 PCCP, 0.33 ATB, 0.58 UB	DG 1999
155.98	156.01	1967	N/A	BRIDGE
156.01	156.34	1969	0.75 PCCP, 0.33 ATB, 0.58 UB	DG 1999
156.34	156.49	1964	N/A	BRIDGE
156.49	158.24	1969	0.75 PCCP, 0.33 ATB, 0.58 UB	DG 1999
158.24	158.45	1967	0.75 PCCP, 0.33 ATB, 0.75 UB	
158.45	158.47	1966	N/A	BRIDGE
158.47	159.67	1967	0.75 PCCP, 0.33 ATB, 0.75 UB	
159.67	159.71	1966	N/A	BRIDGE
159.71	161.65	1967	0.75 PCCP, 0.33 ATB, 0.75 UB	

MPB	MPE	Year Constructed	Construction	Notes
161.65	161.68	1967	N/A	BRIDGE
161.68	162.19	1967	0.75 PCCP, 0.33 ATB, 0.75 UB	
162.19	162.36	1967	N/A	BRIDGE
162.36	162.68	1967	0.75 PCCP, 0.33 ATB, 0.75 UB	
162.68	162.82	1997	0.75 PCCP, 0.92 UB	
162.82	162.96	1967	N/A	BRIDGE
162.96	163.04	1967	0.75 PCCP, 0.92 UB	
163.04	163.2	1967	N/A	BRIDGE
163.2	163.24	1967	0.75 PCCP, 0.92 UB	
163.24	164.37	1967	N/A	BRIDGE
164.37	164.62	1967	0.75 PCCP, 0.92 UB	
164.62	164.66	1966	N/A	BRIDGE
164.66	164.8	1967	0.75 PCCP, 0.92 UB	
164.8	164.93	1966	N/A	BRIDGE
164.93	165.32	1967	0.75 PCCP, 0.92 UB	
165.32	166.21	1965	N/A	BRIDGE
166.21	166.91	1965	0.75 PCCP, 0.92 UB	
166.91	166.98	1964	N/A	BRIDGE
166.98	167.13	1965	0.75 PCCP, 0.92 UB	
167.13	167.35	1964	0.75 PCCP, 0.67 UB	
167.35	167.67	1962	N/A	BRIDGE
167.67	168.34	1964	0.75 PCCP, 0.67 UB	
168.34	169.18	1961	N/A	BRIDGE
169.18	170.25	1965	0.75 PCCP, 0.67 UB	
170.25	170.5	1961	N/A	BRIDGE
170.5	170.85	1963	0.75 PCCP, 0.67 UB	
170.85	172.32	1965	0.75 PCCP, 0.59 UB	
172.32	172.35	1965	N/A	BRIDGE
172.35	172.76	1965	0.75 PCCP, 0.59 UB	
172.76	172.79	1985	N/A	BRIDGE
172.79	174.58	1965	0.75 PCCP, 0.92 UB	
174.58	175.11	1965	0.75 PCCP, 0.17 CTB, 0.42 UB	Lt. Ln. 1967
175.11	175.14	1965		BRIDGE
175.14	175.52	1965	0.75 PCCP, 0.17 CTB, 0.42 UB	Lt. Ln. 1967
175.52	175.53	1990		BRIDGE
175.53	175.89	1965	0.75 PCCP, 0.17 CTB, 0.42 UB	Lt. Ln. 1967
175.89	176.13	1965	0.75 PCCP, 0.17 CTB, 0.42 UB	
176.13	176.16	1964	N/A	BRIDGE
176.16	177.75	1965	0.75 PCCP, 0.17 CTB, 0.42 UB	

* New construction of HOV, left most lanes.
UB - Untreated Base, ATB - Asphalt Treated Base
CTB - Cement Treated Base, DG- Diamond Grinding
DBR-Dowel Bar Retrofit
(Year) Lt./Rt. Ln.– Left/Right Lane constructed that year

Southbound MP 139.50 to MP 177.75

MPB	MPE	Year Constructed	Construction (feet)	Notes
139.5	142	1962	0.75 PCCP, 0.75 UB	1970 Rt. Ln., *
142	142.04	1959	N/A	BRIDGE
142.04	142.79	1962	0.75 PCCP, 0.75 UB	*
142.79	142.81	1960	N/A	BRIDGE
142.81	143.24	1962	0.75 PCCP, 0.75 UB	*
143.24	144.45	1962	0.75 PCCP, 0.75 UB	1970 Rt. Ln
144.45	144.65	1962	0.75 PCCP, 0.75 UB	1970 Rt. Ln., 2001 DBR/DG (Ln.1,2)*
144.65	144.69	1960	N/A	BRIDGE
144.69	145.79	1962	0.75 PCCP, 0.75 UB	1970 Rt. Ln., 2001 DBR/DG (Ln.1,2)*
145.79	145.82	1961	N/A	BRIDGE
145.82	146.18	1962	0.75 PCCP, 0.75 UB	1970 Rt. Ln., 2001 DBR/DG (Ln.1,2)*
146.18	146.43	1962	0.75 PCCP, 0.75 UB	1970 Rt. Ln., *
146.43	146.47	1960	N/A	BRIDGE
146.47	146.81	1962	0.75 PCCP, 0.75 UB	1970 Rt. Ln., *
146.81	146.84	1961	N/A	BRIDGE
146.81	147.64	1962	0.75 PCCP, 0.75 UB	1970 Rt. Ln., *
147.64	147.67	1960	N/A	BRIDGE
147.67	148.88	1962	0.75 PCCP, 0.75 UB	1970 Rt. Ln., 2001 DBR/DG(Ln.1,2),*
148.88	149.17	1962	0.75 PCCP, 0.75 UB	1970 Rt. Ln., 2001 DBR/DG (Ln.1,2)
149.17	149.22	1962	N/A	2003 reconstructed bridge
149.22	149.4	1962	0.75 PCCP, 0.75 UB	1970 Rt. Ln., 2001 DBR/DG (Ln.1,2)
149.4	149.69	1966	0.75 PCCP, 0.67 UB	1970 Rt. Ln., 2001 DBR/DG (Ln.1,2)
149.69	152.26	1966	0.75 PCCP, 0.67 UB	1970 Rt. Ln.
152.26	152.29	1965	N/A	BRIDGE
152.29	152.51	1966	0.75 PCCP, 0.67 UB	1970 Rt. Ln., 2004 HV Added (lt)
152.51	153.15	1966	0.75 PCCP, 0.67 UB	1970 Rt. Ln., 2004 HV Added (lt), *
153.15	154.06	1969	0.75 PCCP, 0.33 ATB, 0.58 UB	2004 HV Added (lt), 2004 ReCon.
154.06	154.12	1969	0.75 PCCP, 0.33 ATB, 0.58 UB	2004 HV Added (lt)
154.12	154.16	1968	N/A	BRIDGE
154.16	154.4	1969	0.75 PCCP, 0.33 ATB, 0.58 UB	1999 DG, 2004 HV Added (Lt)
154.4	154.42	1968	N/A	BRIDGE
154.42	154.5	1969	0.75 PCCP, 0.33 ATB, 0.58 UB	1999 DG
154.5	154.53	1968	N/A	BRIDGE
154.53	154.65	1969	0.75 PCCP, 0.33 ATB,	1999 DG

			0.58 UB	
154.65	154.67	1965	N/A	BRIDGE
154.67	155.98	1969	0.75 PCCP, 0.33 ATB, 0.58 UB	1999 DG
155.98	156.01	1967	N/A	BRIDGE
156.01	156.34	1969	0.75 PCCP, 0.33 ATB, 0.58 UB	1999 DG
156.34	156.5	1964	N/A	BRIDGE
156.5	156.7	1969	0.75 PCCP, 0.33 ATB, 0.58 UB	1976 Asphalt overlay, 1999 DG
156.7	157.56	1969	0.75 PCCP, 0.33 ATB, 0.58 UB	1999 DG
157.56	157.7	1969	0.75 PCCP, 0.33 ATB, 0.58 UB	
157.7	158.45	1969	0.75 PCCP, 0.33 ATB, 0.58 UB	1999 DG
158.45	158.47	1998	N/A	BRIDGE
158.47	159.67	1967	0.75 PCCP, 0.33 ATB, 0.75 UB	
159.67	159.71	1998	N/A	BRIDGE
159.71	160.07	1967	0.75 PCCP, 0.33 ATB, 0.75 UB	
160.07	160.16	1998	N/A	BRIDGE
160.16	161.54	1967	0.75 PCCP, 1.08 UB	
161.54	161.63	1998	N/A	BRIDGE
161.63	161.65	1967	0.75 PCCP, 1.08 UB	
161.65	161.68	1998	N/A	BRIDGE
161.68	162.24	1967	0.75 PCCP, 1.08 UB	
162.24	162.37	1967	N/A	BRIDGE
162.37	162.68	1967	0.75 PCCP, 1.08 UB	
162.68	162.82	1967	0.75 PCCP, 0.92 UB	
162.82	162.96	1967	N/A	BRIDGE
162.96	163.06	1967	0.75 PCCP, 0.92 UB	
163.06	164.33	1967	N/A	BRIDGE
164.33	164.62	1967	0.75 PCCP, 0.92 UB	
164.62	164.66	1966	N/A	BRIDGE
164.66	164.8	1967	0.75 PCCP, 0.92 UB	
164.8	164.93	1966	N/A	BRIDGE
164.93	165.28	1967	0.75 PCCP, 0.92 UB	
165.28	165.44	1965	N/A	BRIDGE
165.44	166.36	1967	0.75 PCCP, 0.92 UB	
166.36	167.72	1964	N/A	BRIDGE
167.72	168.34	1964	0.75 PCCP, 0.67 UB	
168.34	169.18	1961	N/A	BRIDGE
169.18	170.25	1965	0.75 PCCP, 0.67 UB	
170.25	170.5	1961	N/A	BRIDGE
170.5	170.85	1963	0.75 PCCP, 0.67 UB	
170.85	172.76	1965	0.75 PCCP, 0.59 UB	
172.76	172.79	1985	N/A	BRIDGE
172.79	174.58	1965	0.75 PCCP, 0.59 UB	

174.58	175.11	1965	0.75 PCCP, 0.59 UB	1967 Rt. Ln.
175.11	175.14	1965	N/A	BRIDGE
175.14	175.52	1965	0.75 PCCP, 0.59 UB	
175.52	175.53	1990	N/A	BRIDGE
175.53	176.13	1965	0.75 PCCP, 0.59 UB	
176.13	176.16	1964	N/A	BRIDGE
176.16	177.75	1965	0.75 PCCP, 0.59 UB	

* New construction of HOV, left most lanes.

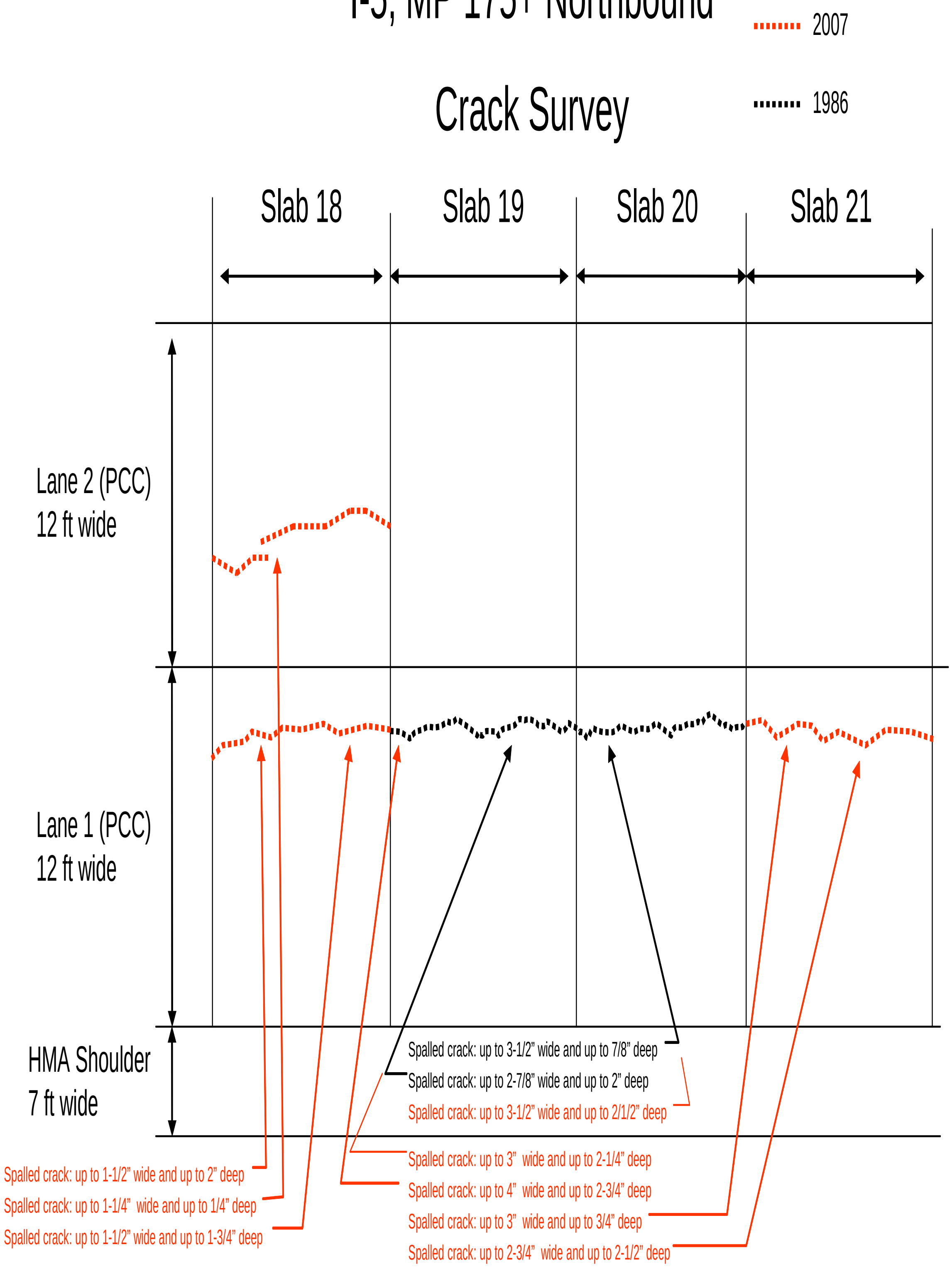
UB - Untreated Base, ATB - Asphalt Treated Base
CTB - Cement Treated Base, DG- Diamond Grinding

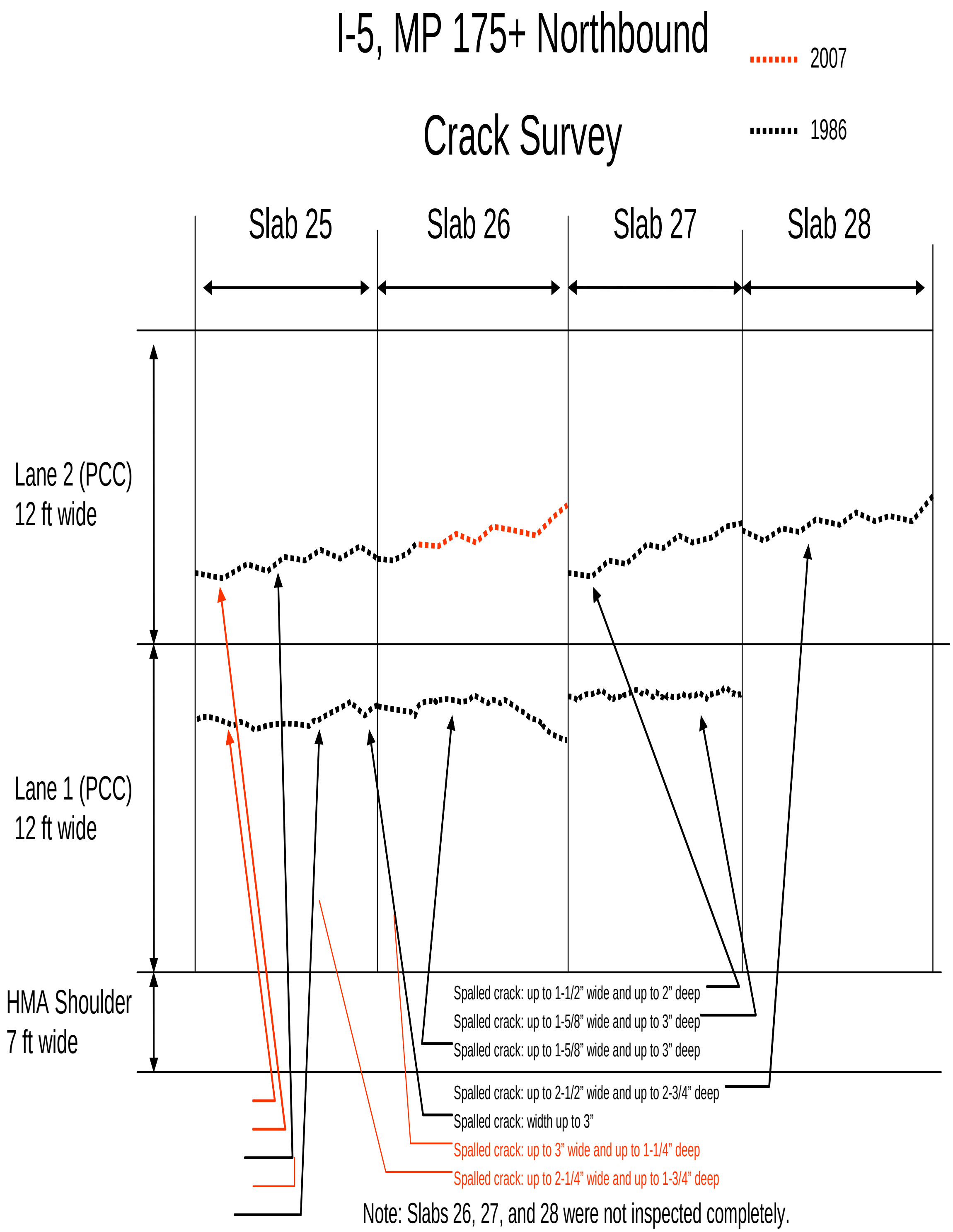
DBR-Dowel Bar Retrofit
(Year) Lt./Rt. Ln.– Left/Right Lane constructed that year

Appendix B –
I-5 Field Study

I-5, MP 175+ Northbound

Crack Survey

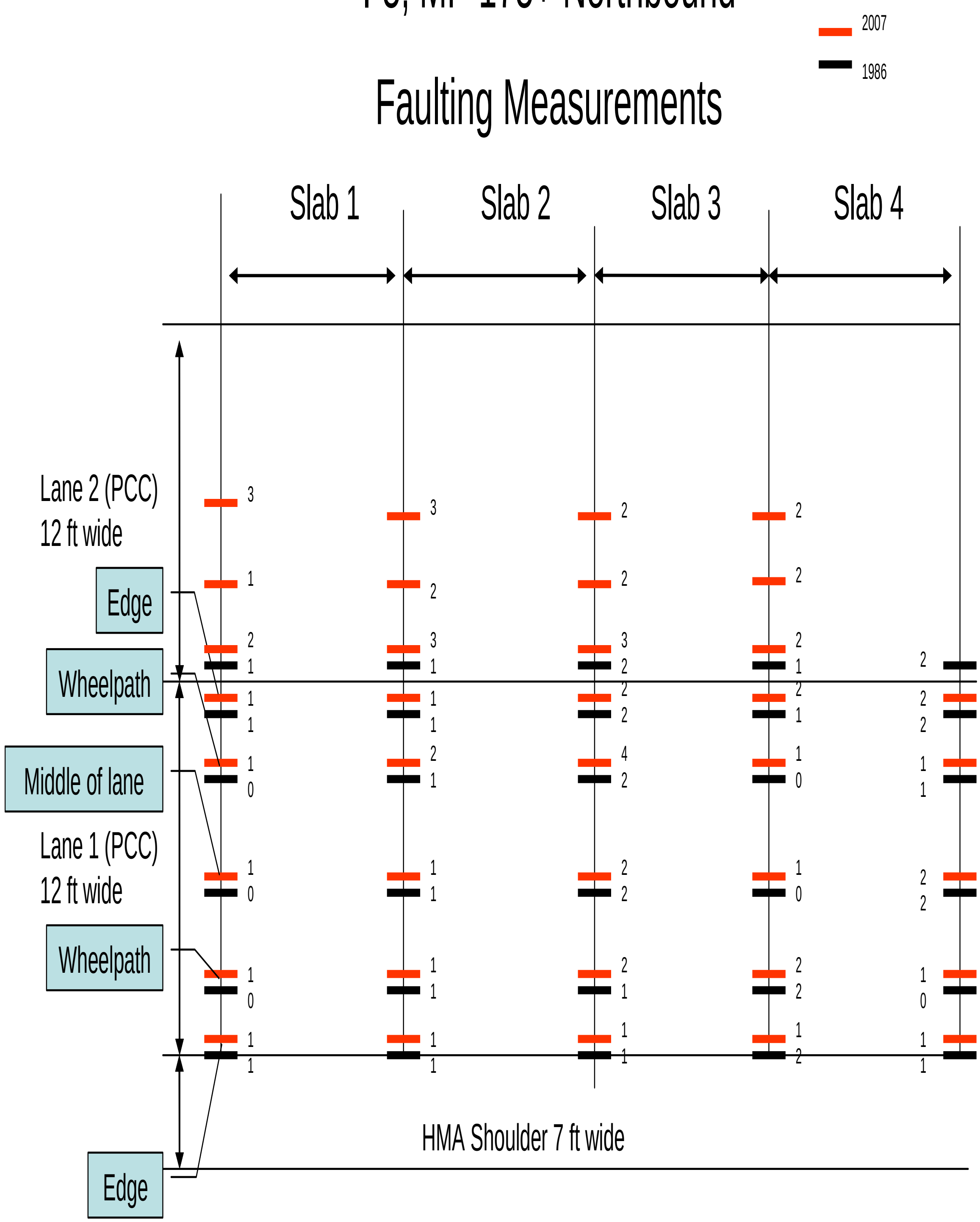




I-5, MP 175+ Northbound
Crack Survey
2007
1986
Slab 25
Slab 26
Slab 27
Slab 28
Lane 2 (PCC)
12 ft wide
Lane 1 (PCC)
12 ft wide
HMA Shoulder
7 ft wide
Spalled crack: up to 1-1/2" wide and up to 2" deep
Spalled crack: up to 1-5/8" wide and up to 3" deep
Spalled crack: up to 1-5/8" wide and up to 3" deep
Spalled crack: up to 2-1/2" wide and up to 2-3/4" deep
Spalled crack: width up to 3"
Spalled crack: up to 3" wide and up to 1-1/4" deep
Spalled crack: up to 2-1/4" wide and up to 1-3/4" deep
Note: Slabs 26, 27, and 28 were not inspected completely.

I-5, MP 175+ Northbound

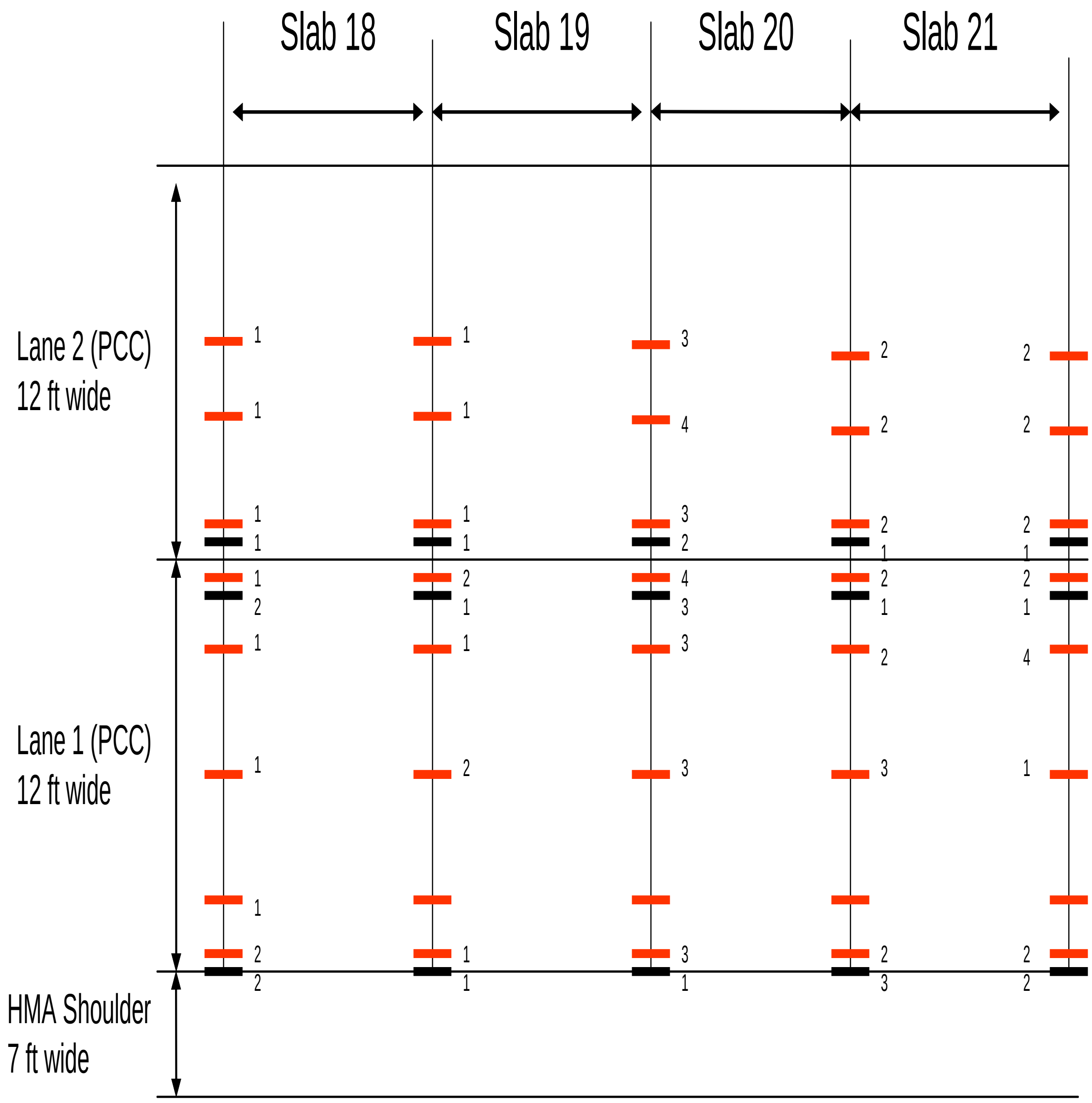
Faulting Measurements



Note: Measurements in increments of 1/16 inch.

I-5, MP 175+ Northbound

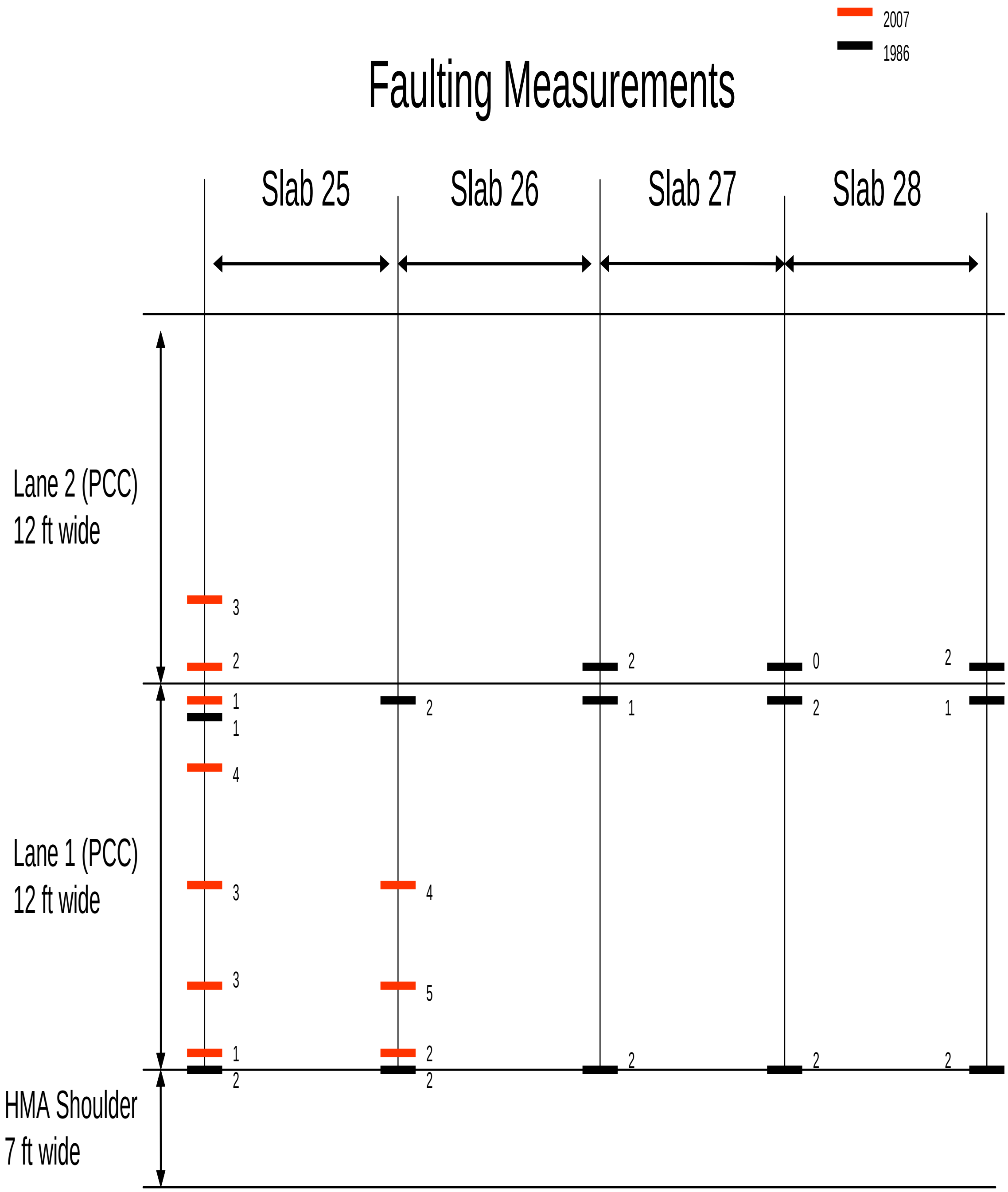
Faulting Measurements



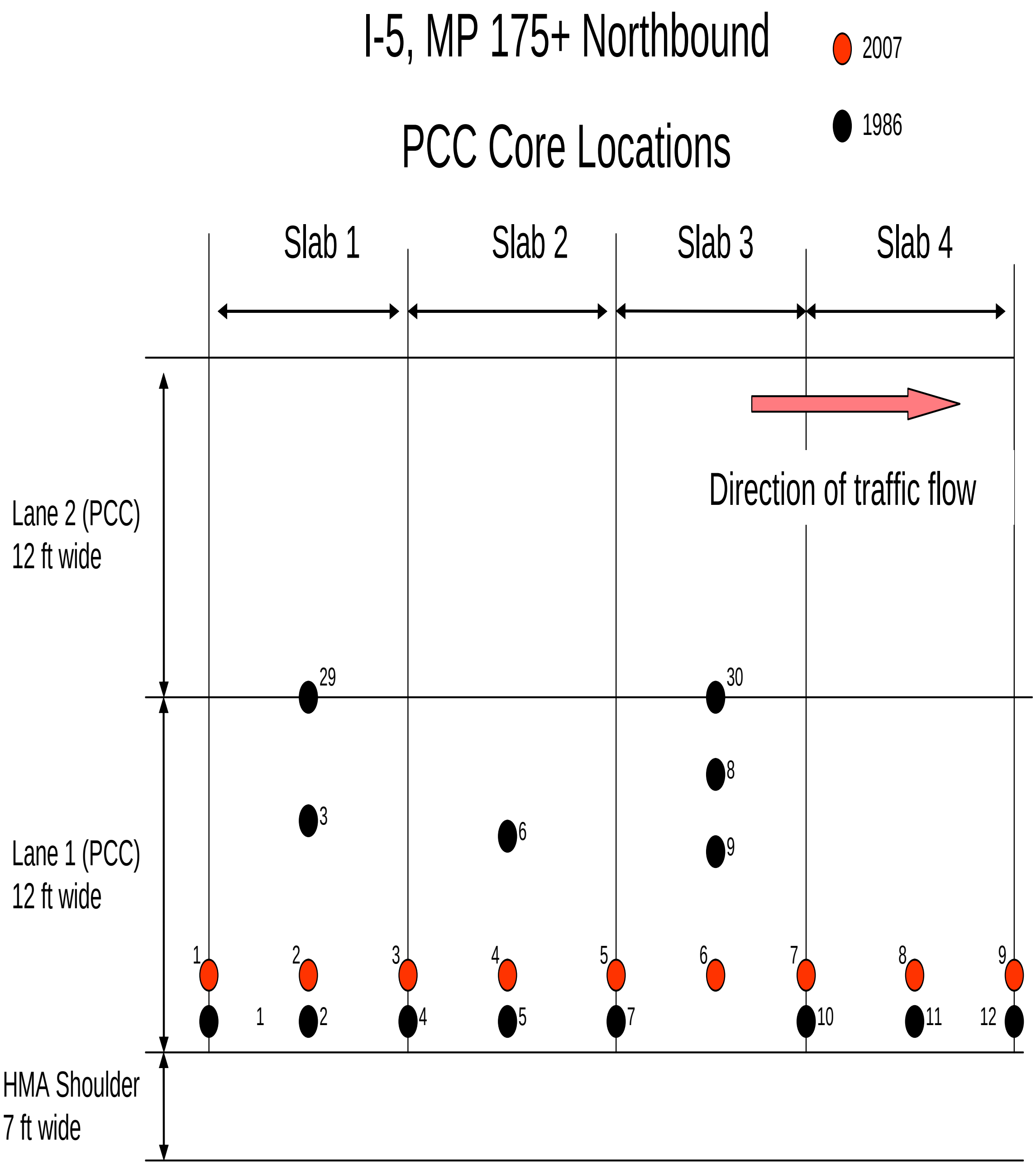
Note: Measurements in increments of 1/16 inch.

I-5, MP 175+ Northbound

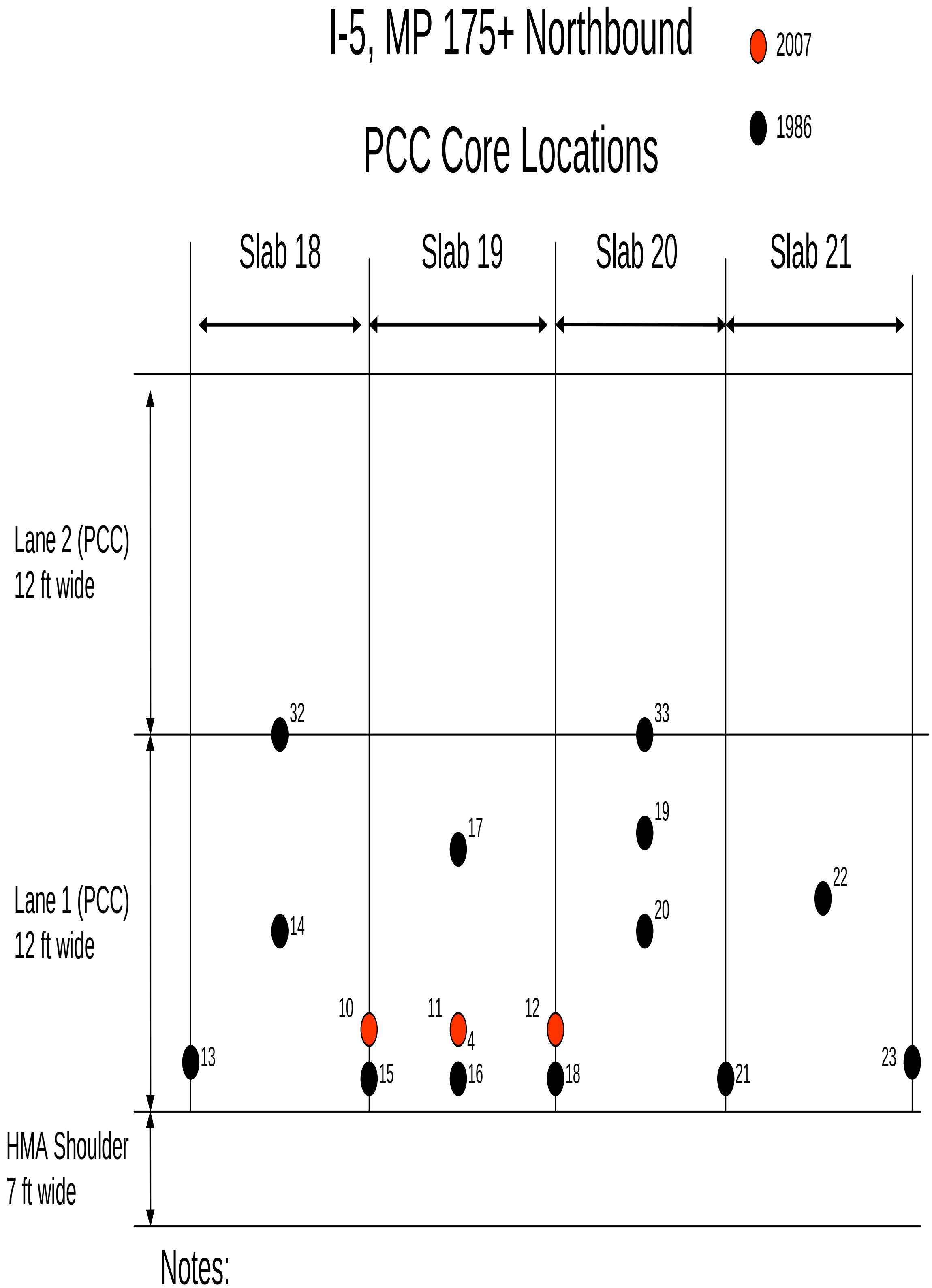
Faulting Measurements



Note: Measurements in increments of 1/16 inch.

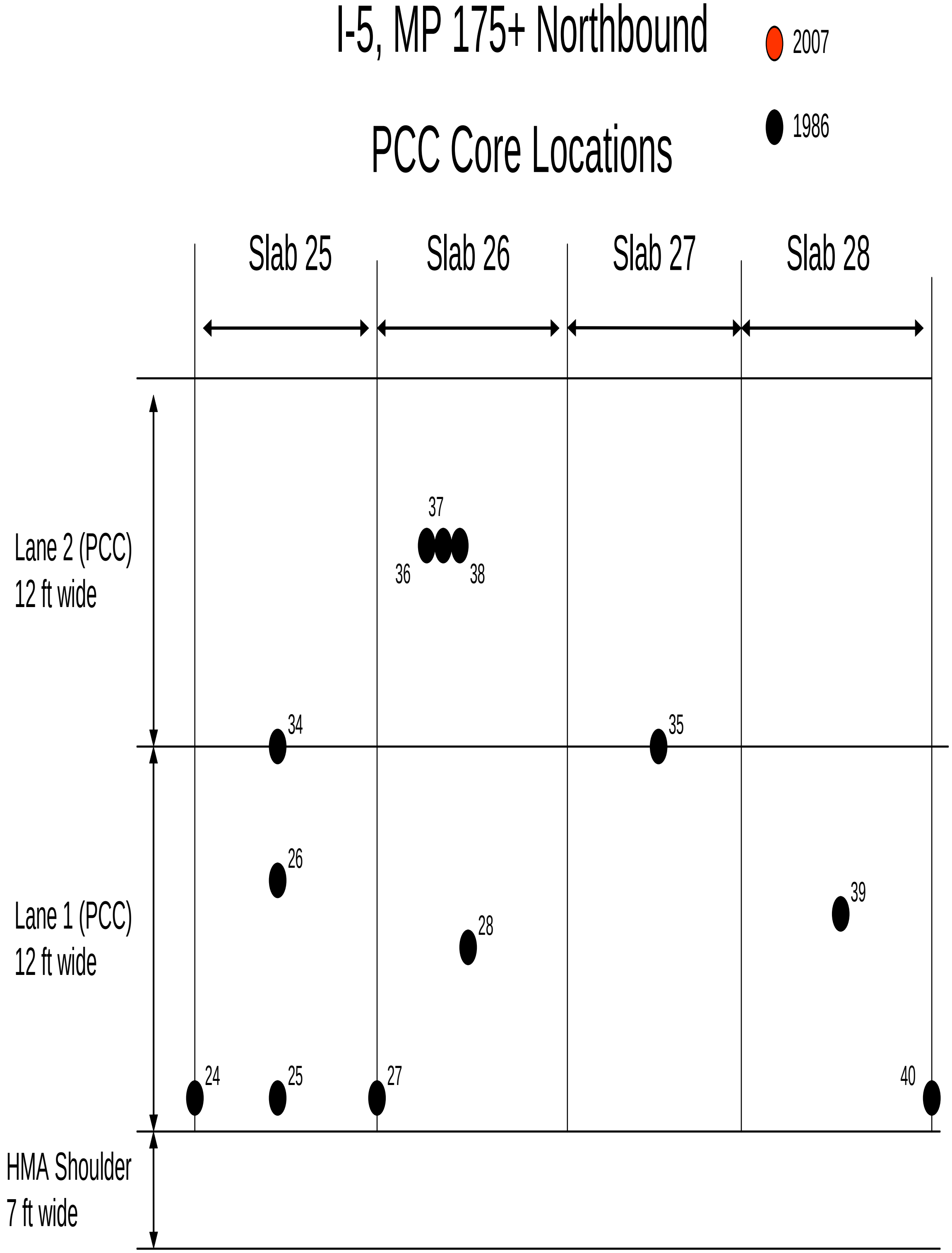


Notes: (1) Only cores in the left wheel path were collected., (2) Time constraints and lack of patching material did not allow for middle of lane cores.


I-5, MP 175+ Northbound
PCC Core Locations
2007
1986
Slab 18
Slab 19
Slab 20
Slab 21
Lane 2 (PCC)
12 ft wide
Lane 1 (PCC)
12 ft wide
HMA Shoulder
7 ft wide
32
33
17
19
22
14
20
10
11
12
4
13
15
16
18
21
23
Notes:

I-5, MP 175+ Northbound

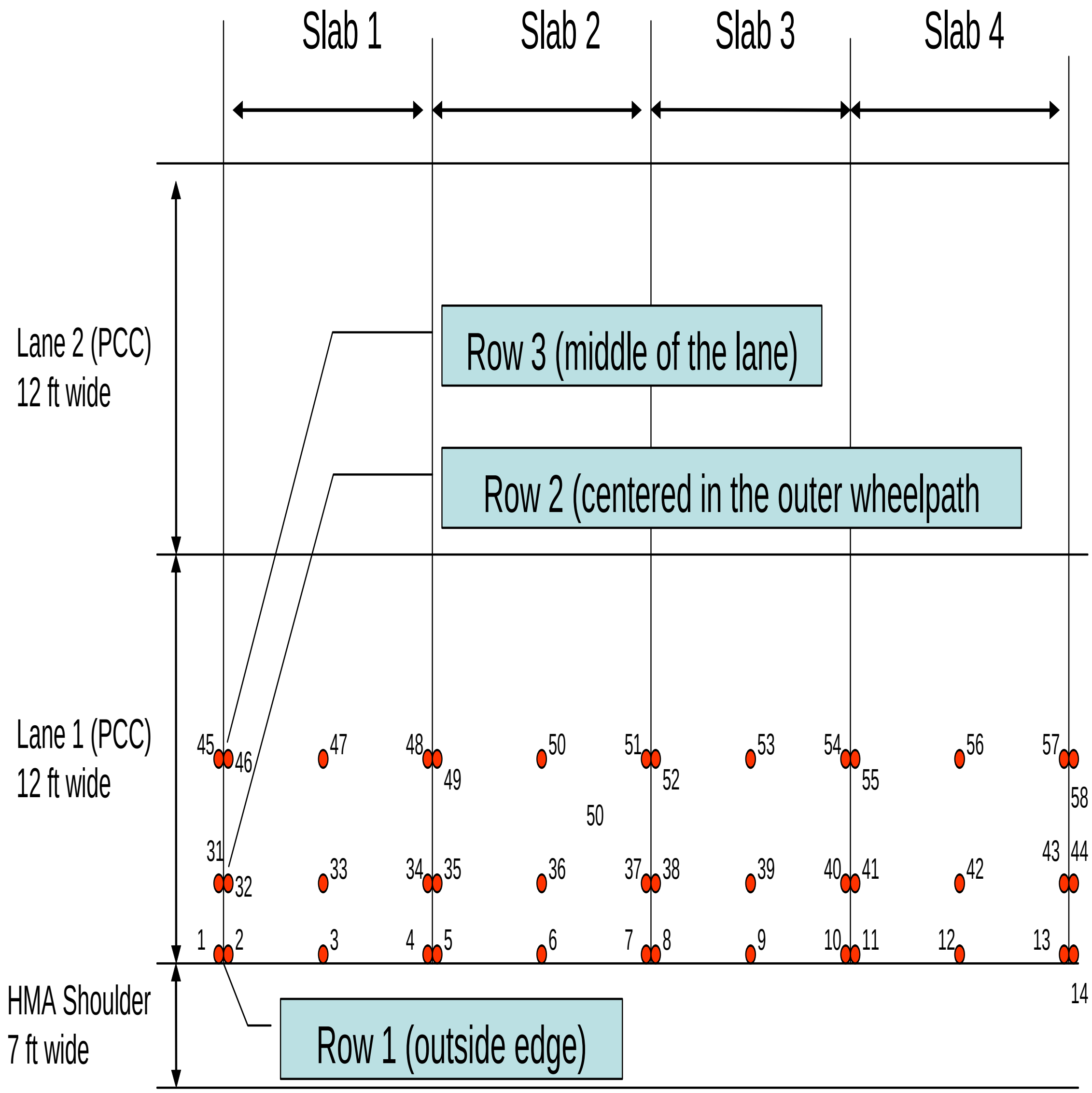
PCC Core Locations



Notes:

I-5, MP 175+ Northbound

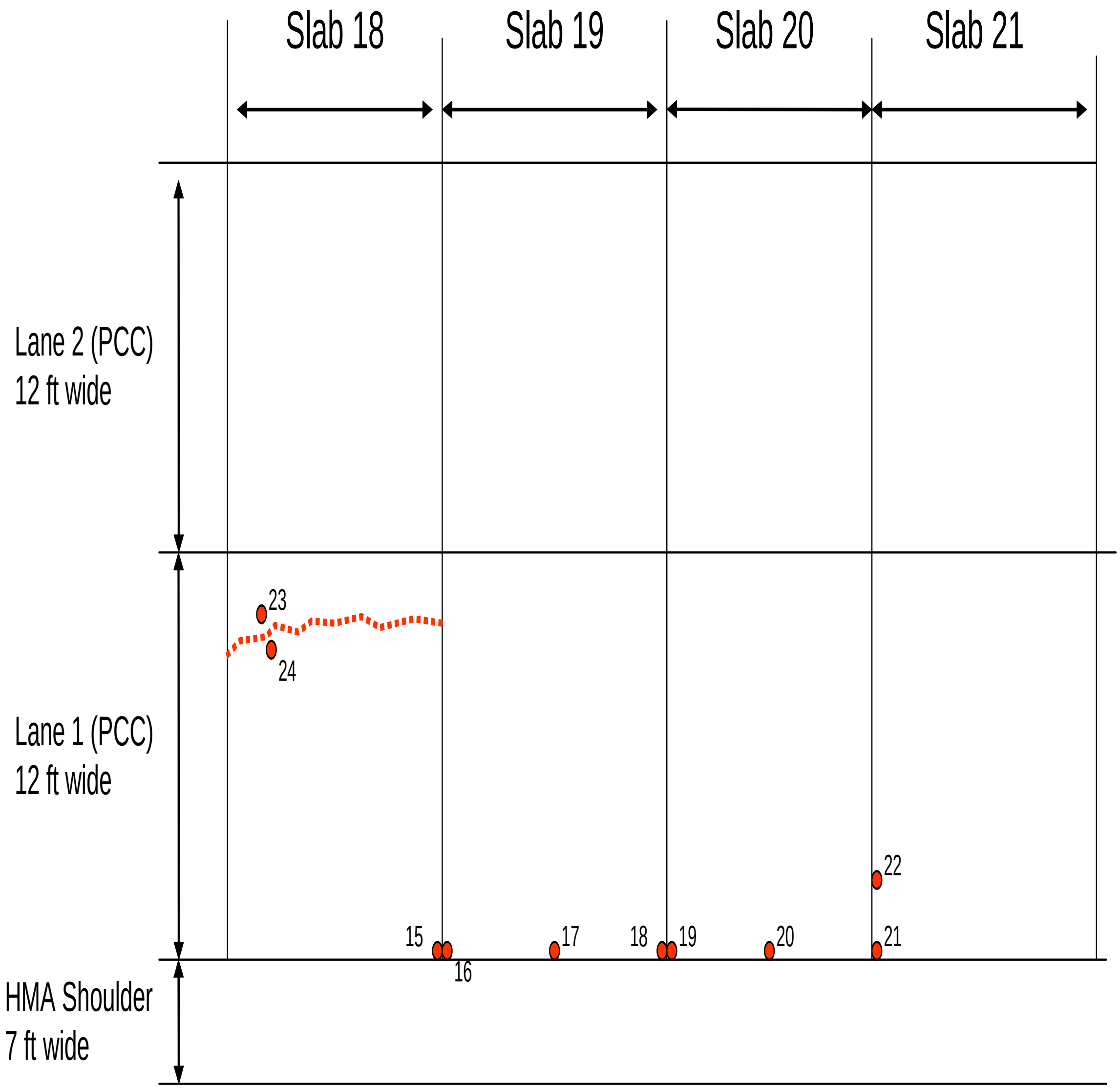
FWD Plate Locations



Notes: (1) Prior FWD testing was done at load levels of 6, 9, 12, and 15 kips, (2) Approximate plate locations are shown for all test locations.

I-5, MP 175+ Northbound

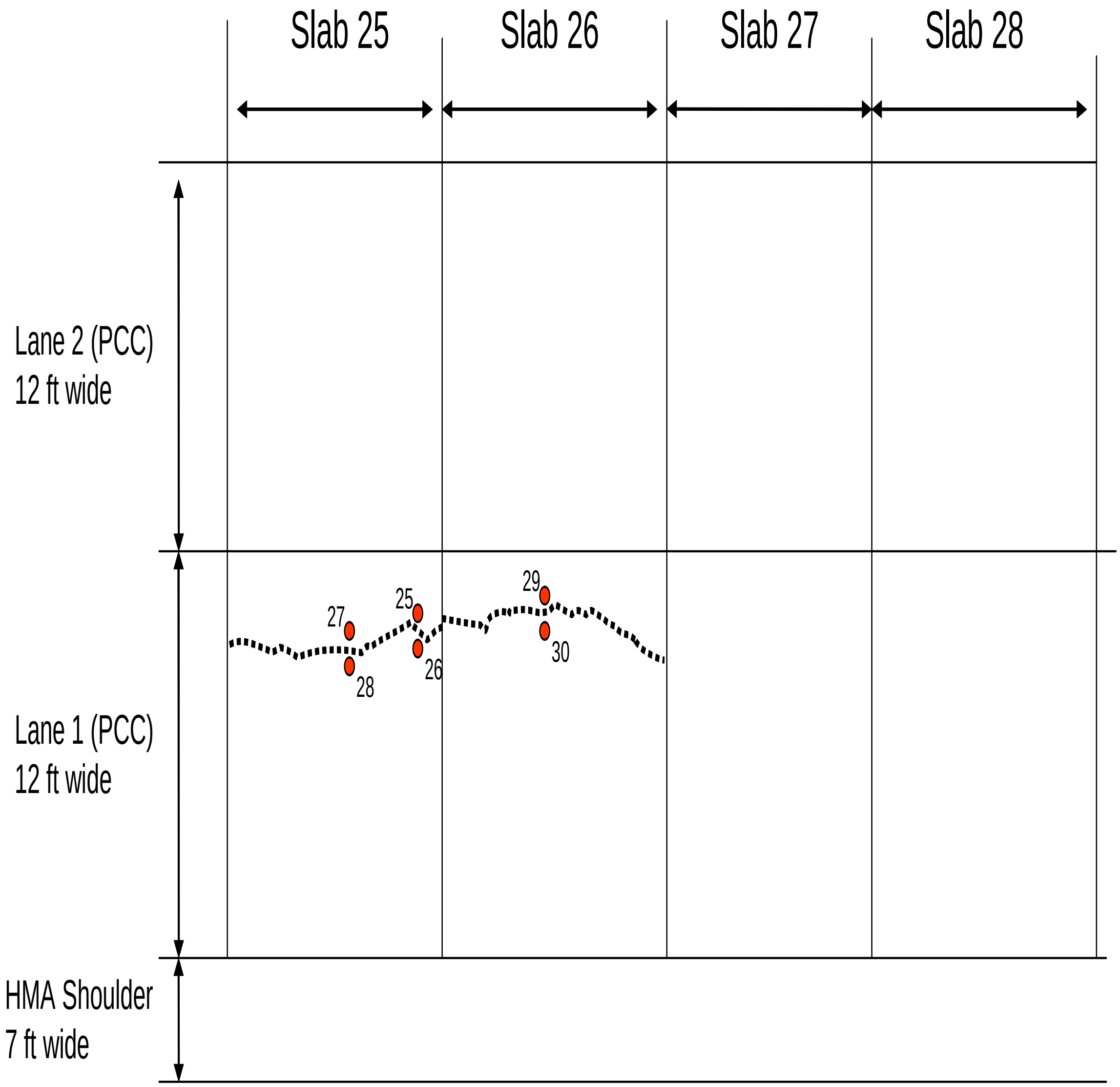
FWD Plate Locations



Notes: (1) Prior FWD testing was done at load levels of 6, 9, 12, and 15 kips, (2) Approximate plate locations are shown for all test locations.

I-5, MP 175+ Northbound

FWD Plate Locations



Notes: (1) Prior FWD testing was done at load levels of 6, 9, 12, and 15 kips, (2) Approximate plate locations are shown for all test locations.

Appendix C –
2004 Non-Rehabilitated PCCP Summary Tables

Northbound and Southbound PCCP w/out Rehabilitation MP 139.75 to 177.75 (162.81 lane miles)

		Average	Median	Standard Deviation	Max Value	BSRMP	ESRMP	Lane	Min Value
	IRI Left (in/mile)	199.10	185.00	87.40	633.00	169.85	169.95	SB 4	37.00
	IRI Right (in/mile)	156.59	142.00	64.45	533.00	162.18	162.19	NB 3	42.00
	IRI Average (in/mile)	177.60	166.00	71.04	478.00	143.02	143.12	NB 1	40.00
	Rut Left (in)	0.34	0.33	0.14	0.79	142.74	142.79	NB 3	0.06
	Rut Right (in)	0.34	0.32	0.15	0.76	165.58	165.68	SB 3	0.07
	Average Faulting (in)	0.11	0.10	0.07	0.72	148.87	148.97	NB 4	0.00
	Number of Faults	8.10	6.00	7.52	36.00	143.32	143.42	NB 1	0.00
% of Faulted Slabs	**1/8" - 1/4"**	22.18	16.70	23.95	100.00	N/A	N/A	ALL	0.00
	1/4" - 1/2"	5.80	0.00	13.52	100.00	N/A	N/A	SB2/4, NB3	0.00
	1/2" +	0.94	0.00	4.97	50.00	N/A	N/A	SB2/4, NB2	0.00
	Total	28.91	22.20	29.97	100.00	N/A	N/A	ALL	0.00
Number of Cracks per Panel	**1**	3.77	2.00	4.97	28.00	N/A	N/A	NB2, SB 4	0.00
	2 - 3	0.67	0.00	1.76	23.00	150.54	150.64	SB 2	0.00
	4+	0.09	0.00	0.52	10.00	169.25	169.35	SB 1	0.00
# of Cracks as % of Total Slabs	**1**	11.20	5.69	14.79	79.90	152.13	152.23	NB 2	0.00
	2 - 3	2.08	0.00	5.81	65.70	150.54	150.64	SB 2	0.00
	4+	0.29	0.00	1.99	146.43	169.25	169.35	SB 1	0.00
Faulted Slabs as % of Total Slabs	**1/8" - 1/4"**	7.78	2.85	11.39	68.13	144.02	144.12	NB 2	0.00
	1/4" - 1/2"	2.93	0.00	8.67	77.11	143.12	143.22	NB 1	0.00
	1/2" +	0.20	0.00	1.13	11.43	150.64	150.74	SB 3	0.00
	Total	10.91	2.85	17.58	94.32	150.54	150.64	SB 2	0.00
	% PCCP Crack	13.56	5.70	18.38	94.30	150.54	150.64	SB 2	0.00
	Maximum Rut (mm)	9.39	8.89	3.63	20.07	142.74	142.79	NB 2	1.524
	Maximum Rut (in)	0.37	0.35	0.14	0.79	142.74	142.79	NB 2	0.06
	Age Of PCCP	40.43	41	2.29	44	N/A	N/A	N/A	36
	Friction Number	N/A	N/A	N/A	52.40	N/A	N/A	NB 1	25.30

Northbound PCCP w/out Rehabilitation MP 139.5 to MP 177.75 (103.76 lane miles)

		Average	Median	Standard Deviation	Max Value	BSRMP	ESRMP	Lane	Min Value
	IRI Left (in/mile)	204.83	191.00	82.60	511.00	143.02	143.12	NB 1	39.00
	IRI Right (in/mile)	162.49	147.00	63.55	460.00	162.18	162.19	NB 3	54.00
	IRI Average (in/mile)	183.42	171.00	68.12	478.00	143.02	143.12	NB 1	46.00
	Rut Left (in)	0.35	0.34	0.14	0.79	142.74	142.79	NB 3	0.06
	Rut Right (in)	0.35	0.34	0.14	0.74	142.04	142.14	NB 3	0.09
	Average Faulting (in)	0.11	0.10	0.07	0.72	148.87	148.97	NB 4	0.00
	Number of Faults	8.81	6.00	7.79	36.00	143.32	143.42	NB 1	0.00
% of Faulted Slabs	1/8" - 1/4"	22.22	18.20	22.93	100.00	N/A	N/A	ALL	0.00
	1/4" - 1/2"	6.07	0.00	13.74	100.00	162.18	162.19	NB 3	0.00
	1/2" +	0.80	0.00	4.30	50.00	162.20	162.30	NB 2	0.00
	Total	29.09	25.00	29.29	100.00	N/A	N/A	ALL	0.00
Number of Cracks per Panel	1	3.45	1.00	4.68	28.00	152.13	152.23	NB 2	0.00
	2 - 3	0.61	0.00	1.58	14.00	173.19	173.29	NB 2	0.00
	4+	0.08	0.00	0.42	6.00	146.33	146.43	NB 2	0.00
# of Cracks as % of Total Slabs	1	10.24	5.67	14.08	79.90	152.13	152.23	NB 2	0.00
	2 - 3	1.89	0.00	5.19	39.90	173.19	173.29	NB 2	0.00
	4+	0.29	0.00	2.06	17.00	146.33	146.43	NB 2	0.00
Faulted Slabs as % of Total Slabs	1/8" - 1/4"	8.30	2.85	11.86	68.13	144.02	144.12	NB 2	0.00
	1/4" - 1/2"	3.29	0.00	9.63	77.11	143.12	143.22	NB 1	0.00
	1/2" +	0.19	0.00	0.91	11.41	143.02	143.12	NB 1	0.00
	Total	11.78	2.86	18.56	94.32	143.32	143.42	NB 1	0.00
	% PCCP Crack	12.42	5.69	17.44	88.50	152.13	152.23	NB 2	0.00
	Maximum Rut (mm)	9.56	9.14	3.64	20.07	142.74	142.79	NB 2	1.52
	Maximum Rut (in)	0.38	0.36	0.14	0.79	142.74	142.79	NB 2	0.06
	Age Of PCCP	40.55	41	2.57	44	N/A	N/A	N/A	36
	Friction Number	N/A	N/A	N/A	52.4	N/A	N/A	NB 1	25.3

Southbound PCCP w/out Rehabilitations MP 143.29 to MP 177.65 (59.05 lane miles)

		Average	Median	Standard Deviation	Max Value	BSRMP	ESRM	Lane	Min Value
	IRI Left (in/mile)	188.99	174.00	94.50	633.00	169.85	169.95	SB 4	37.00
	IRI Right (in/mile)	146.17	133.00	64.76	422.00	150.64	150.74	SB 2	42.00
	IRI Average (in/mile)	167.34	156.50	74.86	353.00	169.85	169.95	SB 4	40.00
	Rut Left (in)	0.32	0.30	0.14	0.72	171.92	172.02	SB 3	0.10
	Rut Right (in)	0.32	0.29	0.15	0.76	165.58	165.68	SB 3	0.07
	Average Faulting (in)	0.11	0.10	0.08	0.69	150.04	150.14	SB 4	0.00
	Number of Faults	6.84	4.00	6.84	34.00	143.59	143.69	SB 1	0.00
% of Faulted Slabs	**1/8" - 1/4"**	22.11	14.30	25.66	100.00	N/A	N/A	ALL	0.00
	1/4" - 1/2"	5.31	0.00	13.12	100.00	N/A	N/A	SB 2/4	0.00
	1/2" +	1.18	0.00	5.97	50.00	N/A	N/A	SB 2/4	0.00
	Total	28.60	20.00	31.16	100.00	N/A	N/A	ALL	0.00
Number of Cracks per Panel	**1**	4.34	2.00	5.40	28.00	164.98	165.08	SB 4	0.00
	2 - 3	0.79	0.00	2.05	23.00	150.54	150.64	SB 2	0.00
	4+	0.10	0.00	0.65	10.00	169.25	169.35	SB 1	0.00
# of Cracks as % of Total Slabs	**1**	12.88	6.03	15.84	79.61	164.98	165.08	SB 4	0.00
	2 - 3	2.40	0.00	6.76	65.70	150.54	150.64	SB 2	0.00
	4+	0.29	0.00	1.86	28.43	169.25	169.35	SB 1	0.00
Faulted Slabs as % of Total Slabs	**1/8" - 1/4"**	6.86	2.84	10.47	59.84	143.89	143.99	SB 1	0.00
	1/4" - 1/2"	2.28	0.00	6.60	14.29	171.29	171.39	SB 3	0.00
	1/2" +	0.22	0.00	1.43	11.43	150.64	150.74	SB 3	0.00
	Total	9.37	2.85	15.60	94.03	150.54	150.64	SB 2	0.00
	% PCCP Crack	15.57	8.52	19.79	94.30	150.54	150.64	SB 2	0.00
	Maximum Rut (mm)	9.11	8.38	3.59	19.30	165.58	165.68	SB 3	2.794
	Maximum Rut (in)	0.36	0.33	0.14	0.76	165.58	165.68	SB 3	0.11
	Age Of PCCP	40.21	41	1.67	44	N/A	N/A	N/A	36
	Friction Number	N/A	N/A	N/A	45.20	N/A	N/A	SB 1	30.20

Northbound Lane 1 PCCP w/out Rehabilitation MP 139.5 to MP 177.70 (21.27 lane miles)

		Average	Median	Standard Deviation	Max Value	BSRMP	ESRMP	Min Value
	IRI Left (in/mile)	200.95	179.00	95.49	511.00	143.02	143.12	70.00
	IRI Right (in/mile)	169.43	150.00	80.41	446.00	143.02	143.12	59.00
	IRI Average (in/mile)	184.94	169.00	82.26	478.00	143.02	143.12	64.00
	Rut Left (in)	0.31	0.30	0.08	0.54	173.19	173.29	0.13
	Rut Right (in)	0.29	0.28	0.09	0.59	144.12	144.19	0.11
	Average Faulting (in)	0.12	0.11	0.07	0.35	143.02	143.12	0.00
	Number of Faults	11.26	9.00	9.61	36.00	143.32	143.42	0.00
% of Faulted Slabs	1/8" - 1/4"	24.84	20.00	24.07	100.00	169.88	169.98	0.00
	1/4" - 1/2"	7.60	0.00	16.99	81.80	143.12	143.22	0.00
	1/2" +	0.33	0.00	2.16	25.00	173.69	173.79	0.00
	Total	32.76	25.00	32.07	100.00	143.02	143.12	0.00
Number of Cracks per Panel	1	3.38	1.00	4.80	25.00	161.25	161.35	0.00
	2 - 3	0.70	0.00	1.59	13.00	146.33	146.43	0.00
	4+	0.05	0.00	0.26	2.00	173.69	173.79	0.00
# of Cracks as % of Total Slabs	1	9.86	2.85	14.10	71.28	161.25	161.35	0.00
	2 - 3	2.11	0.00	5.20	36.90	146.33	146.43	0.00
	4+	0.15	0.00	0.75	5.69	173.99	174.09	0.00
Faulted Slabs as % of Total Slabs	1/8" - 1/4"	11.73	5.69	14.52	62.67	141.80	141.90	0.00
	1/4" - 1/2"	5.74	0.00	14.99	77.11	143.12	143.22	0.00
	1/2" +	0.19	0.00	1.18	11.41	143.02	143.12	0.00
	Total	17.66	5.69	25.09	94.32	143.32	143.42	0.00
	% PCCP Crack	12.12	5.66	17.63	79.80	161.25	161.35	0.00
	Maximum Rut (mm)	8.35	8.13	2.07	15.00	144.12	144.19	3.81
	Maximum Rut (in)	0.33	0.32	0.08	0.59	144.12	144.19	0.15
	Age Of PCCP	37.73	36.00	2.12	42.00	N/A	N/A	36.00
	Friction Number	37.04	35.00	5.69	52.40	N/A	N/A	25.30

Northbound Lane 2 PCCP w/out Rehabilitation MP 139.5 to MP 177.75 (27.93 lane miles)

		Average	Median	Standard Deviation	Max Value	BSRMP	ESRMP	Min Value
	IRI Left (in/mile)	246.49	240.00	78.97	493.00	139.50	139.60	49.00
	IRI Right (in/mile)	183.85	178.00	58.35	445.00	162.96	163.04	72.00
	IRI Average (in/mile)	214.93	206.00	64.03	425.00	171.30	171.40	71.00
	Rut Left (in)	0.37	0.37	0.15	0.64	172.70	172.76	0.18
	Rut Right (in)	0.36	0.35	0.15	0.61	166.81	166.91	0.12
	Average Faulting (in)	0.14	0.13	0.07	0.45	162.20	162.30	0.00
	Number of Faults	12.34	11.00	7.12	34.00	144.02	144.12	0.00
% of Faulted Slabs	**1/8" - 1/4"**	31.19	33.30	22.59	100.00	176.46	176.56	0.00
	1/4" - 1/2"	9.71	0.00	12.76	75.80	144.22	144.32	0.00
	1/2" +	0.87	0.00	4.69	50.00	162.20	162.30	0.00
	Total	41.77	40.00	28.47	100.00	162.20	162.30	0.00
Number of Cracks per Panel	**1**	4.64	3.00	4.65	28.00	152.13	152.23	0.00
	2 - 3	1.33	0.00	1.57	14.00	173.19	173.29	0.00
	4+	0.19	0.00	0.45	6.00	146.33	146.43	0.00
# of Cracks as % of Total Slabs	**1**	13.91	8.56	14.09	79.90	152.13	152.23	0.00
	2 - 3	4.15	0.00	5.19	39.90	173.19	173.29	0.00
	4+	0.71	0.00	2.28	17.00	146.33	146.43	0.00
Faulted Slabs as % of Total Slabs	**1/8" - 1/4"**	14.07	8.56	10.90	68.13	144.02	144.12	0.00
	1/4" - 1/2"	5.46	0.00	7.55	71.35	143.22	143.32	0.00
	1/2" +	0.23	0.00	0.83	8.58	171.30	171.40	0.00
	Total	19.76	11.40	16.14	85.62	171.30	171.40	0.00
	% PCCP Crack	18.77	11.36	17.40	88.50	152.13	152.23	0.00
	Maximum Rut (mm)	10.05	9.91	3.89	16.26	172.70	172.76	5.08
	Maximum Rut (in)	0.40	0.39	0.15	0.64	172.70	172.76	0.20
	Age Of PCCP	41.29	41.00	2.14	44.00	N/A	N/A	37.00
	Friction Number	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Northbound Lane 3 PCCP w/out Rehabilitation MP 139.5 to MP 177.75 (27.27 lane miles)

		Average	Median	Standard Deviation	Max Value	BSRMP	ESRMP	Min Value
	IRI Left (in/mile)	203.99	195.00	75.10	421.00	162.08	168.18	78.00
	IRI Right (in/mile)	155.05	143.00	51.76	460.00	162.18	162.19	76.00
	IRI Average (in/mile)	179.28	173.00	59.74	434.00	162.18	162.19	81.00
	Rut Left (in)	0.46	0.46	0.14	0.79	142.74	142.79	0.16
	Rut Right (in)	0.40	0.41	0.17	0.74	142.04	142.14	0.12
	Number of Faults	6.69	5.00	5.39	28.00	171.50	171.60	0.00
% of Faulted Slabs	1/8" - 1/4"	24.64	20.00	24.53	100.00	140.70	140.80	0.00
	1/4" - 1/2"	5.11	0.00	12.26	100.00	162.18	162.19	0.00
	1/2" +	1.03	0.00	5.03	50.00	170.18	170.25	0.00
	Total	30.78	25.00	29.10	100.00	170.18	170.25	0.00
Number of Cracks per Panel	1	4.20	3.00	4.80	27.00	153.30	153.40	0.00
	2 - 3	0.34	0.00	0.90	7.00	177.60	177.70	0.00
	4+	0.06	0.00	0.40	5.00	164.47	164.57	0.00
# of Cracks as % of Total Slabs	1	12.40	8.52	14.11	77.08	153.30	153.40	0.00
	2 - 3	1.10	0.00	3.14	28.90	162.18	162.19	0.00
	4+	0.19	0.00	1.23	14.26	164.47	164.57	0.00
Faulted Slabs as % of Total Slabs	1/8" - 1/4"	5.84	2.85	7.74	42.77	164.67	164.77	0.00
	1/4" - 1/2"	1.96	0.00	5.68	34.85	176.04	176.13	0.00
	1/2" +	0.18	0.00	0.75	5.71	164.67	164.77	0.00
	Total	7.98	2.86	11.94	62.83	171.50	171.60	0.00
	% PCCP Crack	13.69	8.54	15.84	82.79	153.30	153.40	0.00
	Maximum Rut (mm)	12.09	12.19	3.50	20.07	142.74	142.79	5.33
	Maximum Rut (in)	0.48	0.48	0.14	0.79	142.74	142.79	0.21
	Age Of PCCP	41.32	41.00	2.11	44.00	N/A	N/A	37.00
	Friction Number	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Northbound Lane 4 PCCP w/out Rehabilitation MP 139.5 to MP 175.79 (27.29 lane miles)

		Average	Median	Standard Deviation	Max Value	BSRMP	ESRMP	Min Value
	IRI Left (in/mile)	165.74	158.50	58.32	366.00	169.38	169.48	39.00
	IRI Right (in/mile)	142.55	133.50	52.41	418.00	143.72	143.82	54.00
	IRI Average (in/mile)	153.89	149.50	46.50	341.00	147.67	147.77	46.00
	Rut Left (in)	0.26	0.19	0.16	0.68	159.20	159.30	0.06
	Rut Right (in)	0.36	0.38	0.15	0.63	160.71	160.75	0.09
	Average Faulting (in)	0.08	0.07	0.07	0.72	148.87	148.97	0.00
	Number of Faults	5.40	4.00	4.75	24.00	146.53	146.63	0.00
% of Faulted Slabs	**1/8" - 1/4"**	8.46	0.00	14.75	66.70	143.52	143.62	0.00
	1/4" - 1/2"	2.10	0.00	7.81	71.40	143.72	143.82	0.00
	1/2" +	0.87	0.00	4.34	40.00	148.57	148.67	0.00
	Total	11.44	0.00	18.77	100.00	143.72	143.82	0.00
Number of Cracks per Panel	**1**	1.52	0.00	3.01	21.00	164.93	165.03	0.00
	2 - 3	0.06	0.00	0.42	6.00	164.47	164.57	0.00
	4+	0.02	0.00	0.20	3.00	169.68	169.78	0.00
# of Cracks as % of Total Slabs	**1**	4.59	0.00	9.33	64.44	163.20	163.24	0.00
	2 - 3	0.19	0.00	1.28	17.12	164.47	164.57	0.00
	4+	0.05	0.00	0.56	8.56	169.68	169.78	0.00
Faulted Slabs as % of Total Slabs	**1/8" - 1/4"**	2.14	0.00	4.65	34.15	139.50	139.60	0.00
	1/4" - 1/2"	0.47	0.00	1.62	14.24	143.72	143.82	0.00
	1/2" +	0.17	0.00	0.80	5.70	148.57	148.67	0.00
	Total	2.78	0.00	5.38	37.02	139.50	139.60	0.00
	% PCCP Crack	4.82	0.00	9.73	64.44	163.20	163.24	0.00
	Maximum Rut (mm)	7.42	5.59	4.25	17.27	158.51	158.61	1.52
	Maximum Rut (in)	0.29	0.22	0.17	0.68	158.51	158.61	0.06
	Age Of PCCP	41.23	41.00	2.18	44.00	N/A	N/A	37.00
	Friction Number	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Southbound Lane 1 PCCP w/out Rehabilitation MP 143.29 to MP 177.65 (10.60 lane miles)

		Average	Median	Standard Deviation	Max Value	BSRMP	ESRMP	Min Value
	IRI Left (in/mile)	184.17	162.00	94.35	425.00	151.44	151.54	46.00
	IRI Right (in/mile)	157.57	133.00	78.60	335.00	143.89	143.99	42.00
	IRI Average (in/mile)	170.64	155.00	84.26	361.00	151.44	151.54	45.00
	Rut Left (in)	0.28	0.29	0.10	0.54	173.24	173.34	0.10
	Rut Right (in)	0.26	0.26	0.10	0.46	173.47	173.57	0.07
	Average Faulting (in)	0.11	0.10	0.08	0.38	173.74	173.84	0.00
	Number of Faults	8.07	4.00	8.81	34.00	143.59	143.69	0.00
% of Faulted Slabs	**1/8" - 1/4"**	20.04	12.50	22.67	100.00	173.84	173.94	0.00
	1/4" - 1/2"	7.63	0.00	14.67	56.00	150.64	150.74	0.00
	1/2" +	0.93	0.00	6.11	40.00	173.74	173.84	0.00
	Total	28.60	20.00	31.32	100.00	173.84	173.94	0.00
Number of Cracks per Panel	**1**	5.98	4.00	6.25	23.00	150.54	150.64	0.00
	2 - 3	1.00	0.00	1.81	8.00	150.44	150.54	0.00
	4+	0.20	0.00	1.03	10.00	169.25	169.35	0.00
# of Cracks as % of Total Slabs	**1**	18.21	11.40	19.15	65.70	150.54	150.64	0.00
	2 - 3	2.91	0.00	5.39	22.80	150.44	150.54	0.00
	4+	0.56	0.00	2.94	28.43	169.25	169.35	0.00
Faulted Slabs as % of Total Slabs	**1/8" - 1/4"**	8.24	2.84	12.65	59.84	143.89	143.99	0.00
	1/4" - 1/2"	4.25	0.00	9.65	48.47	143.59	143.69	0.00
	1/2" +	0.38	0.00	2.79	5.70	151.44	151.54	0.00
	Total	12.87	2.85	21.25	94.03	143.59	143.69	0.00
	% PCCP Crack	21.68	14.33	22.56	79.80	150.44	150.54	0.00
	Maximum Rut (mm)	7.38	7.62	2.61	13.70	173.24	173.34	2.79
	Maximum Rut (in)	0.29	0.30	0.10	0.54	173.24	173.34	0.11
	Age Of PCCP	38.73	39.00	2.16	43.00	N/A	N/A	36.00
	Friction Number	36.22	35.30	4.28	45.20	N/A	N/A	30.20

Southbound Lane 2 PCCP w/out Rehabilitation MP 143.29 to MP 177.65 (15.57 lane miles)

		Average	Median	Standard Deviation	Max Value	BSRMP	ESRMP	Min Value
	IRI Left (in/mile)	196.94	192.00	98.96	458.00	170.05	170.15	37.00
	IRI Right (in/mile)	145.24	132.00	68.16	422.00	150.64	150.74	42.00
	IRI Average (in/mile)	170.86	159.00	79.90	388.00	150.64	150.74	40.00
	Rut Left (in)	0.33	0.32	0.12	0.60	168.04	168.14	0.10
	Rut Right (in)	0.33	0.32	0.14	0.73	165.58	165.68	0.12
	Average Faulting (in)	0.12	0.11	0.08	0.55	174.81	174.91	0.00
	Number of Faults	7.46	5.00	6.97	27.00	143.69	143.79	0.00
	1/8" - 1/4"	24.34	20.00	25.38	100.00	169.65	169.75	0.00
	1/4" - 1/2"	5.76	0.00	13.61	100.00	159.57	159.67	0.00
	1/2" +	1.48	0.00	6.73	50.00	174.81	174.91	0.00
	Total	31.57	25.00	30.98	100.00	174.81	174.91	0.00
Number of Cracks per Panel	**1**	5.62	5.00	5.32	24.00	150.44	150.54	0.00
	2 - 3	1.93	0.00	3.29	23.00	150.54	150.64	0.00
	4+	0.14	0.00	0.79	9.00	150.64	150.74	0.00
# of Cracks as % of Total Slabs	**1**	16.35	14.21	15.11	68.56	150.44	150.54	0.00
	2 - 3	5.96	0.00	11.26	65.70	150.54	150.64	0.00
	4+	0.41	0.00	2.25	25.71	150.64	150.74	0.00
Faulted Slabs as % of Total Slabs	**1/8" - 1/4"**	7.51	2.85	10.53	45.46	150.24	150.34	0.00
	1/4" - 1/2"	2.65	0.00	7.24	37.10	172.94	173.04	0.00
	1/2" +	0.23	0.00	1.15	11.43	150.64	150.74	0.00
	Total	10.38	2.86	16.12	60.00	143.59	143.69	0.00
	% PCCP Crack	22.71	17.06	22.61	94.30	150.54	150.64	0.00
	Maximum Rut (mm)	9.31	8.89	3.15	18.54	165.58	165.68	3.56
	Maximum Rut (in)	0.37	0.35	0.12	0.73	165.58	165.68	0.14
	Age Of PCCP	40.58	41.00	1.34	44.00	N/A	N/A	39.00
	Friction Number	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Southbound Lane 3 PCCP w/out Rehabilitation MP 143.29 to MP 177.65 (16.58 lane miles)

		Average	Median	Standard Deviation	Max Value	BSRMP	ESRMP	Min Value
	IRI Left (in/mile)	189.05	188.00	83.85	403.00	164.50	164.60	46.00
	IRI Right (in/mile)	152.91	148.50	62.69	365.00	165.68	165.78	42.00
	IRI Average (in/mile)	170.72	169.50	70.37	364.00	164.50	164.60	50.00
	Rut Left (in)	0.37	0.35	0.14	0.72	171.92	172.02	0.12
	Rut Right (in)	0.35	0.30	0.18	0.76	165.58	165.68	0.11
	Average Faulting (in)	0.10	0.10	0.07	0.41	160.94	161.04	0.00
	Number of Faults	6.89	4.00	6.77	28.00	164.40	164.50	0.00
% of Faulted Slabs	1/8" - 1/4"	22.68	15.50	25.66	100.00	170.69	170.79	0.00
	1/4" - 1/2"	4.57	0.00	10.73	52.40	171.29	171.39	0.00
	1/2" +	0.83	0.00	4.44	33.30	160.94	161.04	0.00
	Total	28.09	22.20	29.99	100.00	172.94	173.04	0.00
Number of Cracks per Panel	1	3.84	2.00	4.84	22.00	171.79	171.89	0.00
	2 - 3	0.24	0.00	0.69	6.00	176.46	176.56	0.00
	4+	0.04	0.00	0.27	3.00	164.50	164.60	0.00
# of Cracks as % of Total Slabs	1	11.34	5.72	14.09	62.42	171.79	171.89	0.00
	2 - 3	0.67	0.00	1.96	17.02	176.46	176.56	0.00
	4+	0.12	0.00	0.78	8.51	164.50	164.60	0.00
Faulted Slabs as % of Total Slabs	1/8" - 1/4"	7.65	2.84	11.34	45.40	173.34	173.44	0.00
	1/4" - 1/2"	2.15	0.00	6.18	48.66	171.29	171.39	0.00
	1/2" +	0.14	0.00	0.62	2.90	150.54	150.64	0.00
	Total	9.94	2.84	15.57	68.40	164.40	164.50	0.00
	% PCCP Crack	12.13	5.73	15.26	65.60	161.34	161.44	0.00
	Maximum Rut (mm)	10.30	9.14	3.85	19.30	165.58	165.68	3.81
	Maximum Rut (in)	0.41	0.36	0.15	0.76	165.58	165.68	0.15
	Age Of PCCP	40.52	41.00	1.35	44.00	N/A	N/A	39.00
	Friction Number	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Southbound Lane 4 PCCP w/out Rehabilitation MP 143.29 to MP 174.14 (16.30 lane miles)

		Average	Median	Standard Deviation	Max Value	BSRMP	ESRMP	Min Value
	IRI Left (in/mile)	184.54	151.00	100.45	633.00	169.85	169.95	40.00
	IRI Right (in/mile)	132.88	126.00	50.02	371.00	150.34	150.44	45.00
	IRI Average (in/mile)	158.45	138.00	67.35	452.00	169.85	169.95	44.00
	Rut Left (in)	0.27	0.22	0.14	0.66	170.05	170.15	0.10
	Rut Right (in)	0.34	0.29	0.15	0.74	172.22	172.32	0.15
	Average Faulting (in)	0.11	0.09	0.09	0.69	150.04	150.14	0.00
	Number of Faults	5.41	4.00	4.81	23.00	172.94	173.04	0.00
% of Faulted Slabs	**1/8" - 1/4"**	20.78	0.00	27.71	100.00	170.59	170.69	0.00
	1/4" - 1/2"	4.09	0.00	13.63	100.00	149.94	150.04	0.00
	1/2" +	1.40	0.00	6.44	50.00	161.94	162.04	0.00
	Total	26.28	11.10	32.39	100.00	150.04	150.14	0.00
Number of Cracks per Panel	**1**	2.56	1.00	4.80	28.00	164.98	165.08	0.00
	2 - 3	0.13	0.00	0.51	4.00	172.64	172.74	0.00
	4+	0.06	0.00	0.42	5.00	172.64	172.74	0.00
# of Cracks as % of Total Slabs	**1**	7.66	2.84	13.92	79.61	164.98	165.08	0.00
	2 - 3	0.44	0.00	1.78	11.40	172.64	172.74	0.00
	4+	0.17	0.00	1.19	14.25	172.64	172.74	0.00
Faulted Slabs as % of Total Slabs	**1/8" - 1/4"**	4.57	0.00	7.15	39.93	172.94	173.04	0.00
	1/4" - 1/2"	0.78	0.00	2.11	11.40	171.69	171.79	0.00
	1/2" +	0.19	0.00	0.84	2.90	150.54	150.64	0.00
	Total	5.54	2.84	8.56	45.63	172.94	173.04	0.00
	% PCCP Crack	8.26	2.84	15.14	85.29	164.98	165.08	0.00
	Maximum Rut (mm)	8.86	7.62	3.81	18.80	172.22	172.32	4.32
	Maximum Rut (in)	0.35	0.30	0.15	0.74	172.22	172.32	0.17
	Age Of PCCP	40.53	41.00	1.34	44.00	N/A	N/A	39.00
	Friction Number	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Appendix D –
2004 DBR+DG PCCP Summary Tables

All Southbound PCCP with Dowel Bar Retrofit and Diamond Grinding MP 144.49 to MP 149.66 (6.04 lane miles)

	Average	Median	Standard Deviation	Max Value	BSRMP	ESRMP	Lane	Min Value
IRI Left (in/mile)	61.08	56.00	17.01	113.00	148.28	148.38	SB 2	32.00
IRI Right (in/mile)	52.00	50.00	11.30	90.00	149.46	149.56	SB 2	33.00
IRI Average (in/mile)	56.26	54.00	11.02	84.00	149.36	149.46	SB 2	35.00
Rut Left (in)	0.26	0.23	0.09	0.47	148.78	148.88	SB 2	0.13
Rut Right (in)	0.27	0.26	0.07	0.41	145.82	145.91	SB 2	0.16
Average Faulting (in)	0.03	0.03	0.03	0.23	148.78	148.88	SB 2	0.00
Number of Faults	2.54	2.00	1.54	6.00	147.78	147.88	SB 1	0.00
1/8" - 1/4"	3.39	0.00	15.57	100.00	148.78	148.88	SB 2	0.00
1/4" - 1/2"	0.00	0.00	0.00	0.00	N/A	N/A	ALL	0.00
1/2" +	0.00	0.00	0.00	0.00	N/A	N/A	ALL	0.00
Total	3.39	0.00	15.57	100.00	148.78	148.88	SB 2	0.00
1	1.41	0.00	2.33	13.00	149.56	149.66	SB 2	0.00
2 - 3	0.13	0.00	0.43	2.00	149.26	149.36	SB 2	0.00
4+	0.00	0.00	0.00	0.00	N/A	N/A	ALL	0.00
1	4.04	0.00	6.68	36.95	149.56	149.66	SB 2	0.00
2 - 3	0.38	0.00	1.23	5.71	149.26	149.36	SB 2	0.00
4+	0.00	0.00	0.00	0.00	N/A	N/A	ALL	0.00
1/8" - 1/4"	0.23	0.00	0.94	5.67	149.36	149.46	SB 2	0.00
1/4" - 1/2"	0.00	0.00	0.00	0.00	N/A	N/A	ALL	0.00
1/2" +	0.00	0.00	0.00	0.00	N/A	N/A	ALL	0.00
Total	0.23	0.00	0.94	5.67	149.36	149.46	SB 2	0.00
% PCCP Crack	4.42	0.00	7.53	39.80	149.56	149.66	SB 2	0.00
Maximum Rut (mm)	7.70	7.37	1.98	11.94	148.78	148.88	SB 2	4.06
Maximum Rut (in)	0.30	0.29	0.08	0.47	148.78	148.88	SB 2	0.16
Age of PCCP	39.74	36.00	3.92	44.00	N/A	N/A	both	36.00
Friction Number	N/A	N/A	N/A	46.10	N/A	N/A	SB 1	33.20

Southbound Lane 1 PCCP with Dowel Bar Retrofit and Diamond Grinding MP 144.49 to MP 149.66 (3.07 miles)

		Average	Median	Standard Deviation	Max Value	BSRMP	ESRMP	Min Value
	IRI Left (in/mile)	58.35	53.00	13.48	89.00	148.78	148.88	44.00
	IRI Right (in/mile)	52.77	54.00	9.36	71.00	146.01	146.11	33.00
	IRI Average (in/mile)	55.29	53.00	9.36	76.00	148.78	148.88	38.00
	Rut Left (in)	0.21	0.21	0.04	0.28	148.38	148.48	0.13
	Rut Right (in)	0.28	0.29	0.06	0.40	147.98	148.08	0.16
	Average Faulting (in)	0.03	0.03	0.02	0.07	146.01	146.11	0.00
	Number of Faults	2.74	3.00	1.77	6.00	147.78	147.88	0.00
% of Faulted Slabs	1/8" - 1/4"	1.29	0.00	4.99	20.00	145.91	146.01	0.00
	1/4" - 1/2"	0.00	0.00	0.00	0.00	N/A	N/A	0.00
	1/2" +	0.00	0.00	0.00	0.00	N/A	N/A	0.00
	Total	1.29	0.00	4.99	20.00	145.91	146.01	0.00
Number of Cracks per Panel	1	0.61	0.00	1.17	5.00	144.79	144.89	0.00
	2 - 3	0.00	0.00	0.00	0.00	N/A	N/A	0.00
	4+	0.00	0.00	0.00	0.00	N/A	N/A	0.00
# of Cracks as % of Total Slabs	1	1.75	0.00	3.35	14.26	144.79	144.89	0.00
	2 - 3	0.00	0.00	0.00	0.00	N/A	N/A	0.00
	4+	0.00	0.00	0.00	0.00	N/A	N/A	0.00
Faulted Slabs as % of Total Slabs	1/8" - 1/4"	0.18	0.00	0.71	2.85	146.01	146.11	0.00
	1/4" - 1/2"	0.00	0.00	0.00	0.00	N/A	N/A	0.00
	1/2" +	0.00	0.00	0.00	0.00	N/A	N/A	0.00
	Total	0.18	0.00	0.71	2.85	146.01	146.11	0.00
	% PCCP Crack	1.75	0.00	3.35	14.26	144.79	144.89	0.00
	Maximum Rut (mm)	7.28	7.37	1.37	10.16	147.98	148.08	5.08
	Maximum Rut (in)	0.29	0.29	0.05	0.40	147.98	148.08	0.20
	Age of PCCP	36.00	36.00	0.00	36.00	N/A	N/A	36.00
	Friction Number	37.08	37.20	3.99	46.10	N/A	N/A	33.20

Southbound Lane 2 PCCP with Dowel Bar Retrofit and Diamond Grinding MP 144.79 to MP 149.66 (2.97 miles)

		Average	Median	Standard Deviation	Max Value	BSRMP	ESRMP	Min Value
	IRI Left (in/mile)	63.90	61.00	19.86	113.00	148.28	148.38	32.00
	IRI Right (in/mile)	51.20	48.50	13.13	90.00	149.46	149.56	36.00
	IRI Average (in/mile)	57.27	55.50	12.60	84.00	149.36	149.46	35.00
	Rut Left (in)	0.31	0.31	0.10	0.47	148.78	148.88	0.14
	Rut Right (in)	0.26	0.26	0.07	0.41	145.82	145.91	0.16
	Average Faulting (in)	0.04	0.03	0.04	0.23	148.78	148.88	0.00
	Number of Faults	2.33	2.00	1.27	5.00	145.59	145.69	0.00
% of Faulted Slabs	**1/8" - 1/4"**	5.56	0.00	21.59	100.00	148.78	148.88	0.00
	1/4" - 1/2"	0.00	0.00	0.00	0.00	N/A	N/A	0.00
	1/2" +	0.00	0.00	0.00	0.00	N/A	N/A	0.00
	Total	5.56	0.00	21.59	100.00	148.78	148.88	0.00
Number of Cracks per Panel	**1**	2.23	1.50	2.90	13.00	149.56	149.66	0.00
	2 - 3	0.27	0.00	0.58	2.00	149.26	149.36	0.00
	4+	0.00	0.00	0.00	0.00	N/A	N/A	0.00
# of Cracks as % of Total Slabs	**1**	6.42	4.26	8.33	36.95	149.56	149.66	0.00
	2 - 3	0.77	0.00	1.67	5.71	149.26	149.36	0.00
	4+	0.00	0.00	0.00	0.00	N/A	N/A	0.00
Faulted Slabs as % of Total Slabs	**1/8" - 1/4"**	0.28	0.00	1.14	5.67	149.36	149.46	0.00
	1/4" - 1/2"	0.00	0.00	0.00	0.00	N/A	N/A	0.00
	1/2" +	0.00	0.00	0.00	0.00	N/A	N/A	0.00
	Total	0.28	0.00	1.14	5.67	149.36	149.46	0.00
	% PCCP Crack	7.19	4.26	9.49	39.80	149.56	149.66	0.00
	Maximum Rut (mm)	8.14	8.26	2.41	11.94	148.78	148.88	4.06
	Maximum Rut (in)	0.32	0.33	0.09	0.47	148.78	148.88	0.16
	Age of PCCP	43.60	44.00	1.22	44.00	N/A	N/A	40.00
	Friction Number	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Appendix E –
2004 Diamond Ground PCCP Summary Tables

All Diamond Ground PCCP MP 154.14 to MP 158.40(26.84 lane miles)

		Average	Median	Standard Deviation	Max Value	BSRMP	ESRMP	Lane	Min Value
	IRI Left (in/mile)	73.63	59.00	46.86	428.00	155.92	156.02	NB 4	29.00
	IRI Right (in/mile)	69.80	59.00	36.02	302.00	155.92	156.02	NB 4	35.00
	IRI Average (in/mile)	71.47	60.50	38.74	365.00	155.92	156.02	NB 4	33.00
	Rut Left (in)	0.17	0.16	0.05	0.32	154.74	154.84	NB 4	0.07
	Rut Right (in)	0.19	0.19	0.05	0.41	154.74	154.84	NB 4	0.08
	Average Faulting (in)	0.05	0.04	0.05	0.29	155.36	155.46	NB 2	0.00
	Number of Faults	2.17	1.00	2.71	17.00	154.34	154.44	NB 1	0.00
% of Faulted Slabs	**1/8" - 1/4"**	4.70	0.00	15.43	100.00	N/A	N/A	NB/SB	0.00
	1/4" - 1/2"	1.64	0.00	9.46	75.00	155.36	155.46	NB 2	0.00
	1/2" +	0.02	0.00	0.40	6.70	154.44	154.54	NB 1	0.00
	Total	6.36	0.00	17.98	100.00	N/A	N/A	NB4,SB2/3	0.00
Number of Cracks per Panel	**1**	3.56	2.00	4.63	25.00	155.40	155.50	SB 1	0.00
	2 - 3	0.33	0.00	0.86	6.00	155.20	155.30	SB 1	0.00
	4+	0.05	0.00	0.41	5.00	155.36	155.46	NB 1	0.00
# of Cracks as % of Total Slabs	**1**	10.73	5.71	13.89	71.28	155.40	155.50	SB 1	0.00
	2 - 3	0.98	0.00	2.60	17.11	155.20	155.30	SB 1	0.00
	4+	0.14	0.00	1.16	14.21	155.36	155.46	NB 1	0.00
Faulted Slabs as % of Total Slabs	**1/8" - 1/4"**	0.65	0.00	2.33	17.13	154.54	154.64	NB 3	0.00
	1/4" - 1/2"	0.23	0.00	1.40	14.38	155.92	156.02	NB 4	0.00
	1/2" +	0.01	0.00	0.17	2.86	157.39	157.49	NB 1	0.00
	Total	0.89	0.00	2.89	20.14	155.92	156.02	NB 4	0.00
	% PCCP Crack	11.85	5.72	15.52	79.83	155.40	155.50	SB 3	0.00
	Maximum Rut (mm)	5.14	5.08	1.18	8.40	154.86	154.96	SB 4	2.03
	Maximum Rut (in)	0.20	0.20	0.05	0.37	154.86	154.96	SB 4	0.08
	Age of PCCP	37.00	37.00	0.00	0.37	N/A	N/A	N/A	37.00
	MP Friction Range	N/A	N/A	N/A	46.90	N/A	N/A	N/A	29.90

Northbound Diamond Ground PCCP MP 154.14 to MP 158.21(14.16 lane miles)

		Average	Median	Standard Deviation	Max Value	BSRMP	ESRMP	Lane	Min Value
	IRI Left (in/mile)	73.36	58.00	53.35	428.00	155.92	156.02	NB 4	29.00
	IRI Right (in/mile)	70.62	60.00	40.28	302.00	155.92	156.02	NB 4	35.00
	IRI Average (in/mile)	71.77	60.00	44.45	365.00	155.92	156.02	NB 4	33.00
	Rut Left (in)	0.17	0.16	0.05	0.32	154.74	154.84	NB 4	0.07
	Rut Right (in)	0.19	0.18	0.05	0.36	154.74	154.84	NB 4	0.09
	Average Faulting (in)	0.05	0.04	0.05	0.29	155.36	155.46	NB 2	0.00
	Number of Faults	2.79	2.00	3.29	17.00	154.34	154.44	NB 1	0.00
% of Faulted Slabs	**1/8" - 1/4"**	3.90	0.00	12.33	100.00	157.69	157.79	NB 4	0.00
	1/4" - 1/2"	1.91	0.00	11.04	75.00	155.36	155.46	NB 2	0.00
	1/2" +	0.04	0.00	0.55	6.70	154.44	154.54	NB 1	0.00
	Total	5.86	0.00	16.51	100.00	157.69	157.79	NB 4	0.00
Number of Cracks per Panel	**1**	3.37	2.00	3.81	22.00	157.89	157.99	NB 3	0.00
	2 - 3	0.30	0.00	0.77	5.00	155.36	155.46	NB 1	0.00
	4+	0.09	0.00	0.56	5.00	155.36	155.46	NB 1	0.00
# of Cracks as % of Total Slabs	**1**	10.50	5.75	12.50	62.99	157.89	157.99	NB 3	0.00
	2 - 3	0.92	0.00	2.44	14.21	155.36	155.46	NB 1	0.00
	4+	0.26	0.00	1.59	14.21	155.36	155.46	NB 1	0.00
Faulted Slabs as % of Total Slabs	**1/8" - 1/4"**	0.82	0.00	2.92	17.13	154.54	154.64	NB 3	0.00
	1/4" - 1/2"	0.34	0.00	1.86	14.38	155.92	156.02	NB 4	0.00
	1/2" +	0.02	0.00	0.23	2.86	157.39	157.49	NB 1	0.00
	Total	1.18	0.00	3.68	20.14	155.92	156.02	NB 4	0.00
	% PCCP Crack	11.68	8.53	14.23	68.70	157.89	157.99	NB 3	0.00
	Maximum Rut (mm)	5.12	4.83	1.13	9.14	154.74	154.84	NB 4	2.79
	Maximum Rut (in)	0.20	0.19	0.04	0.36	154.74	154.84	NB 4	0.11
	Age of PCCP	37.00	37.00	0.00	37.00	N/A	N/A	N/A	37.00
	MP Friction Range	N/A	N/A	N/A	36.20	N/A	N/A	N/A	29.90

Southbound Diamond Ground PCCP MP 154.76 MP 158.40(12.68 lane miles)

		Average	Median	Standard Deviation	Max Value	BSRMP	ESRMP	Lane	Min Value
	IRI Left (in/mile)	73.93	61.00	38.52	298.00	157.26	157.36	SB 2	34.00
	IRI Right (in/mile)	68.88	58.00	30.70	182.00	157.66	157.76	SB 3	35.00
	IRI Average (in/mile)	71.13	61.00	31.30	173.00	157.26	157.36	SB 2	38.00
	Rut Left (in)	0.17	0.17	0.04	0.30	155.20	155.30	SB 3	0.07
	Rut Right (in)	0.20	0.20	0.05	0.33	154.56	154.66	SB 4	0.08
	Average Faulting (in)	0.04	0.04	0.04	0.16	157.96	158.06	SB 1	0.00
	Number of Faults	1.48	1.00	1.59	7.00	156.24	156.34	SB 2	0.00
% of Faulted Slabs	**1/8" - 1/4"**	5.58	0.00	18.29	100.00	N/A	N/A	SB2/3	0.00
	1/4" - 1/2"	1.34	0.00	7.32	50.00	157.96	158.06	SB 1	0.00
	1/2" +	0.00	0.00	0.00	0.00	N/A	N/A		0.00
	Total	6.92	0.00	19.55	100.00	N/A	N/A	SB2/3	0.00
Number of Cracks per Panel	**1**	3.76	2.00	5.40	25.00	155.40	155.50	SB 1	0.00
	2 - 3	0.36	0.00	0.96	6.00	155.20	155.30	SB 1	0.00
	4+	0.00	0.00	0.00	0.00	N/A	N/A	N/A	0.00
# of Cracks as % of Total Slabs	**1**	11.00	5.69	15.34	71.28	155.40	155.50	SB 1	0.00
	2 - 3	1.04	0.00	2.77	17.11	155.20	155.30	SB 1	0.00
	4+	0.00	0.00	0.00	0.00	N/A	N/A	N/A	0.00
Faulted Slabs as % of Total Slabs	**1/8" - 1/4"**	0.46	0.00	1.38	8.58	156.24	156.34	SB 2	0.00
	1/4" - 1/2"	0.11	0.00	0.54	2.88	157.96	158.06	SB 1	0.00
	1/2" +	0.00	0.00	0.00	0.00	N/A	N/A	N/A	0.00
	Total	0.56	0.00	1.57	11.44	156.24	156.34	SB 2	0.00
	% PCCP Crack	12.04	5.71	16.90	79.83	155.40	155.50	SB 3	0.00
	Maximum Rut (mm)	5.17	5.08	1.24	8.40	154.86	154.96	SB 4	2.03
	Maximum Rut (in)	0.20	0.20	0.05	0.37	154.86	154.96	SB 4	0.08
	Age of PCCP	37.00	37.00	0.00	0.37	N/A	N/A	N/A	37.00
	MP Friction Range	N/A	N/A	N/A	46.90	N/A	N/A	N/A	35.10

Northbound Lane 1 Diamond Ground PCCP MP 154.10 to MP 158.21(3.74 lane miles)

		Average	Median	Standard Deviation	Max Value	BSRMP	ESRMP	Min Value
	IRI Left (in/mile)	81.30	61.00	48.26	265.00	154.64	154.74	39.00
	IRI Right (in/mile)	90.23	71.50	44.52	215.00	156.59	156.69	37.00
	IRI Average (in/mile)	85.60	67.50	42.77	211.00	154.64	154.74	40.00
	Rut Left (in)	0.16	0.15	0.04	0.26	155.36	155.46	0.09
	Rut Right (in)	0.19	0.19	0.06	0.28	157.69	157.79	0.11
	Average Faulting (in)	0.06	0.05	0.05	0.23	154.44	154.54	0.00
	Number of Faults	4.33	3.00	4.26	17.00	154.34	154.44	0.00
% of Faulted Slabs	**1/8" - 1/4"**	4.80	0.00	10.51	40.00	154.44	154.54	0.00
	1/4" - 1/2"	1.32	0.00	5.65	33.30	155.26	155.36	0.00
	1/2" +	0.17	0.00	1.06	6.70	154.44	154.54	0.00
	Total	6.29	0.00	12.46	46.70	154.44	154.54	0.00
Number of Cracks per Panel	**1**	2.38	2.00	2.45	10.00	156.12	156.22	0.00
	2 - 3	0.33	0.00	0.97	5.00	155.36	155.46	0.00
	4+	0.13	0.00	0.79	5.00	155.36	155.46	0.00
# of Cracks as % of Total Slabs	**1**	8.23	5.71	12.24	28.49	156.12	156.22	0.00
	2 - 3	0.92	0.00	2.76	14.21	155.36	155.46	0.00
	4+	0.36	0.00	2.25	14.21	155.36	155.46	0.00
Faulted Slabs as % of Total Slabs	**1/8" - 1/4"**	1.81	0.00	4.64	17.10	154.44	154.54	0.00
	1/4" - 1/2"	0.28	0.00	1.08	5.69	155.26	155.36	0.00
	1/2" +	0.07	0.00	0.45	2.86	157.39	157.49	0.00
	Total	2.17	0.00	5.03	20.00	154.44	154.54	0.00
	% PCCP Crack	9.50	5.71	13.80	45.50	155.36	155.46	0.00
	Maximum Rut (mm)	5.19	4.95	1.26	7.10	157.69	157.79	3.05
	Maximum Rut (in)	0.20	0.19	0.05	0.28	157.69	157.79	0.12
	Age of PCCP	37.00	37.00	0.00	37.00	N/A	N/A	37.00
	MP Friction Range	34.41	35.30	2.30	36.20	N/A	N/A	29.90

Northbound Lane 2 Diamond Ground PCCP MP 154.14 to MP 158.21(3.40 lane miles)

		Average	Median	Standard Deviation	Max Value	BSRMP	ESRMP	Min Value
	IRI Left (in/mile)	66.42	57.50	29.16	182.00	155.36	155.46	29.00
	IRI Right (in/mile)	65.08	64.00	26.47	152.00	156.59	156.69	36.00
	IRI Average (in/mile)	65.53	62.00	25.87	153.00	155.36	155.46	33.00
	Rut Left (in)	0.17	0.17	0.05	0.28	155.06	155.16	0.09
	Rut Right (in)	0.17	0.15	0.05	0.32	155.06	155.16	0.09
	Average Faulting (in)	0.05	0.03	0.05	0.29	155.36	155.46	0.00
	Number of Faults	2.64	1.00	3.07	14.00	154.54	154.64	0.00
% of Faulted Slabs	**1/8" - 1/4"**	2.43	0.00	9.04	42.90	154.54	154.64	0.00
	1/4" - 1/2"	2.08	0.00	12.50	75.00	155.36	155.46	0.00
	1/2" +	0.00	0.00	0.00	0.00	N/A	N/A	0.00
	Total	4.51	0.00	15.09	75.00	155.36	155.46	0.00
Number of Cracks per Panel	**1**	4.53	4.00	3.33	12.00	157.29	157.39	0.00
	2 - 3	0.39	0.00	0.80	3.00	157.29	157.39	0.00
	4+	0.22	0.00	0.76	4.00	155.36	155.46	0.00
# of Cracks as % of Total Slabs	**1**	13.31	11.38	9.27	34.09	157.29	157.39	0.00
	2 - 3	1.11	0.00	2.29	8.56	157.89	157.99	0.00
	4+	0.63	0.00	2.16	11.36	155.36	155.46	0.00
Faulted Slabs as % of Total Slabs	**1/8" - 1/4"**	0.63	0.00	2.90	17.13	154.54	154.64	0.00
	1/4" - 1/2"	0.24	0.00	1.42	8.52	155.36	155.46	0.00
	1/2" +	0.00	0.00	0.00	0.00	N/A	N/A	0.00
	Total	0.87	0.00	3.19	17.13	154.54	154.64	0.00
	% PCCP Crack	15.05	12.77	10.99	42.61	157.29	157.39	0.00
	Maximum Rut (mm)	4.88	4.70	1.19	8.13	155.06	155.16	2.79
	Maximum Rut (in)	0.19	0.18	0.05	0.32	155.06	155.16	0.11
	Age of PCCP	37.00	37.00	0.00	37.00	N/A	N/A	37.00
	MP Friction Range	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Northbound Lane 3 Diamond Ground PCCP MP 154.14 to MP 158.21(3.40 lane miles)

		Average	Median	Standard Deviation	Max Value	BSRMP	ESRMP	Min Value
	IRI Left (in/mile)	70.56	65.50	26.35	144.00	154.54	154.64	38.00
	IRI Right (in/mile)	60.11	56.50	14.01	95.00	154.54	154.64	45.00
	IRI Average (in/mile)	65.06	60.50	17.76	118.00	154.54	154.64	43.00
	Rut Left (in)	0.19	0.18	0.04	0.31	155.66	155.76	0.11
	Rut Right (in)	0.20	0.19	0.04	0.31	155.66	155.76	0.10
	Average Faulting (in)	0.04	0.04	0.02	0.09	156.49	156.59	0.00
	Number of Faults	1.83	1.00	2.09	11.00	154.54	154.64	0.00
% of Faulted Slabs	**1/8" - 1/4"**	3.49	0.00	11.16	50.00	156.49	156.59	0.00
	1/4" - 1/2"	0.00	0.00	0.00	0.00	N/A	N/A	0.00
	1/2" +	0.00	0.00	0.00	0.00	N/A	N/A	0.00
	Total	3.49	0.00	11.16	50.00	156.49	156.59	0.00
Number of Cracks per Panel	**1**	5.56	4.00	5.28	22.00	157.89	157.99	0.00
	2 - 3	0.42	0.00	0.84	3.00	157.69	157.79	0.00
	4+	0.03	0.00	0.17	1.00	154.54	154.64	0.00
# of Cracks as % of Total Slabs	**1**	17.23	14.20	16.41	62.99	157.89	157.99	0.00
	2 - 3	1.50	0.00	3.21	5.57	156.69	156.79	0.00
	4+	0.08	0.00	0.48	2.85	154.54	154.64	0.00
Faulted Slabs as % of Total Slabs	**1/8" - 1/4"**	0.32	0.00	0.91	2.87	156.49	156.59	0.00
	1/4" - 1/2"	0.00	0.00	0.00	0.00	N/A	N/A	0.00
	1/2" +	0.00	0.00	0.00	0.00	N/A	N/A	0.00
	Total	0.32	0.00	0.91	2.87	154.54	154.64	0.00
	% PCCP Crack	18.81	14.22	18.97	68.70	157.89	157.99	0.00
	Maximum Rut (mm)	5.42	5.59	0.88	7.87	155.66	155.76	4.06
	Maximum Rut (in)	0.21	0.22	0.03	0.31	155.66	155.76	0.16
	Age of PCCP	37.00	37.00	0.00	37.00	N/A	N/A	37.00
	MP Friction Range	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Northbound Lane 4 Diamond Ground PCCP MP 154.14 to MP 158.21(3.62 lane miles)

		Average	Median	Standard Deviation	Max Value	BSRMP	ESRMP	Min Value
	IRI Left (in/mile)	74.23	50.00	85.45	428.00	155.92	156.02	33.00
	IRI Right (in/mile)	65.33	52.00	54.55	302.00	155.92	156.02	35.00
	IRI Average (in/mile)	69.56	52.00	68.77	365.00	155.92	156.02	34.00
	Rut Left (in)	0.16	0.14	0.06	0.32	154.74	154.84	0.07
	Rut Right (in)	0.19	0.18	0.04	0.36	154.74	154.84	0.12
	Average Faulting (in)	0.05	0.04	0.08	0.21	157.69	157.79	0.00
	Number of Faults	2.23	1.00	2.78	14.00	155.92	156.02	0.00
% of Faulted Slabs	**1/8" - 1/4"**	4.73	0.00	17.11	100.00	157.69	157.79	0.00
	1/4" - 1/2"	4.12	0.00	17.20	35.70	155.92	156.02	0.00
	1/2" +	0.00	0.00	0.00	0.00	N/A	N/A	0.00
	Total	8.85	0.00	23.99	100.00	157.69	157.79	0.00
Number of Cracks per Panel	**1**	1.31	0.00	2.04	8.00	154.54	154.64	0.00
	2 - 3	0.08	0.00	0.27	1.00	155.92	156.02	0.00
	4+	0.00	0.00	0.00	0.00	N/A	N/A	0.00
# of Cracks as % of Total Slabs	**1**	4.01	0.00	6.04	22.74	154.54	154.64	0.00
	2 - 3	0.22	0.00	0.77	2.88	155.92	156.02	0.00
	4+	0.00	0.00	0.00	0.00	N/A	N/A	0.00
Faulted Slabs as % of Total Slabs	**1/8" - 1/4"**	0.44	0.00	1.24	5.76	155.92	156.02	0.00
	1/4" - 1/2"	0.80	0.00	3.20	14.38	155.92	156.02	0.00
	1/2" +	0.00	0.00	0.00	0.00	N/A	N/A	0.00
	Total	1.24	0.00	3.92	20.14	155.92	156.02	0.00
	% PCCP Crack	4.23	0.00	6.35	25.59	154.54	154.64	0.00
	Maximum Rut (mm)	4.98	4.83	1.11	9.14	154.74	154.84	3.05
	Maximum Rut (in)	0.20	0.19	0.04	0.36	154.74	154.84	0.12
	Age of PCCP	37.00	37.00	0.00	37.00	N/A	N/A	37.00
	MP Friction Range	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Southbound Lane 1 Diamond Ground PCCP MP 154.76 to MP 158.36(3.14 lane miles)

		Average	Median	Standard Deviation	Max Value	BSRMP	ESRMP	Min Value
	IRI Left (in/mile)	81.94	66.00	35.38	169.00	156.24	156.34	36.00
	IRI Right (in/mile)	87.09	79.00	33.04	164.00	155.10	155.20	43.00
	IRI Average (in/mile)	84.24	75.00	32.29	158.00	158.00	156.24	41.00
	Rut Left (in)	0.15	0.15	0.04	0.22	157.96	158.06	0.07
	Rut Right (in)	0.17	0.17	0.06	0.29	155.40	155.50	0.08
	Average Faulting (in)	0.06	0.05	0.04	0.16	157.96	158.06	0.00
	Number of Faults	2.09	2.00	1.65	6.00	154.76	154.86	0.00
% of Faulted Slabs	**1/8" - 1/4"**	5.35	0.00	14.67	66.70	157.46	157.56	0.00
	1/4" - 1/2"	4.04	0.00	13.19	50.00	157.96	158.06	0.00
	1/2" +	0.00	0.00	0.00	0.00	N/A	N/A	0.00
	Total	9.39	0.00	18.57	66.70	157.46	157.56	0.00
Number of Cracks per Panel	**1**	5.94	1.00	8.10	25.00	155.40	155.50	0.00
	2 - 3	0.58	0.00	1.35	6.00	155.20	155.30	0.00
	4+	0.00	0.00	0.00	0.00	N/A	N/A	0.00
# of Cracks as % of Total Slabs	**1**	17.04	2.85	23.05	71.28	155.40	155.50	0.00
	2 - 3	1.64	0.00	3.84	17.11	155.20	155.30	0.00
	4+	0.00	0.00	0.00	0.00	N/A	N/A	0.00
Faulted Slabs as % of Total Slabs	**1/8" - 1/4"**	0.61	0.00	1.55	5.70	157.46	157.56	0.00
	1/4" - 1/2"	0.26	0.00	0.84	2.88	157.96	158.06	0.00
	1/2" +	0.00	0.00	0.00	0.00	N/A	N/A	0.00
	Total	0.87	0.00	1.67	5.70	157.46	157.56	0.00
	% PCCP Crack	18.68	2.85	25.80	79.83	155.40	155.50	0.00
	Maximum Rut (mm)	4.60	4.32	1.36	7.37	155.30	155.40	2.03
	Maximum Rut (in)	0.18	0.17	0.05	0.29	155.30	155.40	0.08
	Age of PCCP	37.00	37.00	0.00	37.00	N/A	N/A	37.00
	MP Friction Range	38.69	36.30	4.76	46.90	N/A	N/A	35.10

Southbound Lane 2 Diamond Ground PCCP MP 154.76 to MP 158.40(3.18 lane miles)

		Average	Median	Standard Deviation	Max Value	BSRMP	ESRMP	Min Value
	IRI Left (in/mile)	79.06	65.00	50.80	298.00	157.26	157.36	39.00
	IRI Right (in/mile)	64.00	57.00	25.06	144.00	156.24	156.34	36.00
	IRI Average (in/mile)	71.29	64.00	32.44	173.00	157.26	157.36	41.00
	Rut Left (in)	0.16	0.16	0.03	0.23	154.86	154.96	0.11
	Rut Right (in)	0.19	0.19	0.04	0.27	155.00	155.10	0.10
	Average Faulting (in)	0.04	0.04	0.04	0.16	157.36	157.46	0.00
	Number of Faults	1.35	1.00	1.79	7.00	156.24	156.34	0.00
% of Faulted Slabs	1/8" - 1/4"	9.04	0.00	24.94	100.00	156.16	156.26	0.00
	1/4" - 1/2"	0.42	0.00	2.45	14.30	156.24	156.34	0.00
	1/2" +	0.00	0.00	0.00	0.00	N/A	N/A	0.00
	Total	9.46	0.00	25.64	100.00	156.16	156.26	0.00
Number of Cracks per Panel	1	2.97	2.00	3.48	13.00	156.56	157.76	0.00
	2 - 3	0.53	0.00	1.13	4.00	156.56	157.76	0.00
	4+	0.00	0.00	0.00	0.00	N/A	N/A	0.00
# of Cracks as % of Total Slabs	1	8.57	5.71	9.89	37.14	156.56	157.66	0.00
	2 - 3	1.63	0.00	3.35	11.52	154.76	154.86	0.00
	4+	0.00	0.00	0.00	0.00	N/A	N/A	0.00
Faulted Slabs as % of Total Slabs	1/8" - 1/4"	0.67	0.00	1.73	8.58	156.24	156.34	0.00
	1/4" - 1/2"	0.08	0.00	0.49	2.86	156.24	156.34	0.00
	1/2" +	0.00	0.00	0.00	0.00	N/A	N/A	0.00
	Total	0.75	0.00	2.14	11.44	156.24	156.34	0.00
	% PCCP Crack	10.19	8.56	11.47	48.57	157.66	157.76	0.00
	Maximum Rut (mm)	4.83	4.70	0.88	6.86	155.00	155.10	3.56
	Maximum Rut (in)	0.19	0.18	0.03	0.27	155.00	155.10	0.14
	Age of PCCP	37.00	37.00	0.00	37.00	N/A	N/A	37.00
	MP Friction Range	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Southbound Lane 3 Diamond Ground PCCP MP 154.76 to MP 158.40(3.08 lane miles)

		Average	Median	Standard Deviation	Max Value	BSRMP	ESRMP	Min Value
	IRI Left (in/mile)	66.55	58.00	29.29	159.00	157.56	157.66	34.00
	IRI Right (in/mile)	64.45	56.00	29.18	182.00	157.66	157.76	37.00
	IRI Average (in/mile)	65.27	58.00	27.28	168.00	157.66	157.76	38.00
	Rut Left (in)	0.20	0.20	0.04	0.30	155.20	155.30	0.12
	Rut Right (in)	0.21	0.21	0.04	0.29	155.30	155.40	0.13
	Average Faulting (in)	0.03	0.03	0.04	0.14	155.30	155.40	0.00
	Number of Faults	1.21	1.00	1.39	5.00	157.46	157.56	0.00
% of Faulted Slabs	1/8" - 1/4"	3.03	0.00	17.41	100.00	155.30	155.40	0.00
% of Faulted Slabs	1/4" - 1/2"	1.01	0.00	5.80	33.30	157.66	157.76	0.00
% of Faulted Slabs	1/2" +	0.00	0.00	0.00	0.00	N/A	N/A	0.00
% of Faulted Slabs	Total	4.04	0.00	18.17	100.00	155.30	155.40	0.00
Number of Cracks per Panel	1	4.30	3.00	4.63	19.00	157.66	157.76	0.00
Number of Cracks per Panel	2 - 3	0.27	0.00	0.67	3.00	154.76	154.86	0.00
Number of Cracks per Panel	4+	0.00	0.00	0.00	0.00	N/A	N/A	0.00
# of Cracks as % of Total Slabs	1	12.55	8.51	12.99	54.16	176.56	176.66	0.00
# of Cracks as % of Total Slabs	2 - 3	0.77	0.00	1.92	8.56	154.76	154.86	0.00
# of Cracks as % of Total Slabs	4+	0.00	0.00	0.00	0.00	N/A	N/A	0.00
Faulted Slabs as % of Total Slabs	1/8" - 1/4"	0.09	0.00	0.49	2.84	155.30	155.40	0.00
Faulted Slabs as % of Total Slabs	1/4" - 1/2"	0.09	0.00	0.50	2.85	157.66	157.76	0.00
Faulted Slabs as % of Total Slabs	1/2" +	0.00	0.00	0.00	0.00	N/A	N/A	0.00
Faulted Slabs as % of Total Slabs	Total	0.17	0.00	0.69	2.85	157.66	157.76	0.00
	% PCCP Crack	13.32	8.51	13.99	57.01	157.66	157.76	0.00
	Maximum Rut (mm)	5.58	5.59	1.02	7.62	155.20	155.30	3.56
	Maximum Rut (in)	0.22	0.22	0.04	0.30	155.20	155.30	0.14
	Age of PCCP	37.00	37.00	0.00	37.00	N/A	N/A	37.00
	MP Friction Range	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Southbound Lane 4 Diamond Ground PCCP MP 154.76 to MP 158.40(3.28 lane miles)

		Average	Median	Standard Deviation	Max Value	BSRMP	ESRMP	Min Value
	IRI Left (in/mile)	68.34	55.00	34.42	147.00	157.46	157.56	36.00
	IRI Right (in/mile)	60.63	50.00	29.02	148.00	156.24	156.34	35.00
	IRI Average (in/mile)	64.14	52.00	30.13	146.00	156.24	156.34	39.00
	Rut Left (in)	0.18	0.18	0.03	0.23	155.60	155.70	0.13
	Rut Right (in)	0.22	0.20	0.06	0.33	154.56	154.66	0.12
	Average Faulting (in)	0.03	0.03	0.04	0.12	157.56	157.66	0.00
	Number of Faults	1.29	1.00	1.43	5.00	157.66	157.76	0.00
% of Faulted Slabs	**1/8" - 1/4"**	4.86	0.00	14.42	50.00	156.24	156.34	0.00
	1/4" - 1/2"	0.00	0.00	0.00	0.00	N/A	N/A	0.00
	1/2" +	0.00	0.00	0.00	0.00	N/A	N/A	0.00
	Total	4.86	0.00	14.42	50.00	156.24	156.34	0.00
Number of Cracks per Panel	**1**	1.97	1.00	3.50	19.00	157.56	157.66	0.00
	2 - 3	0.06	0.00	0.24	1.00	155.20	155.30	0.00
	4+	0.00	0.00	0.00	0.00	N/A	N/A	0.00
# of Cracks as % of Total Slabs	**1**	6.21	2.86	10.30	54.24	157.56	157.66	0.00
	2 - 3	0.16	0.00	0.65	2.84	155.20	155.30	0.00
	4+	0.00	0.00	0.00	0.00	N/A	N/A	0.00
Faulted Slabs as % of Total Slabs	**1/8" - 1/4"**	0.46	0.00	1.37	5.71	155.94	156.04	0.00
	1/4" - 1/2"	0.00	0.00	0.00	0.00	N/A	N/A	0.00
	1/2" +	0.00	0.00	0.00	0.00	N/A	N/A	0.00
	Total	0.46	0.00	1.37	5.71	155.94	156.04	0.00
	% PCCP Crack	6.36	5.35	10.28	54.24	156.56	156.66	0.00
	Maximum Rut (mm)	5.65	5.33	1.32	8.40	154.86	154.96	4.06
	Maximum Rut (in)	0.22	0.21	0.05	0.37	154.86	154.96	0.16
	Age of PCCP	37.00	37.00	0.00	37.00	N/A	N/A	37.00
	MP Friction Range	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Appendix F –
Type and Year of Construction PCCP Summary Tables

Northbound and Southbound 1962 PCCP 0.75', UB 0.75' MP 139.50 to 149.32 (29.86 lane miles)

		Average	Median	Standard Deviation	Max Value	Min Value
	IRI Left (in/mile)	214.03	190.50	87.61	493.00	39.00
	IRI Right (in/mile)	172.21	156.50	59.62	418.00	54.00
	IRI Average (in/mile)	192.88	176.00	69.58	411.00	46.00
	Rut Left (in)	0.36	0.36	0.17	0.79	0.06
	Rut Right (in)	0.39	0.38	0.17	0.74	0.12
	Average Faulting (in)	0.12	0.10	0.07	0.72	0.00
	Number of Faults	9.93	7.00	8.23	34.00	0.00
% of Faulted Slabs	1/8" - 1/4"	21.47	14.30	23.03	100.00	0.00
	1/4" - 1/2"	5.33	0.00	12.41	75.80	0.00
	1/2" +	0.72	0.00	3.90	40.00	0.00
	Total	27.51	20.00	28.79	100.00	0.00
Number of Cracks per Panel	1	1.78	1.00	2.84	16.00	0.00
	2 - 3	0.11	0.00	0.52	6.00	0.00
	4+	0.04	0.00	0.38	6.00	0.00
# of Cracks as % of Total Slabs	1	5.11	2.84	8.12	79.90	0.00
	2 - 3	0.32	0.00	1.48	65.70	0.00
	4+	0.10	0.00	1.09	17.00	0.00
Faulted Slabs as % of Total Slabs	1/8" - 1/4"	8.95	2.85	13.28	68.13	0.00
	1/4" - 1/2"	3.17	0.00	8.90	71.35	0.00
	1/2" +	0.17	0.00	0.75	0.00	0.00
	Total	12.29	2.86	19.24	79.95	0.00
	% PCCP Crack	5.54	2.84	9.14	94.30	0.00
	Maximum Rut (mm)	9.55	9.14	4.48	20.07	1.52
	Maximum Rut (in)	0.38	0.36	0.18	0.79	0.06

Northbound and Southbound 1963 PCCP 0.75', UB 0.67 MP 170.50 to MP 170.80 (1.40 lane miles)

		Average	Median	Standard Deviation	Max Value	Min Value
	IRI Left (in/mile)	233.21	231.50	44.39	296.00	148.00
	IRI Right (in/mile)	155.21	151.50	22.94	202.00	123.00
	IRI Average (in/mile)	194.00	196.00	31.66	249.00	135.00
	Rut Left (in)	0.53	0.52	0.08	0.66	0.43
	Rut Right (in)	0.51	0.52	0.05	0.58	0.41
	Average Faulting (in)	0.12	0.12	0.04	0.19	0.05
	Number of Faults	5.79	4.00	3.47	13.00	2.00
% of Faulted Slabs	1/8" - 1/4"	34.63	24.05	32.64	100.00	0.00
	1/4" - 1/2"	2.86	0.00	6.11	20.00	0.00
	1/2" +	0.00	0.00	0.00	0.00	0.00
	Total	37.49	30.00	32.30	100.00	0.00
Number of Cracks per Panel	1	5.07	3.50	5.34	16.00	0.00
	2 - 3	0.64	0.00	0.93	3.00	0.00
	4+	0.00	0.00	0.00	0.00	0.00
# of Cracks as % of Total Slabs	1	14.43	9.98	15.17	79.90	0.00
	2 - 3	1.83	0.00	2.64	65.70	0.00
	4+	0.00	0.00	0.00	17.00	0.00
Faulted Slabs as % of Total Slabs	1/8" - 1/4"	4.68	5.68	3.28	8.56	0.00
	1/4" - 1/2"	0.81	0.00	1.74	5.70	0.00
	1/2" +	0.00	0.00	0.00	0.00	0.00
	Total	5.49	5.69	4.25	14.26	0.00
	% PCCP Crack	16.25	12.84	16.54	94.30	0.00
	Maximum Rut (mm)	13.92	13.59	1.66	16.76	11.43
	Maximum Rut (in)	0.55	0.53	0.07	0.66	0.45

Northbound and Southbound 1964 PCCP 0.75', UB 0.67 MP 167.18 to MP 168.34 (4.24 lane miles)

		Average	Median	Standard Deviation	Max Value	Min Value
	IRI Left (in/mile)	253.17	245.00	68.31	408.00	130.00
	IRI Right (in/mile)	179.49	170.00	40.51	325.00	110.00
	IRI Average (in/mile)	216.17	219.00	46.81	366.00	120.00
	Rut Left (in)	0.42	0.44	0.13	0.64	0.18
	Rut Right (in)	0.46	0.49	0.11	0.64	0.20
	Average Faulting (in)	0.12	0.11	0.05	0.33	0.05
	Number of Faults	7.74	7.00	4.61	18.00	1.00
% of Faulted Slabs	1/8" - 1/4"	24.96	27.30	19.28	66.70	0.00
	1/4" - 1/2"	3.94	0.00	8.80	44.40	0.00
	1/2" +	0.78	0.00	3.76	20.00	0.00
	Total	29.69	33.30	22.41	66.70	0.00
Number of Cracks per Panel	1	3.11	2.00	3.42	11.00	0.00
	2 - 3	0.51	0.00	1.21	6.00	0.00
	4+	0.02	0.00	0.15	1.00	0.00
# of Cracks as % of Total Slabs	1	9.52	5.73	10.58	79.90	0.00
	2 - 3	1.70	0.00	3.93	65.70	0.00
	4+	0.06	0.00	0.42	17.00	0.00
Faulted Slabs as % of Total Slabs	1/8" - 1/4"	6.84	5.74	5.83	19.99	0.00
	1/4" - 1/2"	1.24	0.00	2.60	11.46	0.00
	1/2" +	0.21	0.00	1.01	0.00	0.00
	Total	8.29	8.56	7.07	22.82	0.00
	% PCCP Crack	11.28	5.73	12.87	94.30	0.00
	Maximum Rut (mm)	12.53	13.46	2.59	16.26	5.08
	Maximum Rut (in)	0.49	0.53	0.10	0.64	0.20

Northbound 1965 PCCP 0.75', CTB 0.17', UB 0.42' MP 174.64 to MP 177.79 (9.12 lane miles)

		Average	Median	Standard Deviation	Max Value	Min Value
	IRI Left (in/mile)	166.98	152.50	53.66	511.00	86.00
	IRI Right (in/mile)	134.53	122.00	38.45	280.00	90.00
	IRI Average (in/mile)	150.46	137.00	42.55	307.00	92.00
	Rut Left (in)	0.29	0.31	0.10	0.53	0.12
	Rut Right (in)	0.31	0.29	0.10	0.59	0.15
	Average Faulting (in)	0.09	0.09	0.05	0.24	0.00
	Number of Faults	6.68	5.00	5.68	28.00	0.00
% of Faulted Slabs	1/8" - 1/4"	19.03	12.50	23.06	100.00	0.00
	1/4" - 1/2"	3.33	0.00	9.72	50.00	0.00
	1/2" +	0.04	0.00	0.41	4.00	0.00
	Total	22.41	16.70	25.22	100.00	0.00
Number of Cracks per Panel	1	4.90	3.00	5.06	20.00	0.00
	2 - 3	0.94	0.00	1.91	9.00	0.00
	4+	0.04	0.00	0.32	3.00	0.00
# of Cracks as % of Total Slabs	1	14.58	9.98	14.63	79.90	0.00
	2 - 3	2.75	0.00	5.70	39.90	0.00
	4+	0.12	0.00	0.92	17.00	0.00
Faulted Slabs as % of Total Slabs	1/8" - 1/4"	4.57	2.85	6.73	34.23	0.00
	1/4" - 1/2"	1.45	0.00	5.77	39.95	0.00
	1/2" +	0.03	0.00	0.32	3.17	0.00
	Total	6.06	2.85	11.20	71.34	0.00
	% PCCP Crack	17.44	11.41	18.09	88.50	0.00
	Maximum Rut (mm)	8.38	8.38	2.48	11.94	4.32
	Maximum Rut (in)	0.33	0.33	0.10	0.47	0.17

Northbound and Southbound 1965 PCCP 0.75', UB 0.59' MP 170.90 to MP 177.65 (5.08 lane miles)

		Average	Median	Standard Deviation	Max Value	Min Value
	IRI Left (in/mile)	227.01	209.00	86.13	518.00	93.00
	IRI Right (in/mile)	160.70	142.00	55.56	369.00	75.00
	IRI Average (in/mile)	193.59	179.00	66.10	425.00	95.00
	Rut Left (in)	0.40	0.40	0.15	0.72	0.10
	Rut Right (in)	0.42	0.41	0.15	0.74	0.16
	Average Faulting (in)	0.13	0.12	0.08	0.61	0.00
	Number of Faults	9.23	7.00	7.57	31.00	0.00
% of Faulted Slabs	1/8" - 1/4"	28.76	28.60	24.25	100.00	0.00
	1/4" - 1/2"	7.83	0.00	13.89	61.90	0.00
	1/2" +	1.36	0.00	6.28	50.00	0.00
	Total	37.95	33.30	30.64	100.00	0.00
Number of Cracks per Panel	1	5.43	4.00	5.21	23.00	0.00
	2 - 3	1.12	0.00	2.01	14.00	0.00
	4+	0.14	0.00	0.51	5.00	0.00
# of Cracks as % of Total Slabs	1	16.04	11.43	15.34	79.90	0.00
	2 - 3	3.51	0.00	7.73	65.70	0.00
	4+	0.40	0.00	1.46	17.00	0.00
Faulted Slabs as % of Total Slabs	1/8" - 1/4"	10.19	5.69	11.70	56.07	0.00
	1/4" - 1/2"	3.85	0.00	8.32	48.47	0.00
	1/2" +	0.21	0.00	0.90	2.85	0.00
	Total	14.25	5.71	18.00	85.62	0.00
	% PCCP Crack	19.95	14.27	19.33	94.30	0.00
	Maximum Rut (mm)	11.19	10.92	3.70	18.80	4.32
	Maximum Rut (in)	0.44	0.43	0.15	0.74	0.17

Northbound and Southbound 1965 PCCP 0.75', UB 0.67 MP 169.18 to MP 170.25 (7.95 lane miles)

		Average	Median	Standard Deviation	Max Value	Min Value
	IRI Left (in/mile)	252.16	238.00	80.83	633.00	115.00
	IRI Right (in/mile)	174.53	166.00	43.50	300.00	108.00
	IRI Average (in/mile)	213.14	204.00	51.54	452.00	115.00
	Rut Left (in)	0.35	0.33	0.12	0.66	0.14
	Rut Right (in)	0.39	0.39	0.13	0.62	0.14
	Average Faulting (in)	0.13	0.12	0.06	0.35	0.00
	Number of Faults	4.74	4.00	3.24	15.00	0.00
% of Faulted Slabs	**1/8" - 1/4"**	32.52	28.60	32.27	100.00	0.00
	1/4" - 1/2"	3.30	0.00	8.73	50.00	0.00
	1/2" +	1.56	0.00	6.34	33.30	0.00
	Total	37.37	33.30	33.05	100.00	0.00
Number of Cracks per Panel	**1**	3.31	2.00	4.41	25.00	0.00
	2 - 3	0.28	0.00	0.69	3.00	0.00
	4+	0.27	0.00	1.22	10.00	0.00
# of Cracks as % of Total Slabs	**1**	9.48	5.69	12.53	79.90	0.00
	2 - 3	0.87	0.00	2.20	65.70	0.00
	4+	0.77	0.00	3.48	28.43	0.00
Faulted Slabs as % of Total Slabs	**1/8" - 1/4"**	5.01	2.85	5.87	25.63	0.00
	1/4" - 1/2"	0.59	0.00	1.44	8.55	0.00
	1/2" +	0.18	0.00	0.69	0.00	0.00
	Total	5.77	2.85	6.48	25.64	0.00
	% PCCP Crack	11.13	8.51	13.16	94.30	0.00
	Maximum Rut (mm)	10.59	9.91	2.97	16.76	3.56
	Maximum Rut (in)	0.42	0.39	0.12	0.66	0.14

Northbound Lane 1 1965 PCCP 0.75', UB 0.92' MP 166.21 to MP 167.08 (0.80 lane miles)

		Average	Median	Standard Deviation	Max Value	Min Value
	IRI Left (in/mile)	189.50	188.00	62.02	511.00	101.00
	IRI Right (in/mile)	178.88	164.00	59.86	305.00	122.00
	IRI Average (in/mile)	183.88	190.50	51.70	261.00	111.00
	Rut Left (in)	0.28	0.29	0.11	0.54	0.13
	Rut Right (in)	0.30	0.31	0.08	0.40	0.17
	Average Faulting (in)	0.14	0.13	0.04	0.22	0.09
	Number of Faults	8.13	7.00	3.18	13.00	5.00
% of Faulted Slabs	**1/8" - 1/4"**	38.18	41.65	19.15	60.00	15.40
	1/4" - 1/2"	4.69	0.00	13.26	37.50	0.00
	1/2" +	0.00	0.00	0.00	0.00	0.00
	Total	42.86	41.65	25.87	87.50	15.40
Number of Cracks per Panel	**1**	0.75	0.00	1.39	3.00	0.00
	2 - 3	0.00	0.00	0.00	0.00	0.00
	4+	0.00	0.00	0.00	0.00	0.00
# of Cracks as % of Total Slabs	**1**	2.14	0.00	3.95	8.55	0.00
	2 - 3	0.00	0.00	0.00	36.90	0.00
	4+	0.00	0.00	0.00	0.00	0.00
Faulted Slabs as % of Total Slabs	**1/8" - 1/4"**	8.20	7.13	4.42	17.08	2.85
	1/4" - 1/2"	1.07	0.00	3.04	8.58	0.00
	1/2" +	0.00	0.00	0.00	0.00	0.00
	Total	9.27	7.13	6.06	20.03	2.85
	% PCCP Crack	2.14	0.00	3.95	79.80	0.00
	Maximum Rut (mm)	8.00	8.51	2.36	15.00	4.32
	Maximum Rut (in)	0.31	0.33	0.09	0.59	0.17

Northbound 1965 PCCP 0.75', UB 0.92' MP 172.79 to MP 174.54 (6.90 lane miles)

		Average	Median	Standard Deviation	Max Value	Min Value
	IRI Left (in/mile)	196.32	180.00	71.23	511.00	107.00
	IRI Right (in/mile)	158.68	142.00	53.18	332.00	103.00
	IRI Average (in/mile)	177.25	160.00	59.32	345.00	109.00
	Rut Left (in)	0.30	0.28	0.11	0.54	0.11
	Rut Right (in)	0.29	0.26	0.08	0.54	0.17
	Average Faulting (in)	0.13	0.11	0.05	0.29	0.05
	Number of Faults	10.56	9.00	6.83	26.00	1.00
% of Faulted Slabs	1/8" - 1/4"	27.34	28.60	20.65	75.00	0.00
% of Faulted Slabs	1/4" - 1/2"	7.36	0.00	13.99	70.80	0.00
% of Faulted Slabs	1/2" +	1.05	0.00	4.15	25.00	0.00
% of Faulted Slabs	Total	35.75	33.30	26.21	96.10	0.00
Number of Cracks per Panel	1	4.14	2.00	5.17	23.00	0.00
Number of Cracks per Panel	2 - 3	1.68	0.00	3.26	14.00	0.00
Number of Cracks per Panel	4+	0.13	0.00	0.41	2.00	0.00
# of Cracks as % of Total Slabs	1	12.23	5.71	15.50	79.90	0.00
# of Cracks as % of Total Slabs	2 - 3	5.07	0.00	10.06	39.90	0.00
# of Cracks as % of Total Slabs	4+	0.36	0.00	1.17	17.00	0.00
Faulted Slabs as % of Total Slabs	1/8" - 1/4"	10.04	5.71	10.38	37.08	0.00
Faulted Slabs as % of Total Slabs	1/4" - 1/2"	3.57	0.00	8.95	48.47	0.00
Faulted Slabs as % of Total Slabs	1/2" +	0.28	0.00	0.98	5.71	0.00
Faulted Slabs as % of Total Slabs	Total	13.89	8.49	16.48	71.25	0.00
	% PCCP Crack	17.66	5.71	22.44	88.50	0.00
	Maximum Rut (mm)	8.30	7.87	2.33	8.64	4.83
	Maximum Rut (in)	0.33	0.31	0.09	0.34	0.19

Northbound and Southbound 1966 PCCP 0.75', UB 0.67' MP 149.76 to MP 152.59 (16.77 lane miles)

		Average	Median	Standard Deviation	Max Value	Min Value
	IRI Left (in/mile)	161.99	148.00	60.29	354.00	77.00
	IRI Right (in/mile)	148.42	128.00	60.60	422.00	76.00
	IRI Average (in/mile)	154.99	142.00	55.00	291.00	77.00
	Rut Left (in)	0.29	0.31	0.13	0.59	0.09
	Rut Right (in)	0.26	0.25	0.12	0.51	0.11
	Average Faulting (in)	0.10	0.08	0.09	0.69	0.00
	Number of Faults	6.25	5.00	5.18	23.00	0.00
% of Faulted Slabs	1/8" - 1/4"	14.99	0.00	20.81	100.00	0.00
	1/4" - 1/2"	4.94	0.00	14.31	100.00	0.00
	1/2" +	1.03	0.00	4.54	33.30	0.00
	Total	20.95	0.00	27.27	100.00	0.00
Number of Cracks per Panel	1	4.61	2.00	6.23	28.00	0.00
	2 - 3	1.10	0.00	2.81	23.00	0.00
	4+	0.18	0.00	0.82	9.00	0.00
# of Cracks as % of Total Slabs	1	13.49	5.71	17.84	79.90	0.00
	2 - 3	3.46	0.00	8.93	65.70	0.00
	4+	0.79	0.00	4.73	25.71	0.00
Faulted Slabs as % of Total Slabs	1/8" - 1/4"	4.66	0.00	8.30	45.46	0.00
	1/4" - 1/2"	1.51	0.00	5.30	56.71	0.00
	1/2" +	0.24	0.00	1.18	11.43	0.00
	Total	6.41	0.00	12.14	85.07	0.00
	% PCCP Crack	17.74	5.71	24.60	94.30	0.00
	Maximum Rut (mm)	8.00	8.13	2.95	14.99	2.29
	Maximum Rut (in)	0.31	0.32	0.12	0.59	0.09

Northbound and Southbound 1967 PCCP 0.75', ATB 0.33', UB 0.75' MP 158.46 to MP 162.66 (20.97 lane miles)

		Average	Median	Standard Deviation	Max Value	Min Value
	IRI Left (in/mile)	165.08	159.50	78.87	421.00	40.00
	IRI Right (in/mile)	132.93	124.00	64.07	460.00	42.00
	IRI Average (in/mile)	148.73	146.00	63.11	434.00	44.00
	Rut Left (in)	0.33	0.31	0.16	0.68	0.07
	Rut Right (in)	0.31	0.28	0.16	0.64	0.07
	Average Faulting (in)	0.08	0.07	0.07	0.47	0.00
	Number of Faults	5.38	3.00	6.04	28.00	0.00
% of Faulted Slabs	**1/8" - 1/4"**	15.45	0.00	22.51	81.30	0.00
	1/4" - 1/2"	3.16	0.00	11.84	100.00	0.00
	1/2" +	0.58	0.00	4.22	50.00	0.00
	Total	19.19	0.00	27.26	100.00	0.00
Number of Cracks per Panel	**1**	2.69	1.00	4.07	25.00	0.00
	2 - 3	0.17	0.00	0.58	5.00	0.00
	4+	0.04	0.00	0.29	3.00	0.00
# of Cracks as % of Total Slabs	**1**	7.82	2.85	11.70	79.90	0.00
	2 - 3	0.59	0.00	2.53	65.70	0.00
	4+	0.12	0.00	0.84	17.00	0.00
Faulted Slabs as % of Total Slabs	**1/8" - 1/4"**	4.96	0.00	9.56	45.45	0.00
	1/4" - 1/2"	0.83	0.00	2.87	28.90	0.00
	1/2" +	0.10	0.00	0.54	0.00	0.00
	Total	5.89	0.00	11.06	57.05	0.00
	% PCCP Crack	8.53	2.86	12.76	94.30	0.00
	Maximum Rut (mm)	8.98	8.38	3.94	17.27	2.79
	Maximum Rut (in)	0.35	0.33	0.16	0.68	0.11

Northbound and Southbound 1967 PCCP 0.75', UB 0.92' MP 162.70 to MP 166.36 (6.89 lane miles)

		Average	Median	Standard Deviation	Max Value	Min Value
	IRI Left (in/mile)	136.62	122.00	79.21	404.00	37.00
	IRI Right (in/mile)	121.15	96.00	71.94	445.00	42.00
	IRI Average (in/mile)	128.62	112.50	71.82	424.00	40.00
	Rut Left (in)	0.26	0.26	0.09	0.46	0.09
	Rut Right (in)	0.24	0.21	0.10	0.54	0.11
	Average Faulting (in)	0.09	0.07	0.07	0.41	0.00
	Number of Faults	4.95	3.00	5.19	22.00	0.00
% of Faulted Slabs	**1/8" - 1/4"**	14.33	0.00	21.99	80.00	0.00
	1/4" - 1/2"	3.90	0.00	10.16	50.00	0.00
	1/2" +	0.98	0.00	5.94	50.00	0.00
	Total	19.21	0.00	28.02	100.00	0.00
Number of Cracks per Panel	**1**	4.39	2.00	5.47	21.00	0.00
	2 - 3	0.54	0.00	1.26	8.00	0.00
	4+	0.11	0.00	0.55	5.00	0.00
# of Cracks as % of Total Slabs	**1**	13.54	5.71	16.81	79.90	0.00
	2 - 3	1.73	0.00	3.84	65.70	0.00
	4+	0.35	0.00	1.68	17.00	0.00
Faulted Slabs as % of Total Slabs	**1/8" - 1/4"**	4.70	0.00	8.50	42.77	0.00
	1/4" - 1/2"	1.34	0.00	3.42	17.15	0.00
	1/2" +	0.12	0.00	0.64	0.00	0.00
	Total	6.16	0.00	10.90	54.18	0.00
	% PCCP Crack	15.62	8.54	19.09	94.30	0.00
	Maximum Rut (mm)	7.36	7.49	2.35	13.72	3.56
	Maximum Rut (in)	0.29	0.30	0.09	0.54	0.14

Southbound 1967 PCCP 0.75', UB 1.08 MP 160.25 to MP 162.72 (7.74 lane miles)

		Average	Median	Standard Deviation	Max Value	Min Value
	IRI Left (in/mile)	108.57	96.00	58.75	316.00	37.00
	IRI Right (in/mile)	88.51	83.00	38.79	118.00	42.00
	IRI Average (in/mile)	98.28	94.00	46.37	0.00	40.00
	Rut Left (in)	0.24	0.21	0.08	0.41	0.10
	Rut Right (in)	0.22	0.20	0.07	0.50	0.11
	Average Faulting (in)	0.06	0.05	0.07	0.41	0.00
	Number of Faults	3.41	2.00	4.09	19.00	0.00
% of Faulted Slabs	**1/8" - 1/4"**	8.42	0.00	17.35	75.00	0.00
	1/4" - 1/2"	0.47	0.00	2.49	17.60	0.00
	1/2" +	1.05	0.00	6.72	50.00	0.00
	Total	9.95	0.00	19.69	75.00	0.00
Number of Cracks per Panel	**1**	4.20	2.00	5.44	21.00	0.00
	2 - 3	0.48	0.00	1.24	8.00	0.00
	4+	0.06	0.00	0.29	2.00	0.00
# of Cracks as % of Total Slabs	**1**	12.19	5.68	15.52	59.90	0.00
	2 - 3	1.41	0.00	3.57	65.70	0.00
	4+	0.18	0.00	0.84	5.71	0.00
Faulted Slabs as % of Total Slabs	**1/8" - 1/4"**	2.31	0.00	5.35	28.47	0.00
	1/4" - 1/2"	0.18	0.00	1.05	0.00	0.00
	1/2" +	0.07	0.00	0.45	0.00	0.00
	Total	2.57	0.00	5.84	28.47	0.00
	% PCCP Crack	13.78	5.68	17.96	94.30	0.00
	Maximum Rut (mm)	6.57	5.84	2.04	12.70	3.56
	Maximum Rut (in)	0.26	0.23	0.08	0.50	0.14

Northbound and Southbound 1969 PCCP 0.75', ATB 0.33', UB 0.58' MP 152.69 to MP 154.14 (8.89 lane miles)

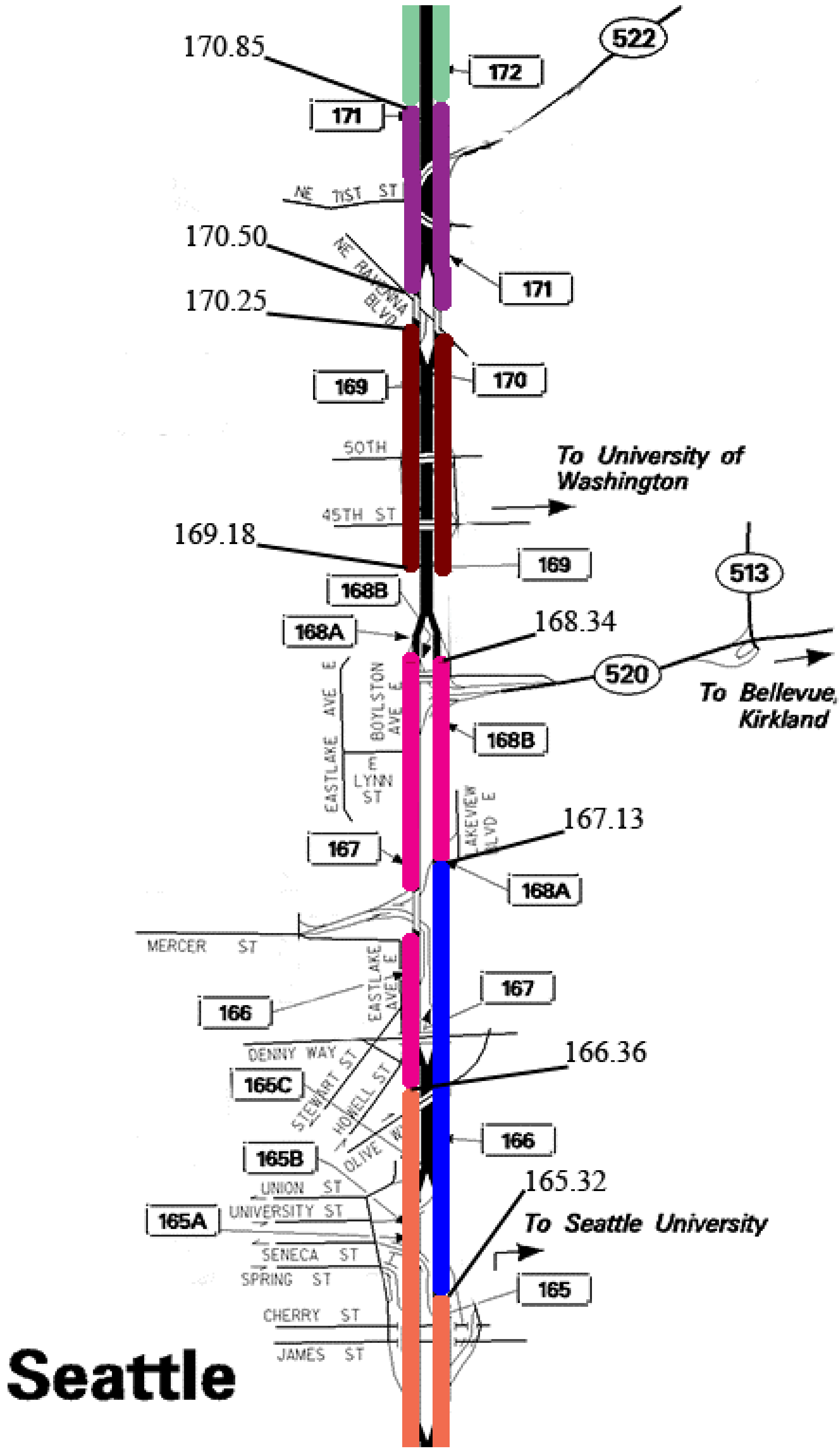
		Average	Median	Standard Deviation	Max Value	Min Value
	IRI Left (in/mile)	141.29	126.50	84.59	340.00	35.00
	IRI Right (in/mile)	103.49	100.00	51.53	232.00	36.00
	IRI Average (in/mile)	122.15	111.00	66.65	280.00	36.00
	Rut Left (in)	0.31	0.27	0.13	0.53	0.08
	Rut Right (in)	0.30	0.27	0.13	0.60	0.09
	Average Faulting (in)	0.08	0.07	0.06	0.32	0.00
	Number of Faults	5.24	3.00	5.75	22.00	0.00
% of Faulted Slabs	**1/8" - 1/4"**	14.92	0.00	22.84	100.00	0.00
	1/4" - 1/2"	2.91	0.00	8.78	45.50	0.00
	1/2" +	0.14	0.00	0.97	8.30	0.00
	Total	17.97	0.00	27.32	100.00	0.00
Number of Cracks per Panel	**1**	5.02	3.50	5.34	27.00	0.00
	2 - 3	0.54	0.00	1.20	5.00	0.00
	4+	0.03	0.00	0.17	1.00	0.00
# of Cracks as % of Total Slabs	**1**	10.75	0.00	18.98	79.90	0.00
	2 - 3	1.35	0.00	3.30	65.70	0.00
	4+	0.09	0.00	0.49	17.00	0.00
Faulted Slabs as % of Total Slabs	**1/8" - 1/4"**	5.08	0.00	9.92	43.65	0.00
	1/4" - 1/2"	1.31	0.00	4.33	25.68	0.00
	1/2" +	0.06	0.00	0.40	0.00	0.00
	Total	6.45	0.00	12.91	59.66	0.00
	% PCCP Crack	18.48	12.82	21.22	94.30	0.00
	Maximum Rut (mm)	8.73	7.37	3.33	15.24	3.30
	Maximum Rut (in)	0.33	0.28	0.13	0.60	0.12

Appendix G –

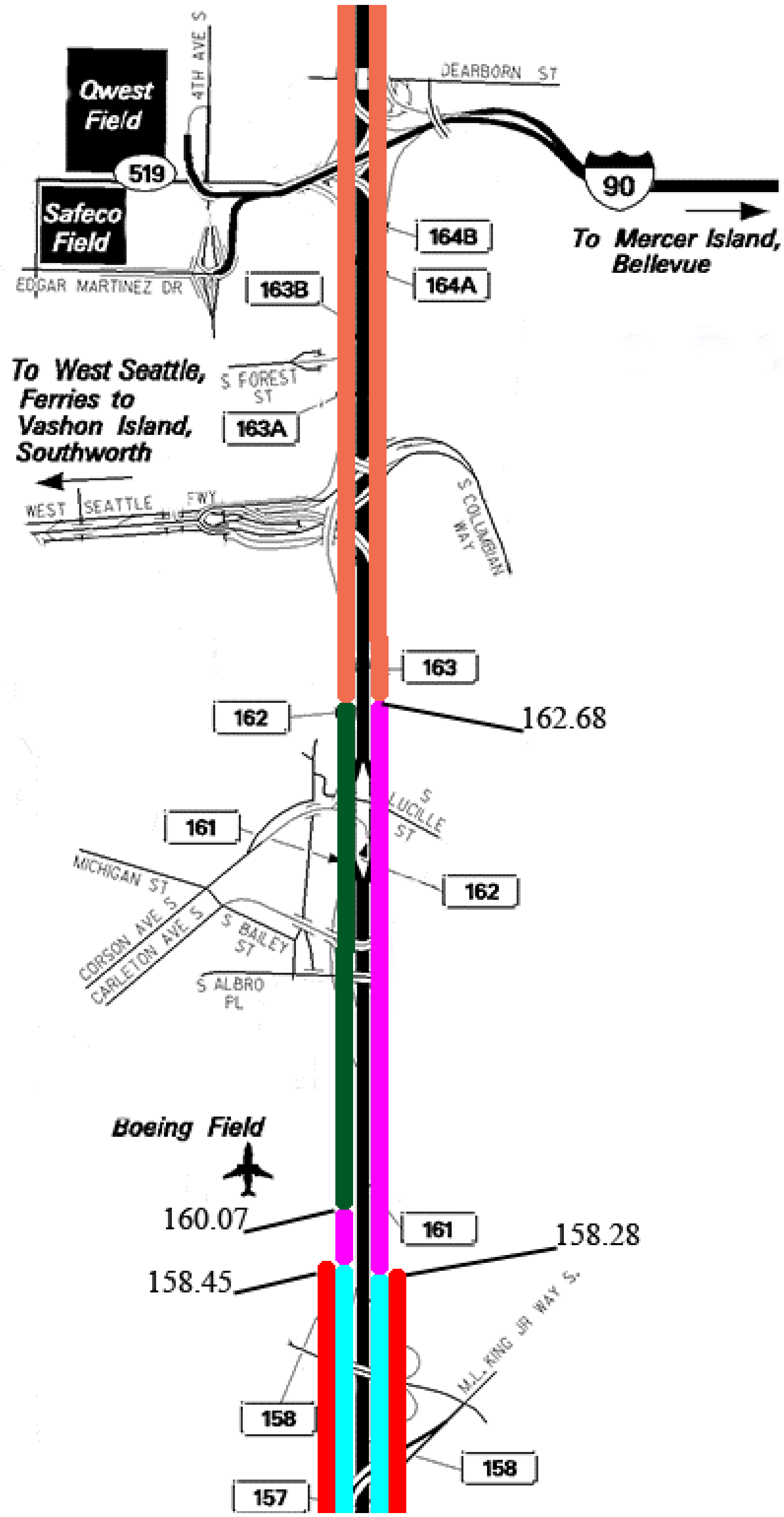
Map of I-5 Through King County and Sections of Construction

Legend I-5 Seattle Corridor PCCP Construction

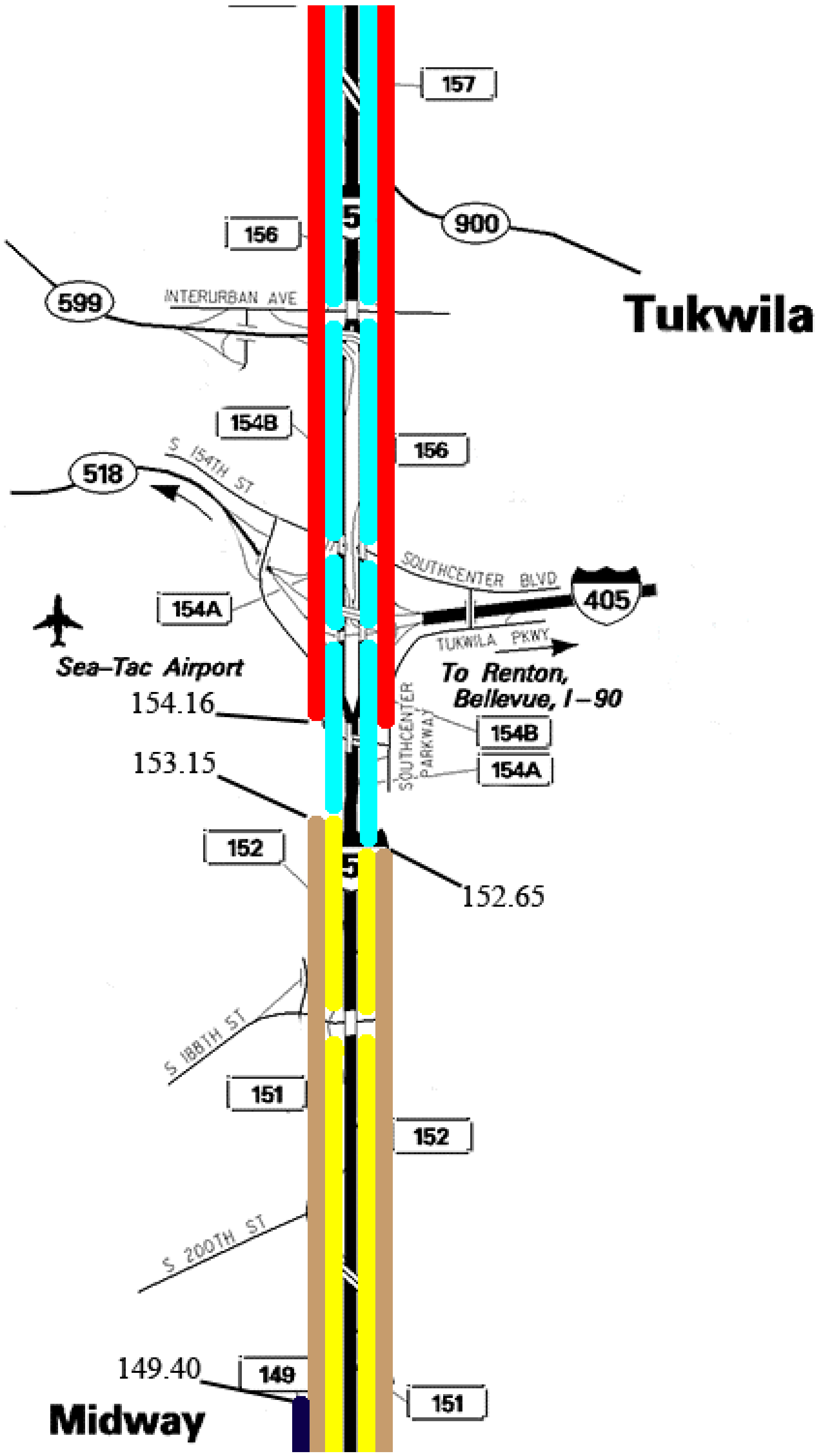
2001 Diamond Ground and Dowel Bar Retrofit (lane 1,2)
1999 Diamond Ground
1970 Right Lane Constructed
1965 - 0.17 CTB, 0.42 UB
1965 - 0.92 UB
1965 - 0.59 UB
1963 - 0.67 UB
1965 - 0.67 UB
1964 - 0.67 UB
1967 - 0.92 UB
1967 - 1.08 UB
1967 - 0.33 ATB, 0.75 UB
1969 - 0.33 ATB, 0.58 UB
1966 - 0.67 UB
1962 - 0.75 UB

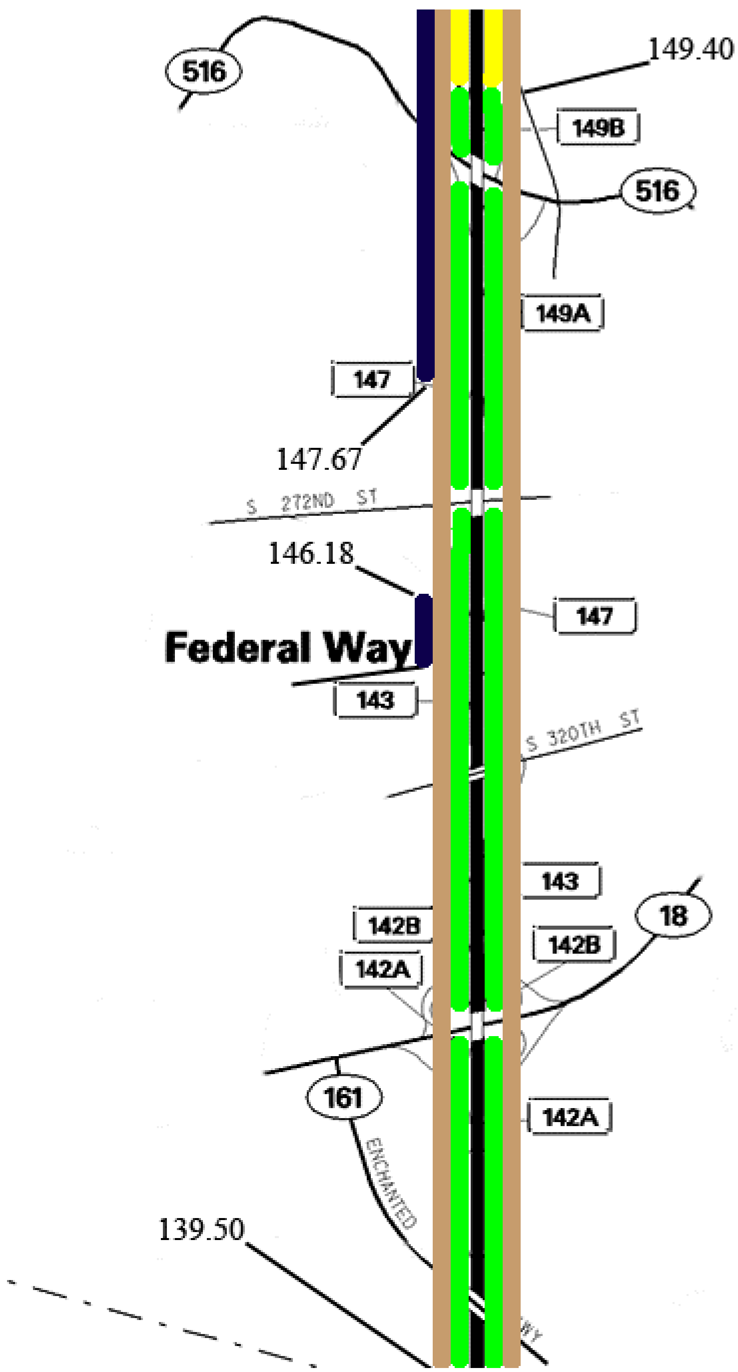


170.85
172
522
171
NE 71ST ST
170.50
NE RAVENNA BLVD
171
170.25
169
170
50TH
To University of Washington
45TH ST
169.18
169
513
168B
168A
168.34
520
To Bellevue, Kirkland
EASTLAKE AVE E
BOYLSTON AVE E
168B
E LYNN ST
LAKEVIEW BLVD E
167.13
167
168A
MERCER ST
EASTLAKE AVE E
167
166
DENNY WAY
166.36
165C
STEWART ST
HOWELL ST
OLIVE WAY
166
165B
UNION ST
165.32
165A
UNIVERSITY ST
To Seattle University
SENECA ST
SPRING ST
165
CHERRY ST
JAMES ST
Seattle



4TH AVE S
Qwest Field
DEARBORN ST
519
Safeco Field
90
164B
To Mercer Island, Bellevue
EDGAR MARTINEZ DR
163B
164A
To West Seattle, Ferries to Vashon Island, Southworth
S FOREST ST
163A
WEST SEATTLE FWY
S COLUMBIAN WAY
163
162
162.68
161
S LUCILLE ST
MICHIGAN ST
162
CORSON AVE S
CARLETON AVE S
S BAILEY ST
S ALBRO PL
Boeing Field
160.07
161
158.28
158.45
M.L. KING JR WAY S.
158
158
157

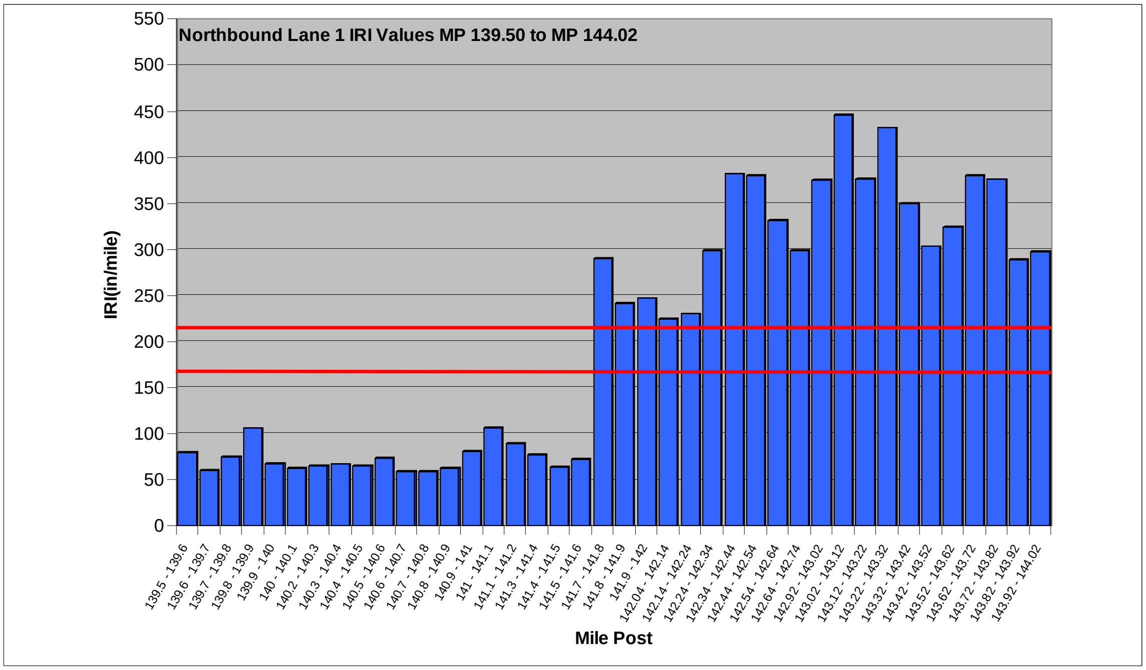

157
900
156
599
INTERURBAN AVE
Tukwila
154B
156
518
S 154TH ST
SOUTHCENTER BLVD
405
154A
TUKWILA PKWY
Sea–Tac Airport
To Renton, Bellevue, I–90
154.16
SOUTHCENTER PARKWAY
154B
153.15
154A
152
152.65
S 188TH ST
151
152
S 200TH ST
149.40
149
151
Midway

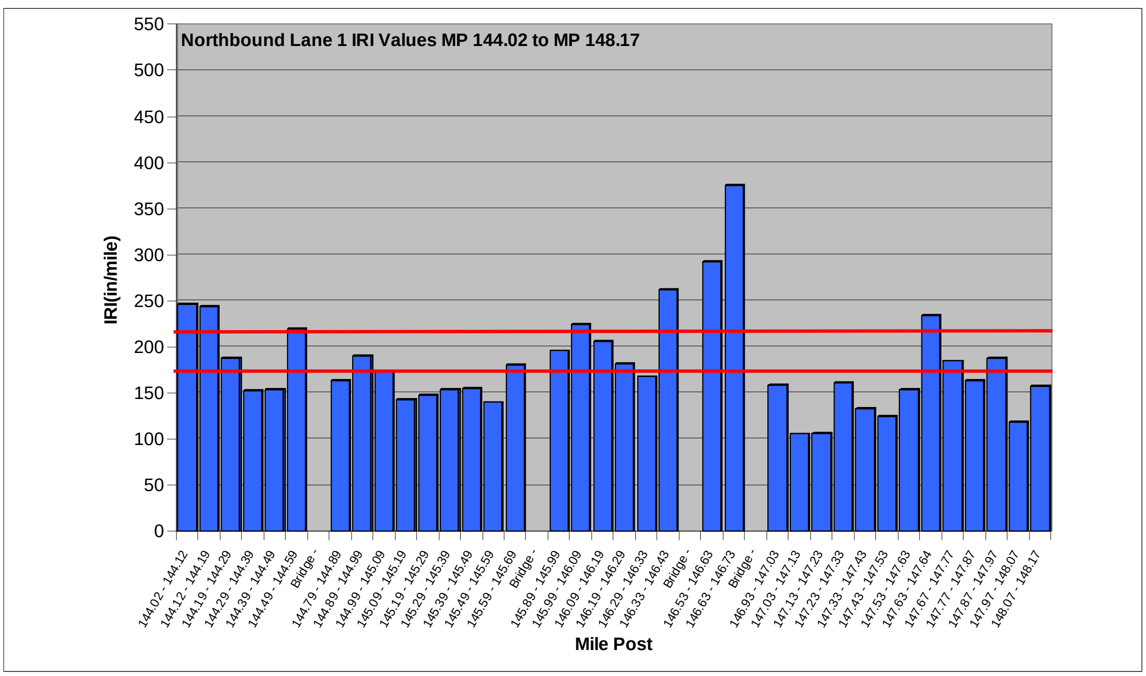


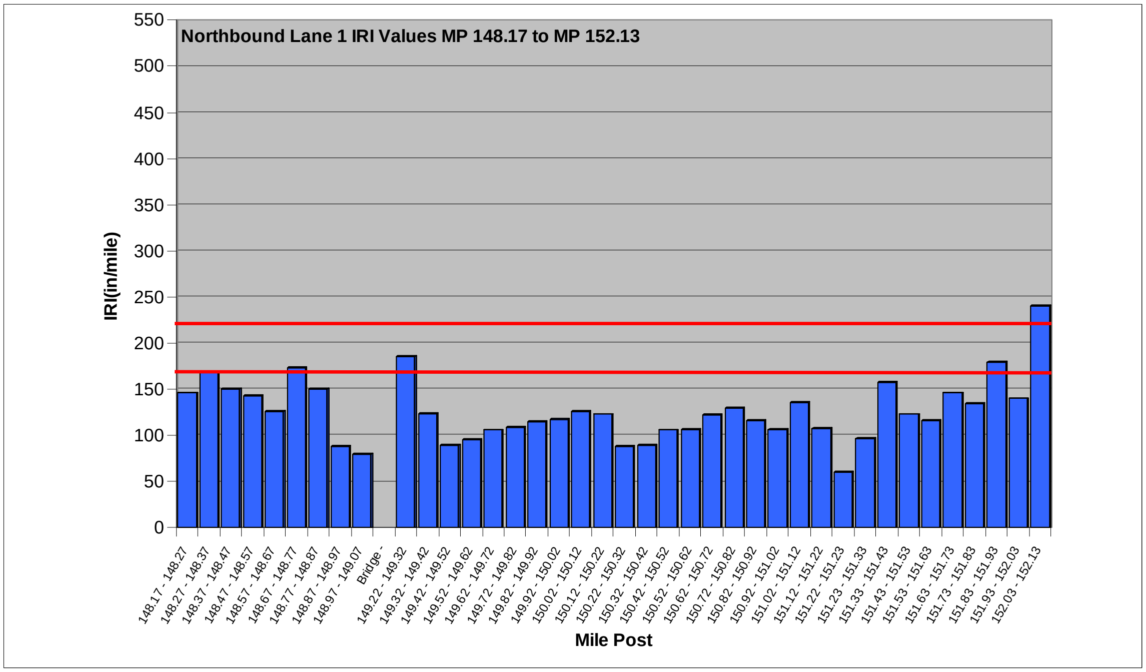
149.40
516
149B
516
149A
147
147.67
S 272ND ST
146.18
147
Federal Way
143
S 320TH ST
143
142B
142A
142B
18
161
142A
ENCHANTED
139.50

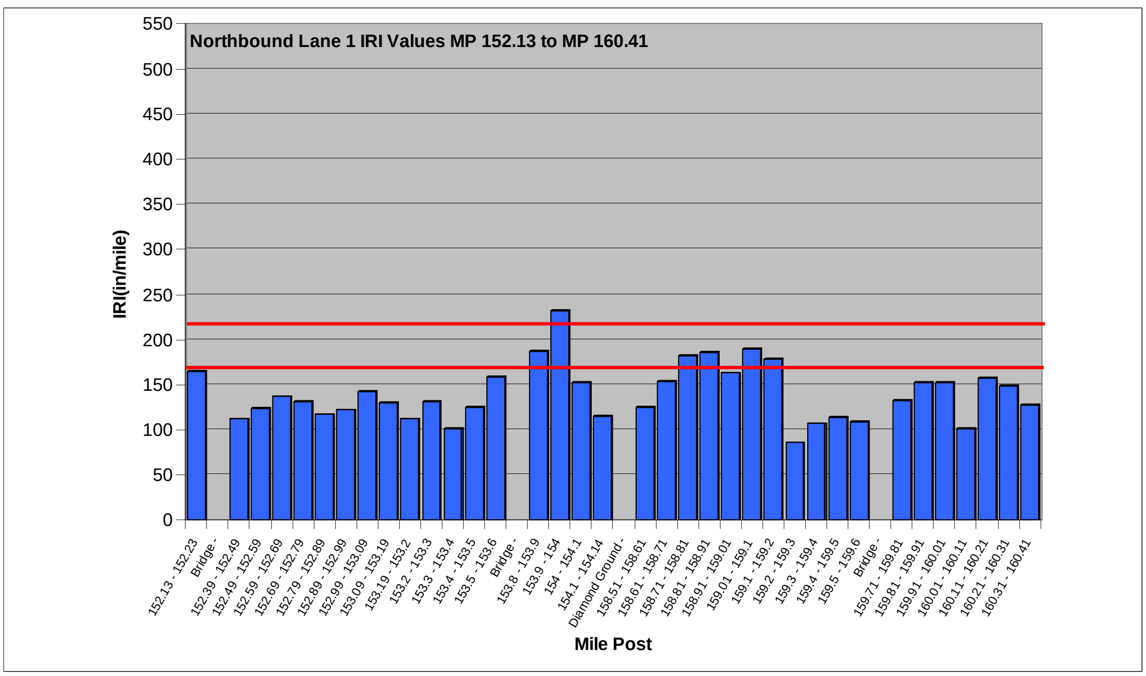
Appendix H –
IRI Pavement Distress Plots

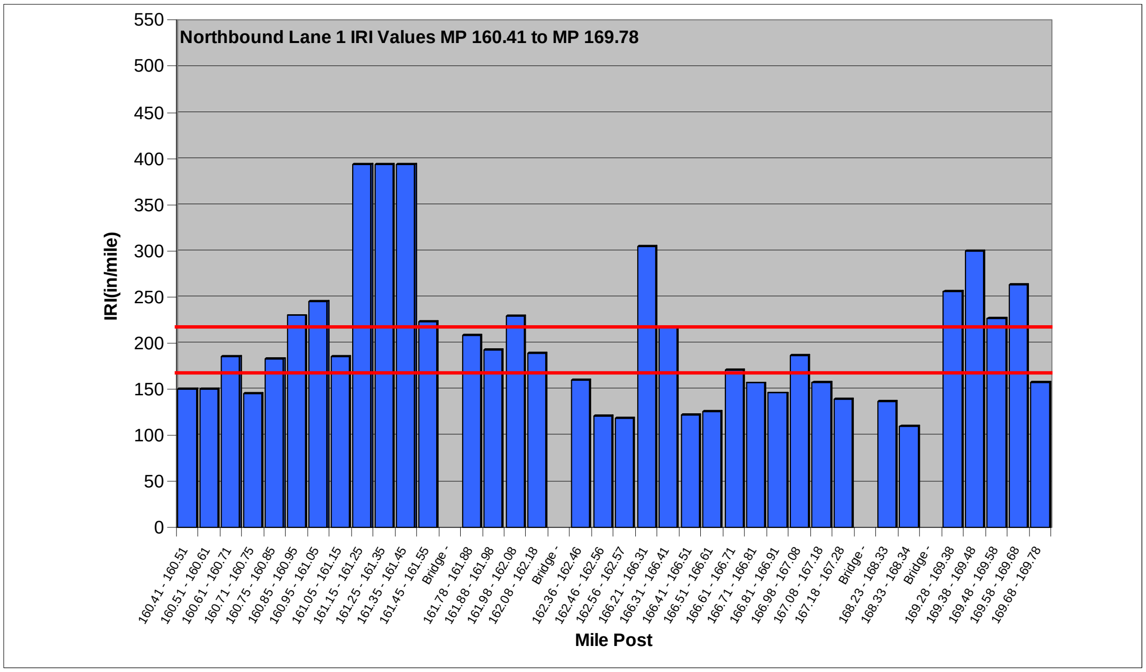
Northbound Lane 1 IRI Value Plots

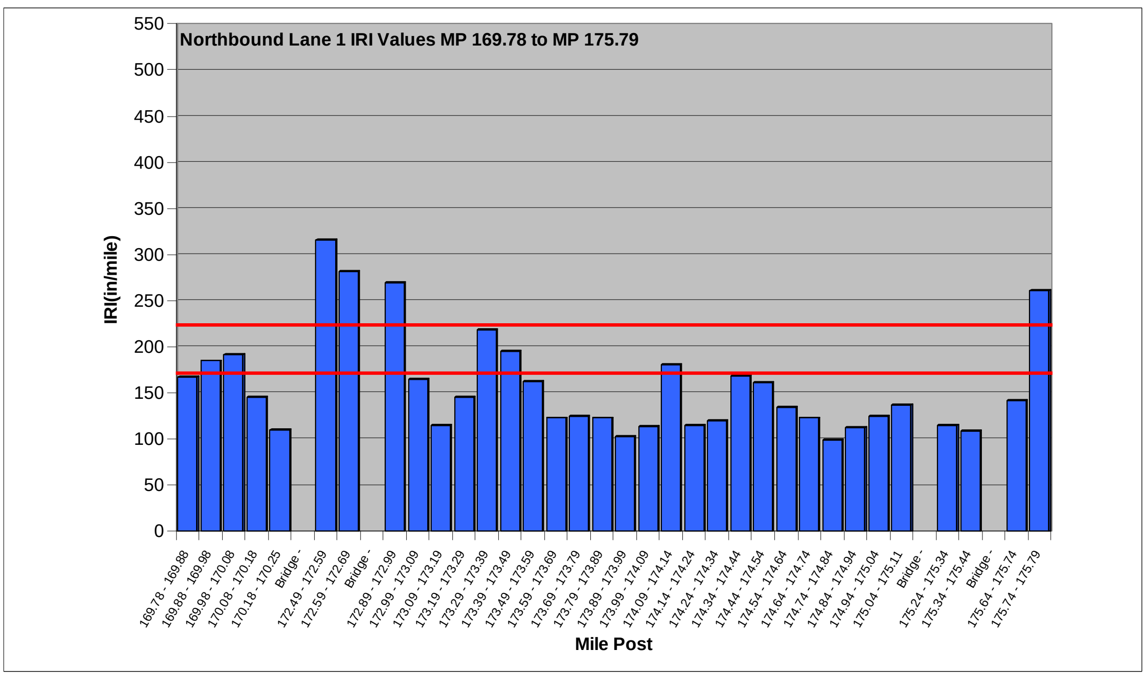




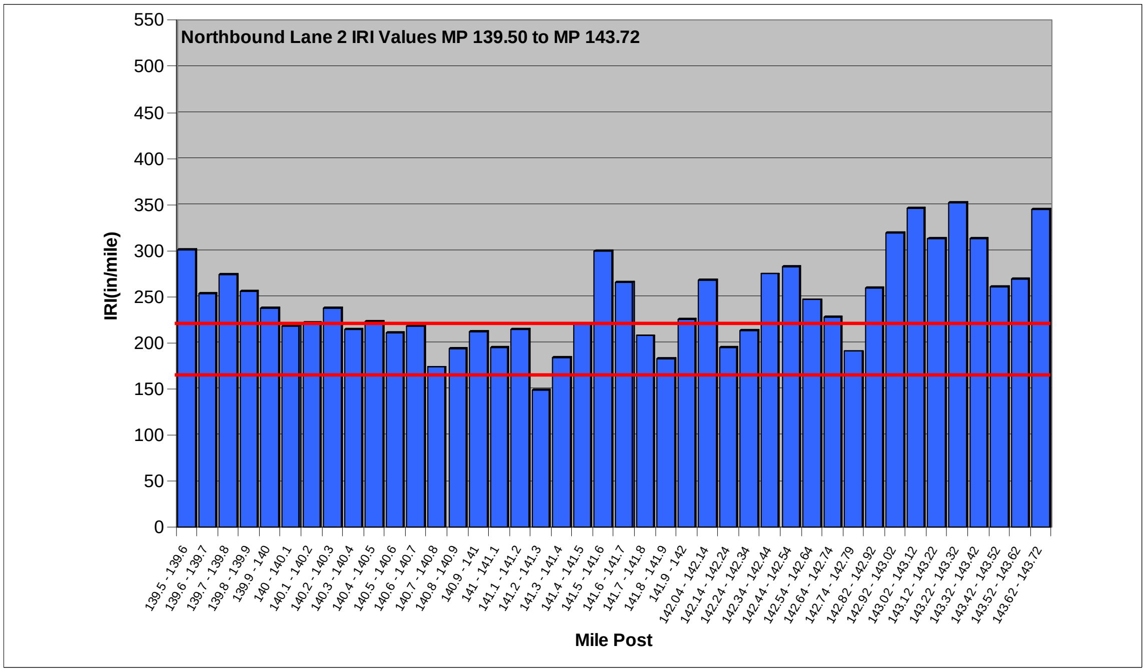

Northbound Lane 1 IRI Values MP 148.17 to MP 152.13
IRI(in/mile)
550
500
450
400
350
300
250
200
150
100
50
0
148.17 - 148.27
148.27 - 148.37
148.37 - 148.47
148.47 - 148.57
148.57 - 148.67
148.67 - 148.77
148.77 - 148.87
148.87 - 148.97
148.97 - 149.07
Bridge -
149.22 - 149.32
149.32 - 149.42
149.42 - 149.52
149.52 - 149.62
149.62 - 149.72
149.72 - 149.82
149.82 - 149.92
149.92 - 150.02
150.02 - 150.12
150.12 - 150.22
150.22 - 150.32
150.32 - 150.42
150.42 - 150.52
150.52 - 150.62
150.62 - 150.72
150.72 - 150.82
150.82 - 150.92
150.92 - 151.02
151.02 - 151.12
151.12 - 151.22
151.22 - 151.23
151.23 - 151.33
151.33 - 151.43
151.43 - 151.53
151.53 - 151.63
151.63 - 151.73
151.73 - 151.83
151.83 - 151.93
151.93 - 152.03
152.03 - 152.13
Mile Post

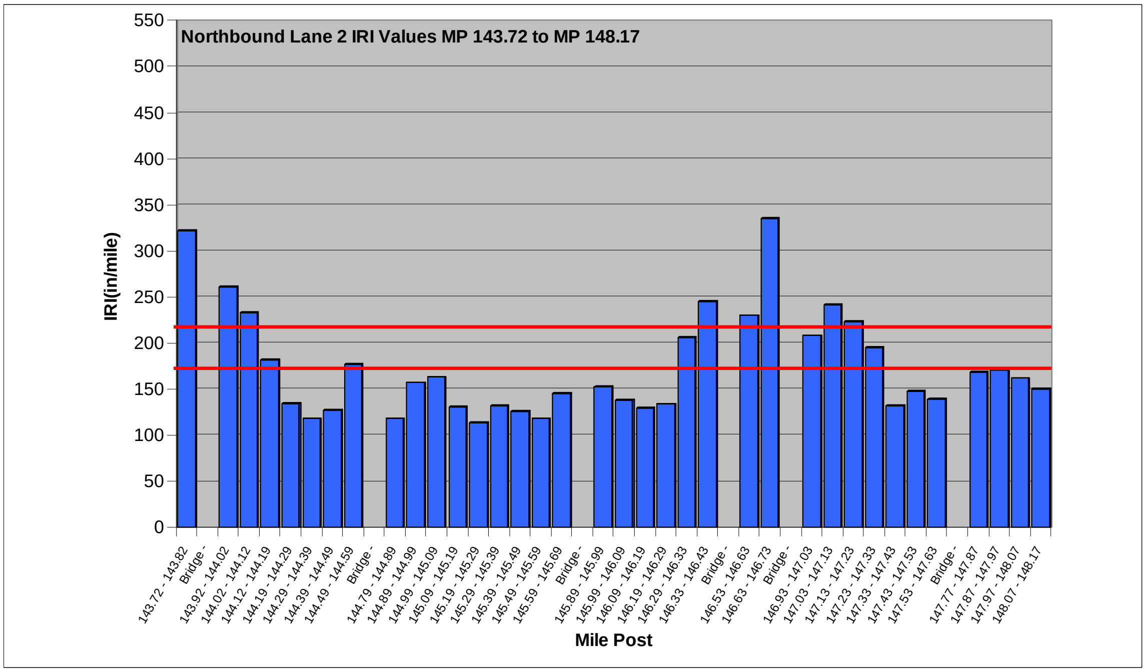

Northbound Lane 1 IRI Values MP 152.13 to MP 160.41
IRI(in/mile)
550
500
450
400
350
300
250
200
150
100
50
0
152.13 - 152.23
Bridge -
152.39 - 152.49
152.49 - 152.59
152.59 - 152.69
152.69 - 152.79
152.79 - 152.89
152.89 - 152.99
152.99 - 153.09
153.09 - 153.19
153.19 - 153.2
153.2 - 153.3
153.3 - 153.4
153.4 - 153.5
153.5 - 153.6
Bridge -
153.8 - 153.9
153.9 - 154
154 - 154.1
154.1 - 154.14
Diamond Ground -
158.51 - 158.61
158.61 - 158.71
158.71 - 158.81
158.81 - 158.91
158.91 - 159.01
159.01 - 159.1
159.1 - 159.2
159.2 - 159.3
159.3 - 159.4
159.4 - 159.5
159.5 - 159.6
Bridge -
159.71 - 159.81
159.81 - 159.91
159.91 - 160.01
160.01 - 160.11
160.11 - 160.21
160.21 - 160.31
160.31 - 160.41
Mile Post

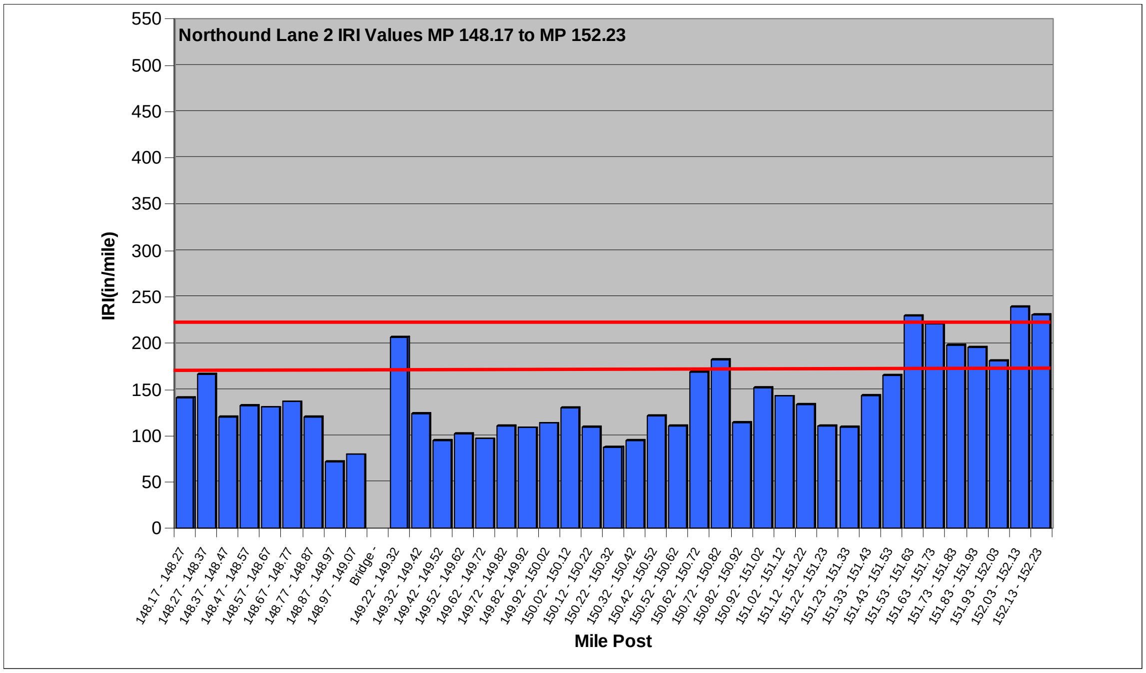

Northbound Lane 1 IRI Values MP 160.41 to MP 169.78
IRI(in/mile)
Mile Post

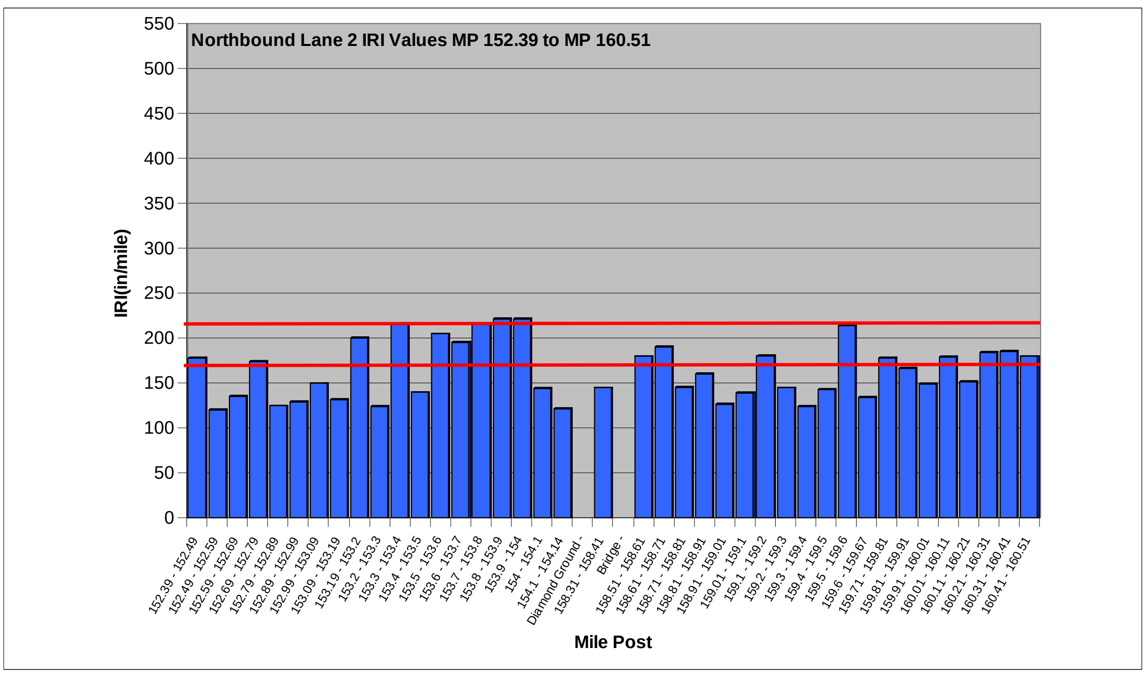

Northbound Lane 1 IRI Values MP 169.78 to MP 175.79
IRI(in/mile)
Mile Post

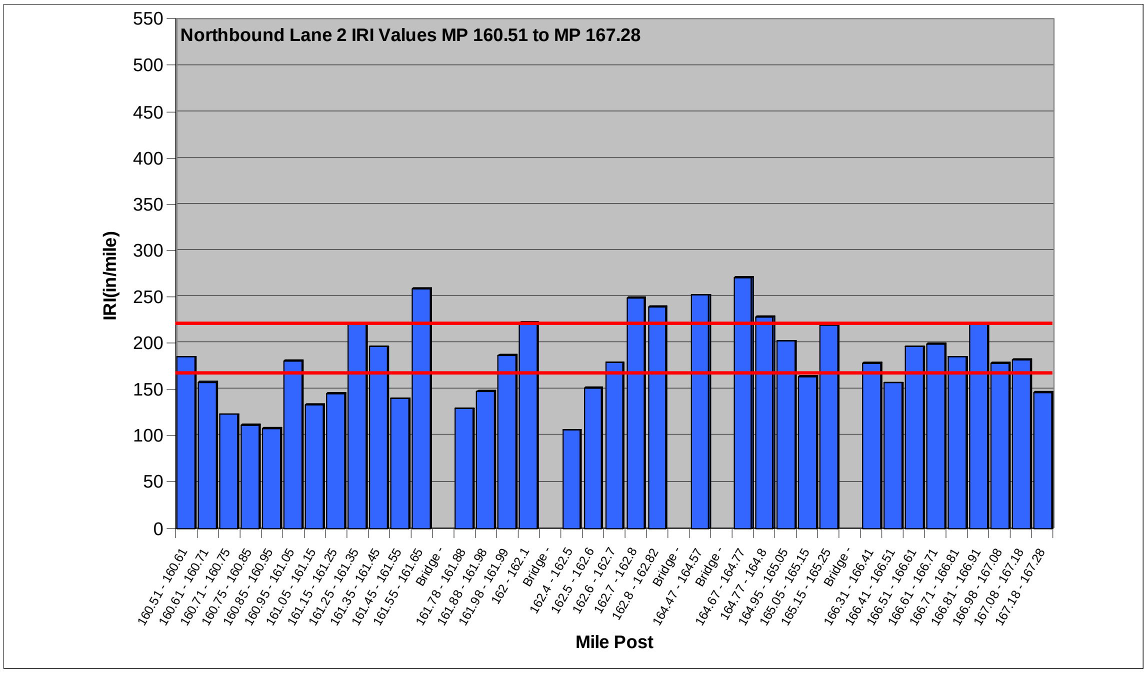
Northbound Lane 2 IRI Value Plots

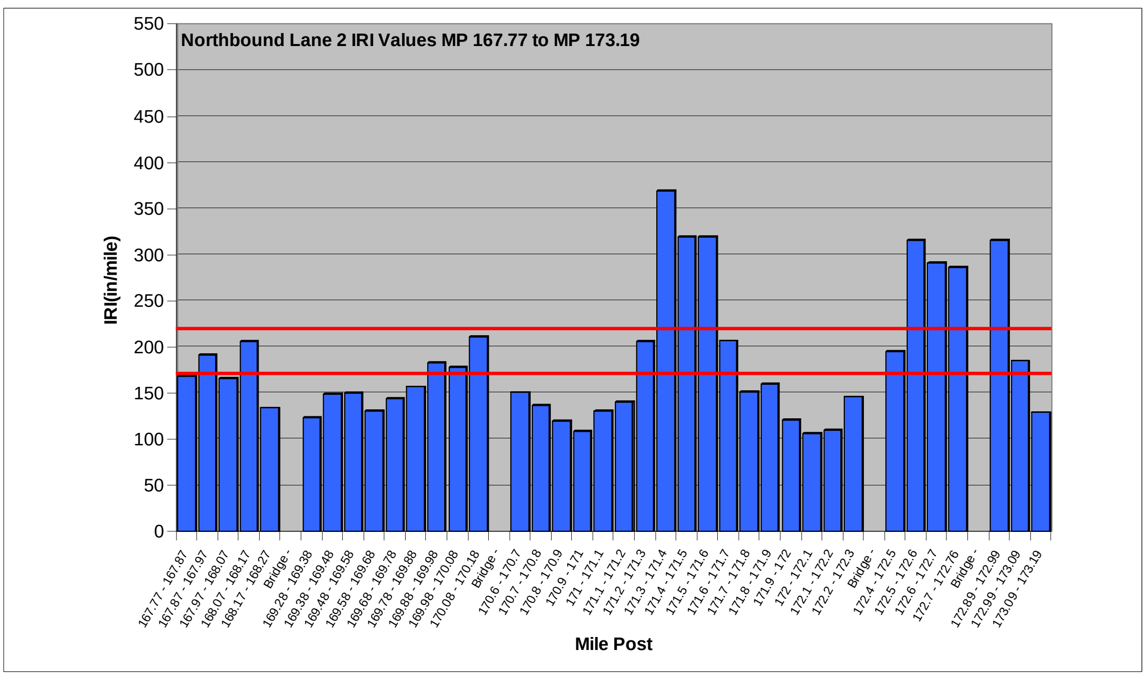


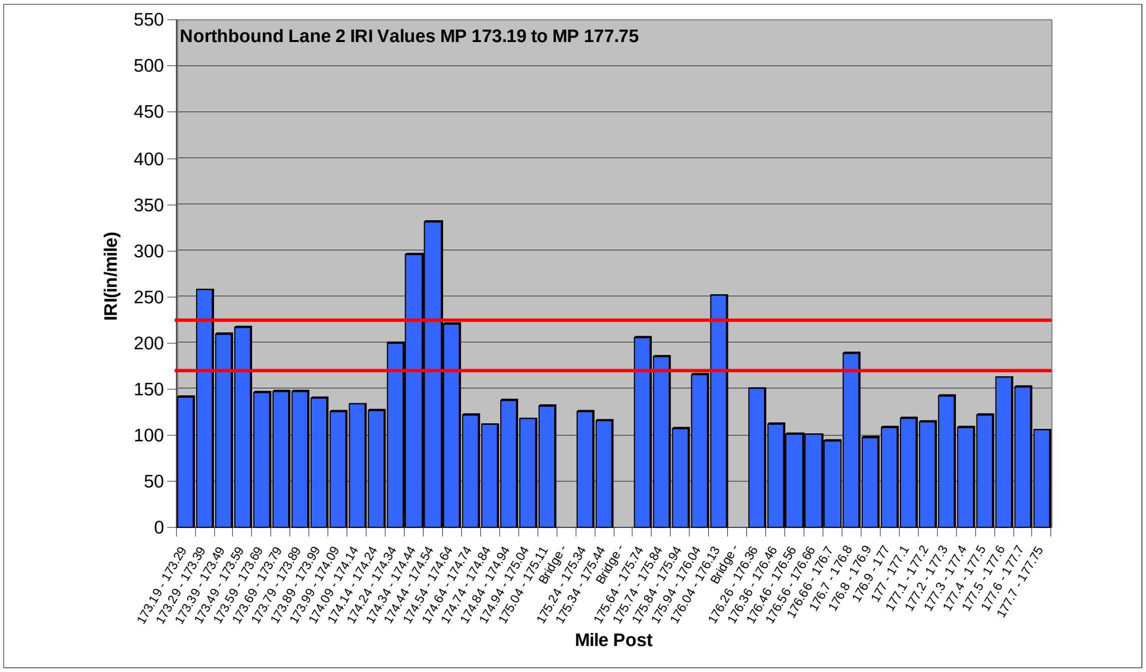



Northound Lane 2 IRI Values MP 148.17 to MP 152.23
IRI(in/mile)
Mile Post

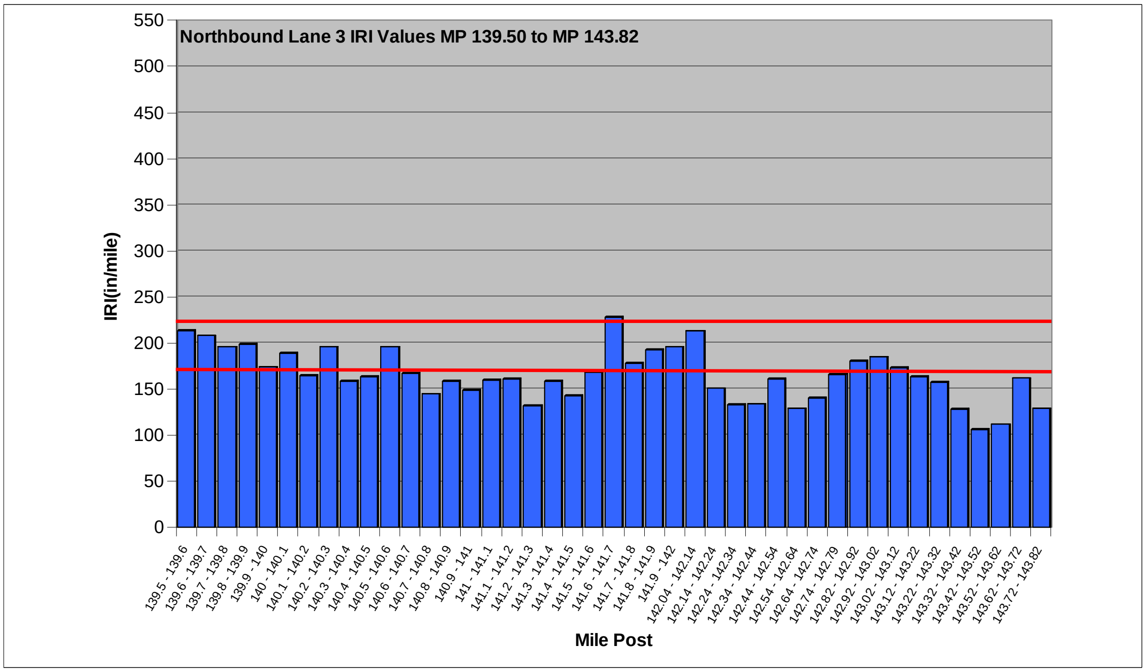

Northbound Lane 2 IRI Values MP 152.39 to MP 160.51
IRI(in/mile)
Mile Post

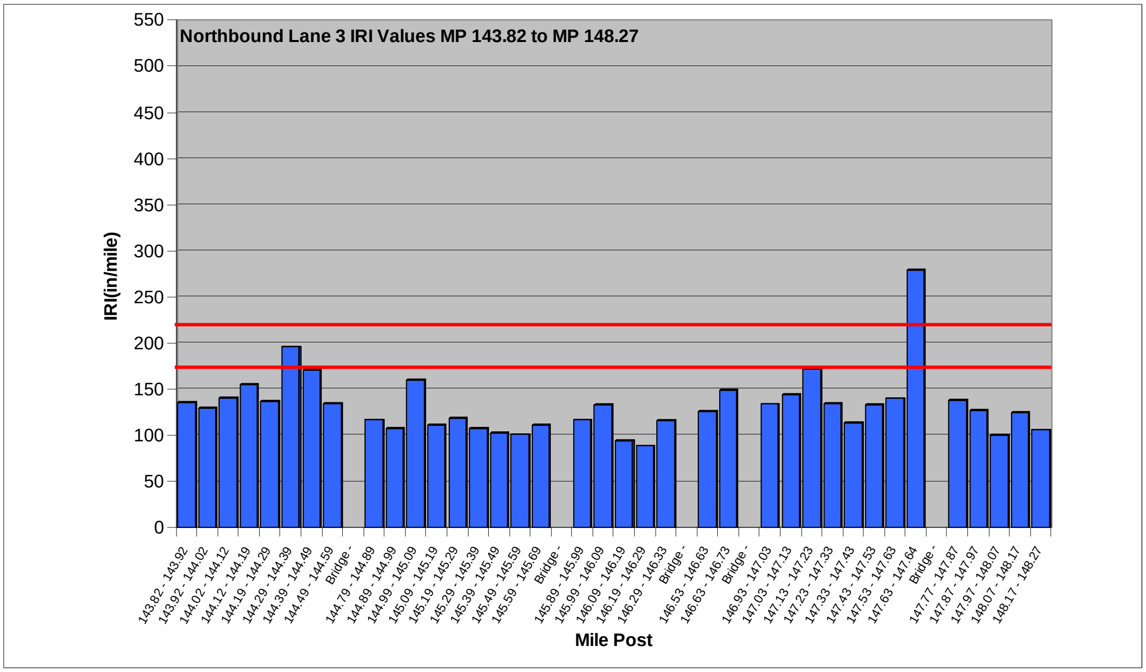

Northbound Lane 2 IRI Values MP 160.51 to MP 167.28
IRI(in/mile)
Mile Post

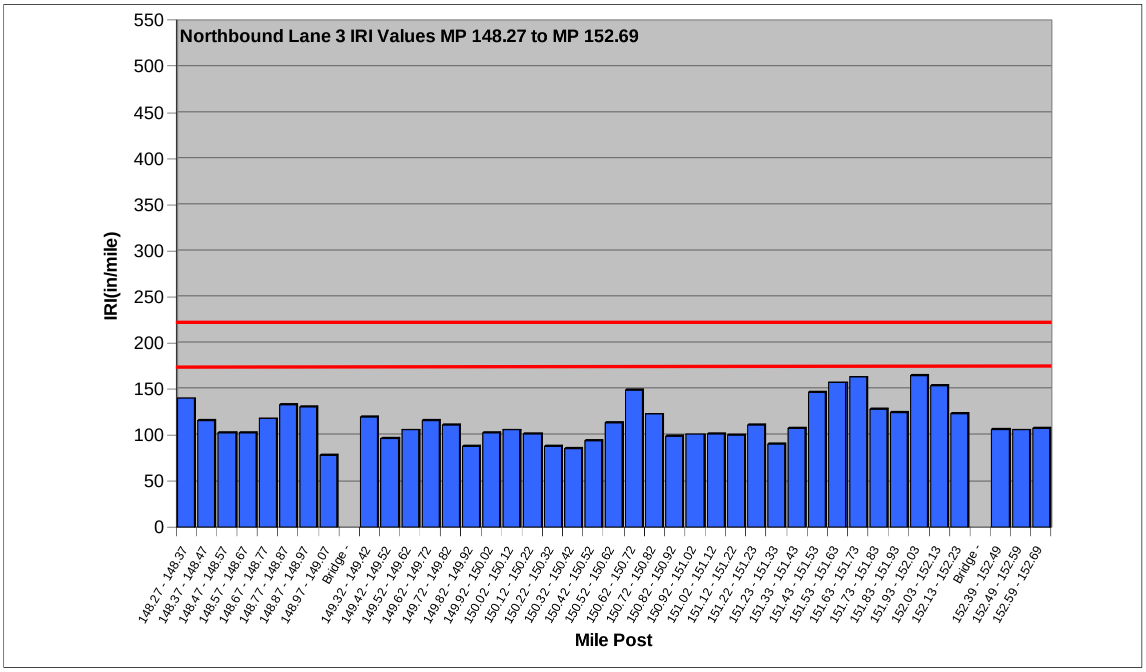

Northbound Lane 2 IRI Values MP 167.77 to MP 173.19
IRI(in/mile)
Mile Post

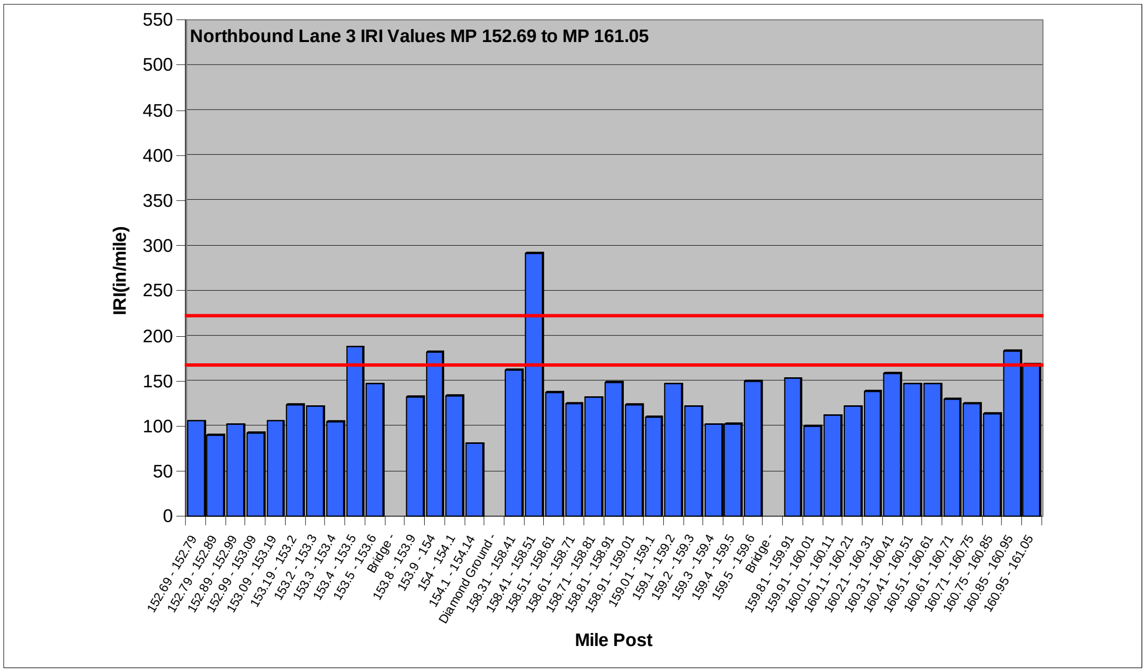


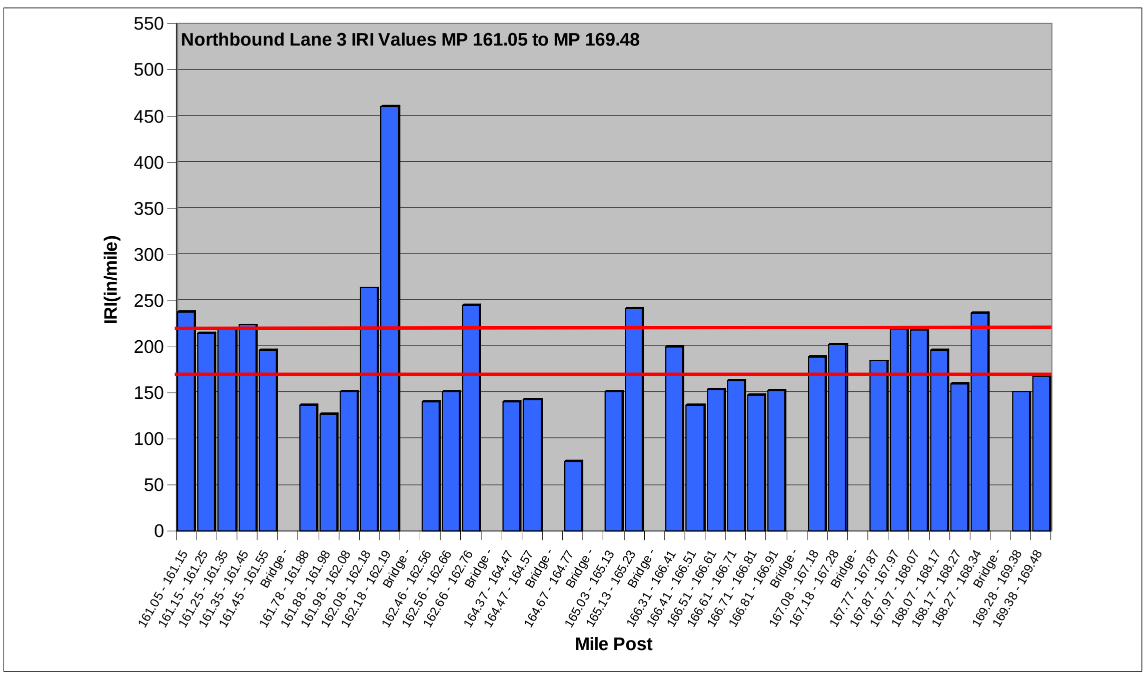
Northbound Lane 3 IRI Value Plots

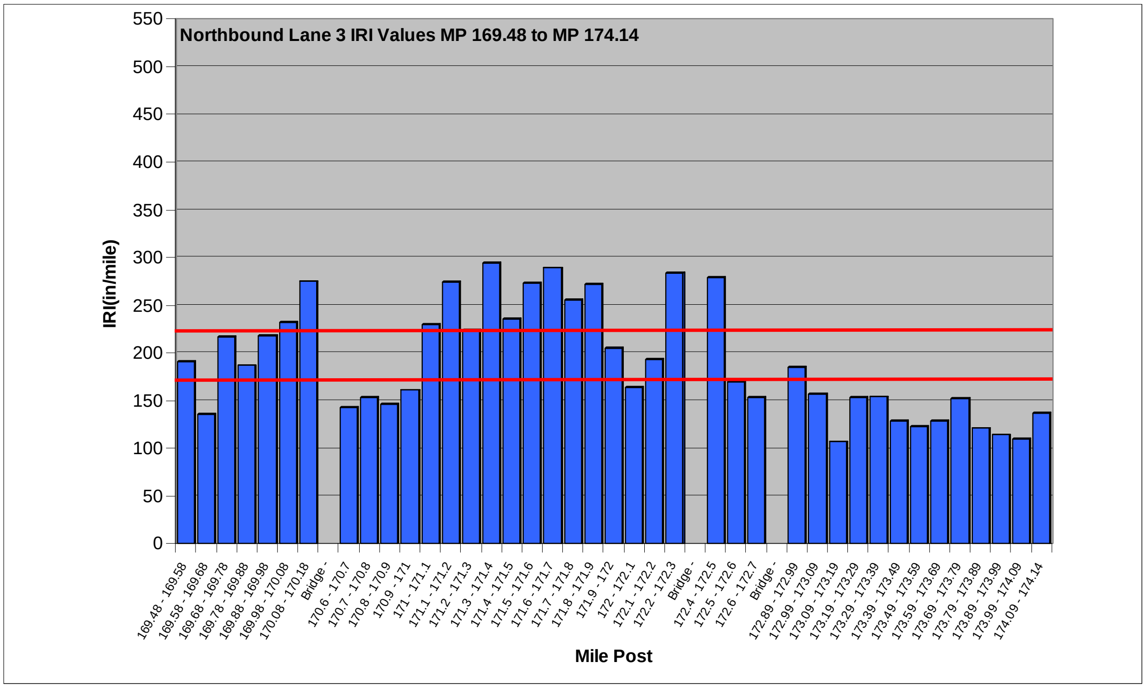


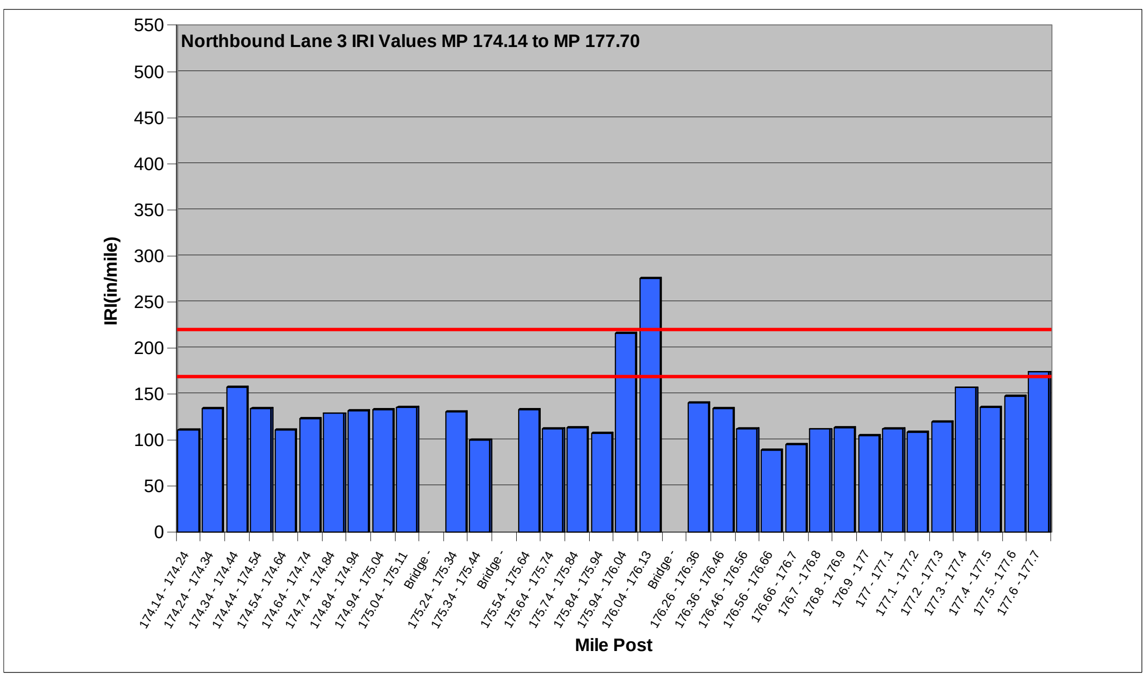

Northbound Lane 3 IRI Values MP 143.82 to MP 148.27
IRI(in/mile)
Mile Post


Northbound Lane 3 IRI Values MP 148.27 to MP 152.69
IRI(in/mile)
Mile Post

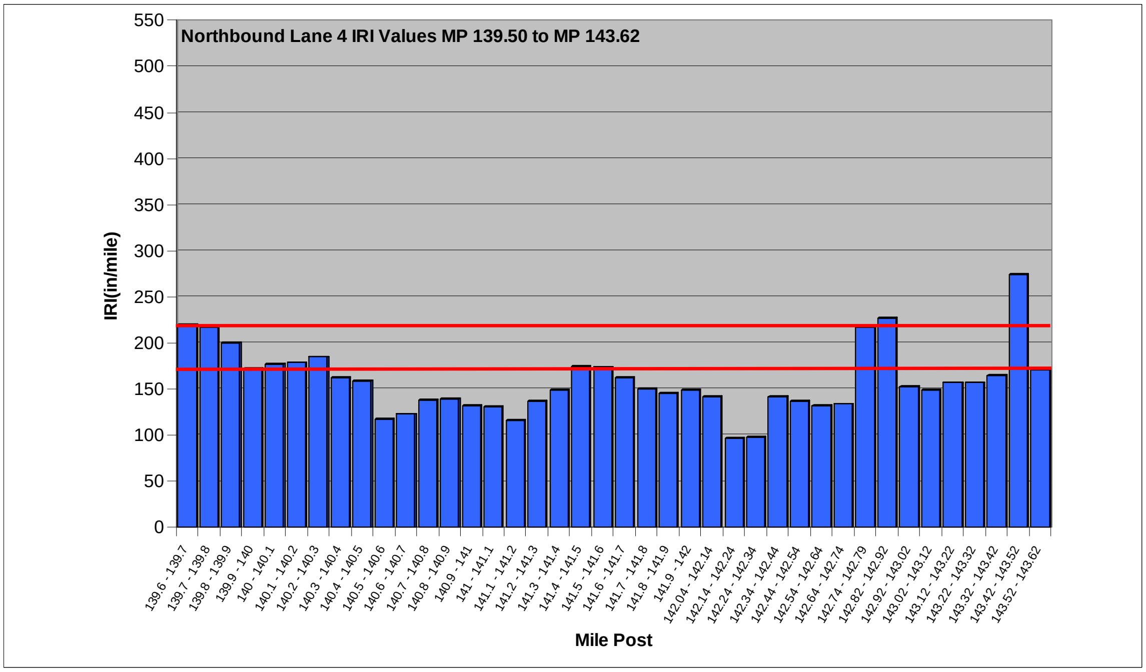

Northbound Lane 3 IRI Values MP 152.69 to MP 161.05
IRI(in/mile)
Mile Post
0
50
100
150
200
250
300
350
400
450
500
550
152.69 - 152.79
152.79 - 152.89
152.89 - 152.99
152.99 - 153.09
153.09 - 153.19
153.19 - 153.2
153.2 - 153.3
153.3 - 153.4
153.4 - 153.5
153.5 - 153.6
Bridge -
153.8 - 153.9
153.9 - 154
154 - 154.1
154.1 - 154.14
Diamond Ground -
158.31 - 158.41
158.41 - 158.51
158.51 - 158.61
158.61 - 158.71
158.71 - 158.81
158.81 - 158.91
158.91 - 159.01
159.01 - 159.1
159.1 - 159.2
159.2 - 159.3
159.3 - 159.4
159.4 - 159.5
159.5 - 159.6
Bridge -
159.81 - 159.91
159.91 - 160.01
160.01 - 160.11
160.11 - 160.21
160.21 - 160.31
160.31 - 160.41
160.41 - 160.51
160.51 - 160.61
160.61 - 160.71
160.71 - 160.75
160.75 - 160.85
160.85 - 160.95
160.95 - 161.05

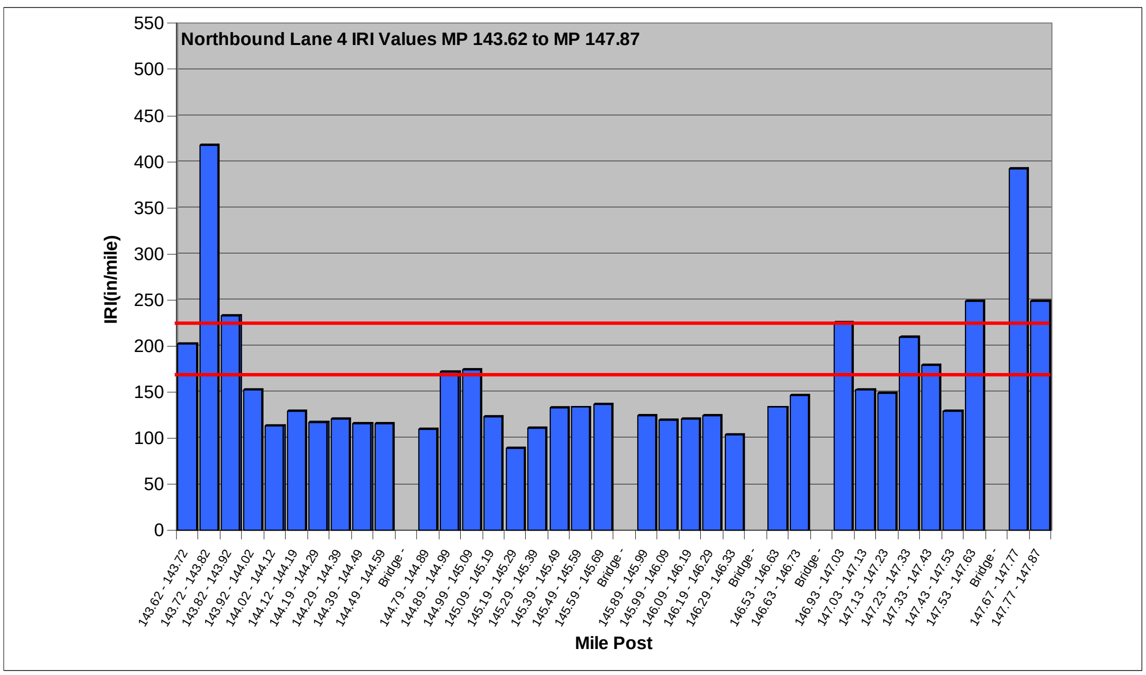

Northbound Lane 3 IRI Values MP 161.05 to MP 169.48
IRI(in/mile)
Mile Post
0
50
100
150
200
250
300
350
400
450
500
550
161.05 - 161.15
161.15 - 161.25
161.25 - 161.35
161.35 - 161.45
161.45 - 161.55
Bridge -
161.78 - 161.88
161.88 - 161.98
161.98 - 162.08
162.08 - 162.18
162.18 - 162.19
Bridge -
162.46 - 162.56
162.56 - 162.66
162.66 - 162.76
Bridge -
164.37 - 164.47
164.47 - 164.57
Bridge -
164.67 - 164.77
Bridge -
165.03 - 165.13
165.13 - 165.23
Bridge -
166.31 - 166.41
166.41 - 166.51
166.51 - 166.61
166.61 - 166.71
166.71 - 166.81
166.81 - 166.91
Bridge -
167.08 - 167.18
167.18 - 167.28
Bridge -
167.77 - 167.87
167.87 - 167.97
167.97 - 168.07
168.07 - 168.17
168.17 - 168.27
168.27 - 168.34
Bridge -
169.28 - 169.38
169.38 - 169.48

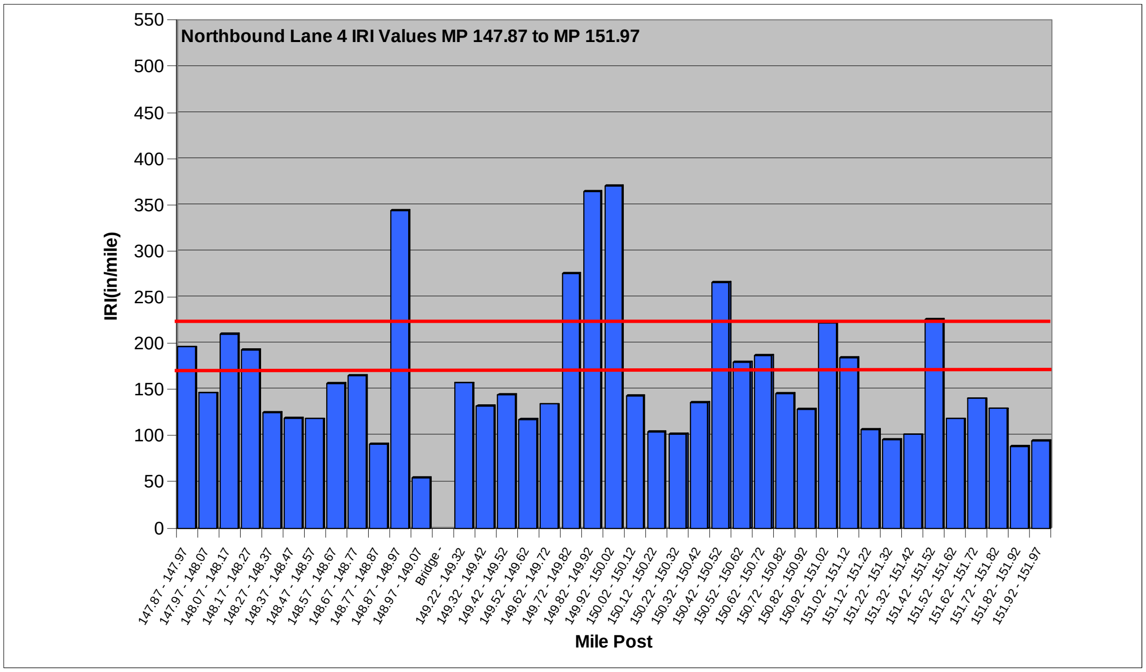

Northbound Lane 3 IRI Values MP 169.48 to MP 174.14
IRI(in/mile)
Mile Post
0
50
100
150
200
250
300
350
400
450
500
550
169.48 - 169.58
169.58 - 169.68
169.68 - 169.78
169.78 - 169.88
169.88 - 169.98
169.98 - 170.08
170.08 - 170.18
Bridge -
170.6 - 170.7
170.7 - 170.8
170.8 - 170.9
170.9 - 171
171 - 171.1
171.1 - 171.2
171.2 - 171.3
171.3 - 171.4
171.4 - 171.5
171.5 - 171.6
171.6 - 171.7
171.7 - 171.8
171.8 - 171.9
171.9 - 172
172 - 172.1
172.1 - 172.2
172.2 - 172.3
Bridge -
172.4 - 172.5
172.5 - 172.6
172.6 - 172.7
Bridge -
172.89 - 172.99
172.99 - 173.09
173.09 - 173.19
173.19 - 173.29
173.29 - 173.39
173.39 - 173.49
173.49 - 173.59
173.59 - 173.69
173.69 - 173.79
173.79 - 173.89
173.89 - 173.99
173.99 - 174.09
174.09 - 174.14

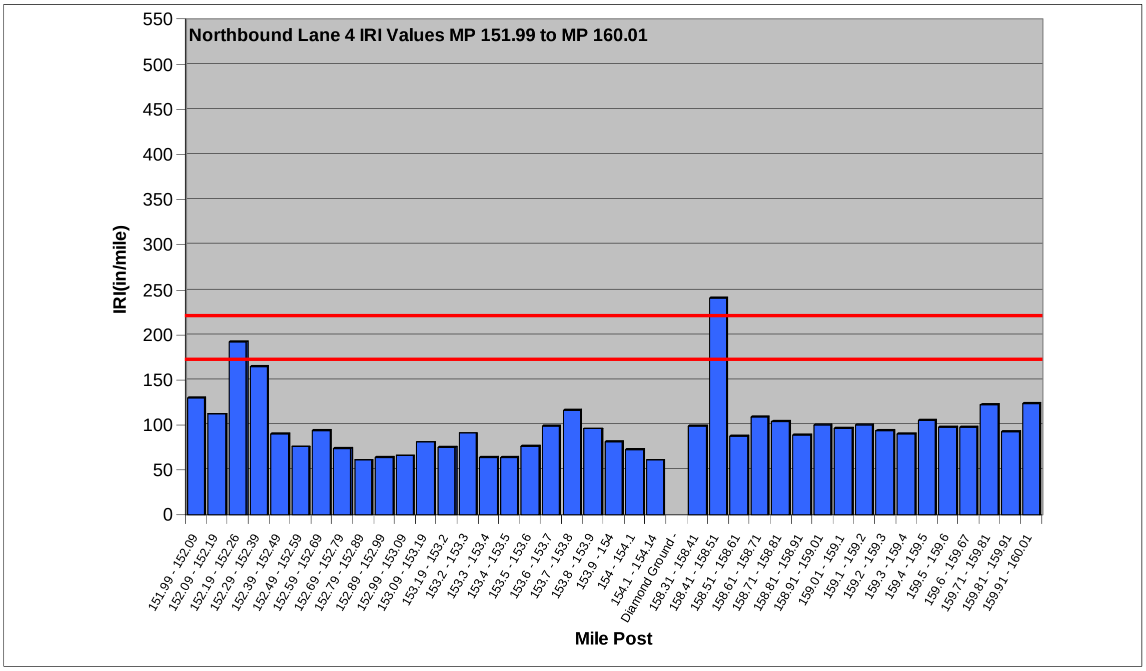

Northbound Lane 3 IRI Values MP 174.14 to MP 177.70
IRI(in/mile)
Mile Post
0
50
100
150
200
250
300
350
400
450
500
550
174.14 - 174.24
174.24 - 174.34
174.34 - 174.44
174.44 - 174.54
174.54 - 174.64
174.64 - 174.74
174.74 - 174.84
174.84 - 174.94
174.94 - 175.04
175.04 - 175.11
Bridge -
175.24 - 175.34
175.34 - 175.44
Bridge -
175.54 - 175.64
175.64 - 175.74
175.74 - 175.84
175.84 - 175.94
175.94 - 176.04
176.04 - 176.13
Bridge -
176.26 - 176.36
176.36 - 176.46
176.46 - 176.56
176.56 - 176.66
176.66 - 176.7
176.7 - 176.8
176.8 - 176.9
176.9 - 177
177 - 177.1
177.1 - 177.2
177.2 - 177.3
177.3 - 177.4
177.4 - 177.5
177.5 - 177.6
177.6 - 177.7

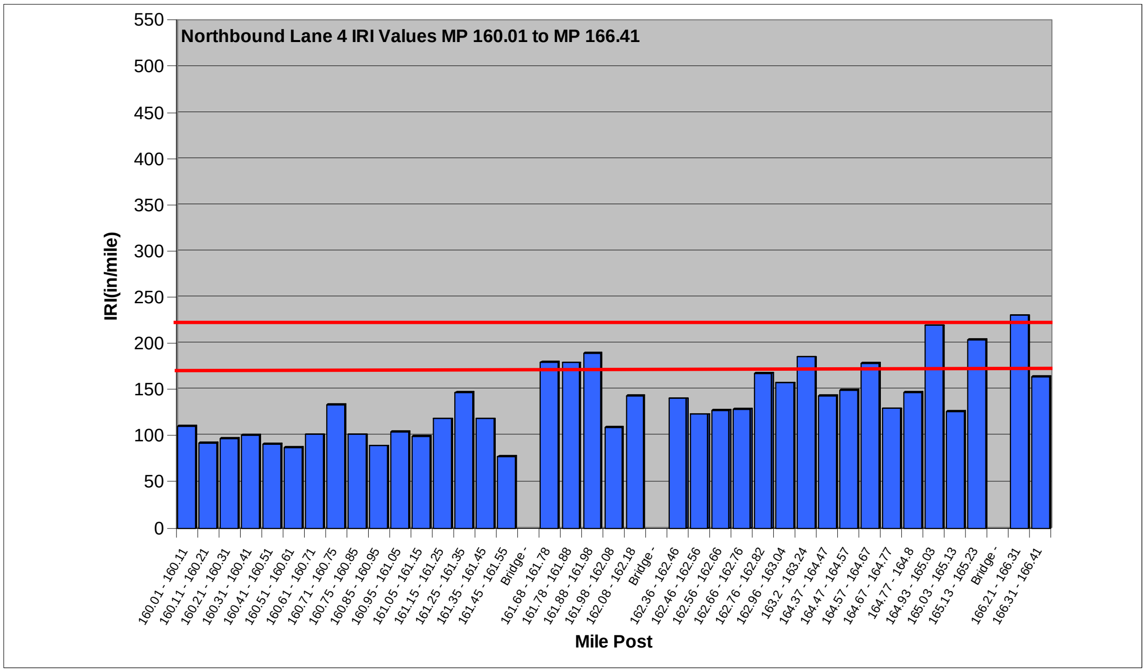
<u>Northbound Lane 4 IRI Value Plots</u>

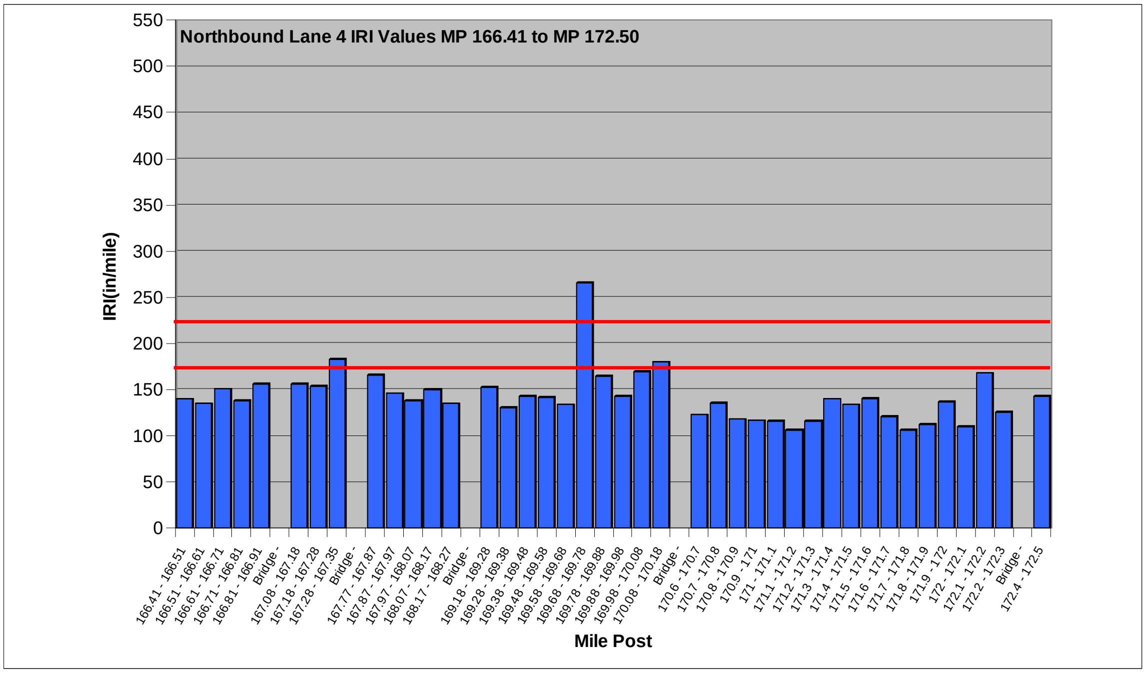


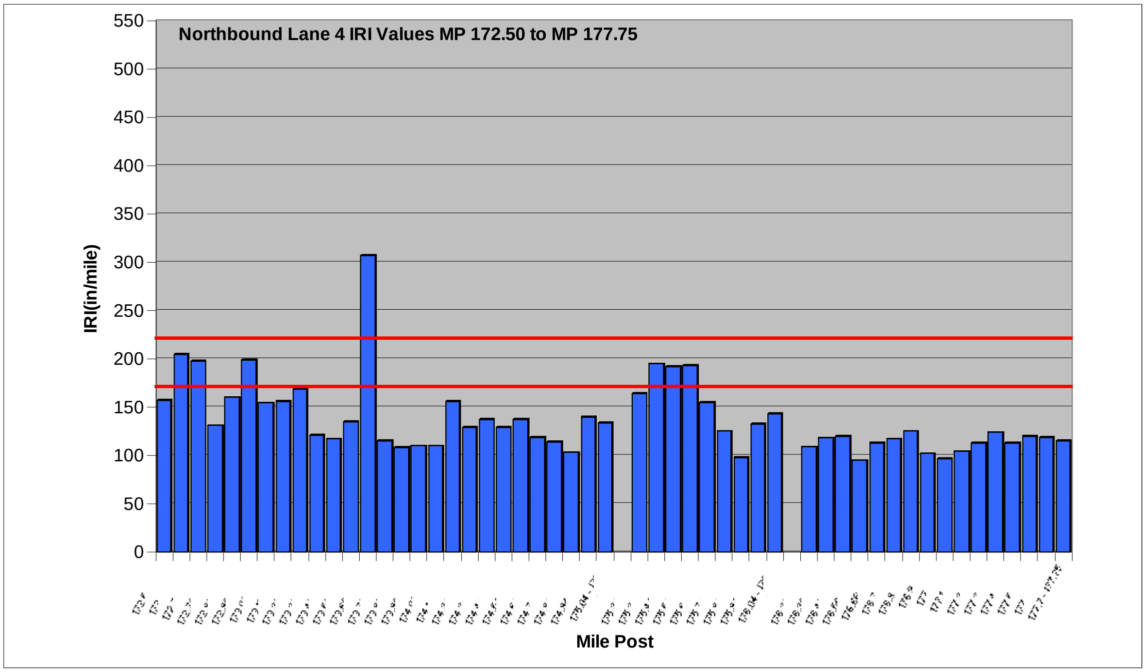



Northbound Lane 4 IRI Values MP 147.87 to MP 151.97
IRI(in/mile)
Mile Post
0
50
100
150
200
250
300
350
400
450
500
550

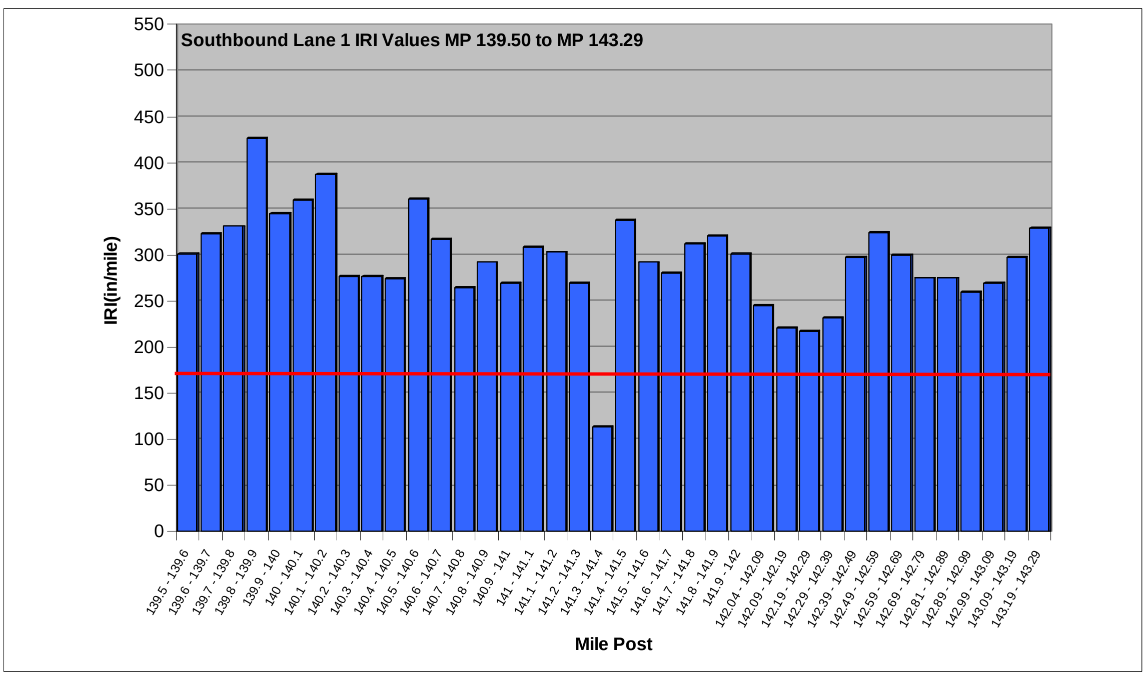

Northbound Lane 4 IRI Values MP 151.99 to MP 160.01
IRI(in/mile)
Mile Post
0
50
100
150
200
250
300
350
400
450
500
550

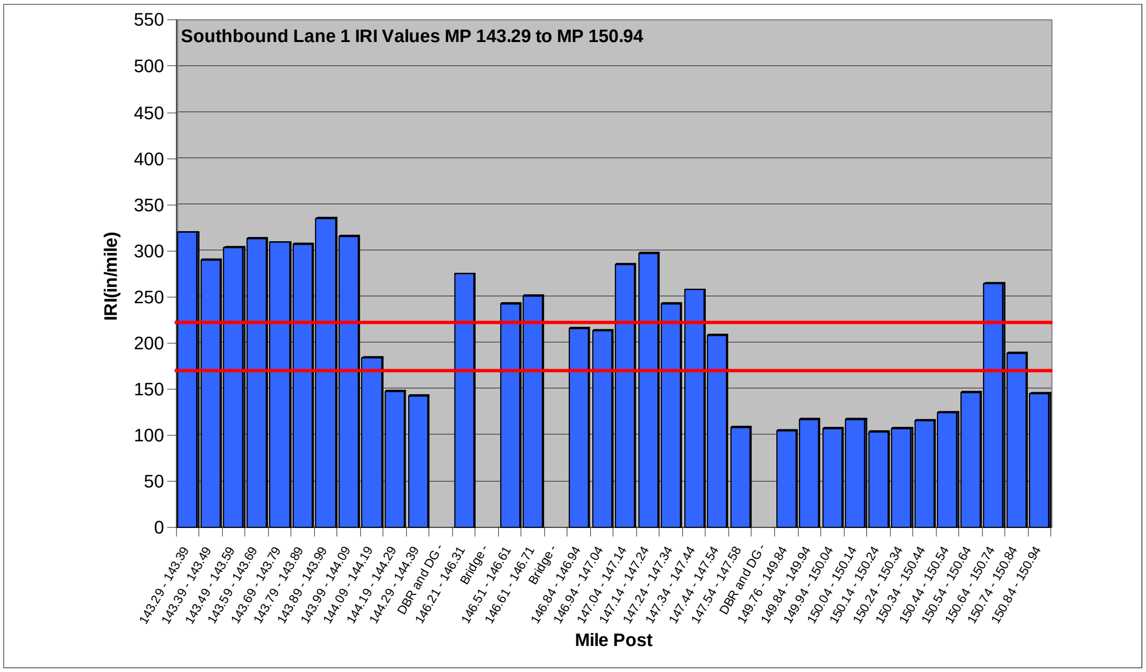

Northbound Lane 4 IRI Values MP 160.01 to MP 166.41
IRI(in/mile)
Mile Post

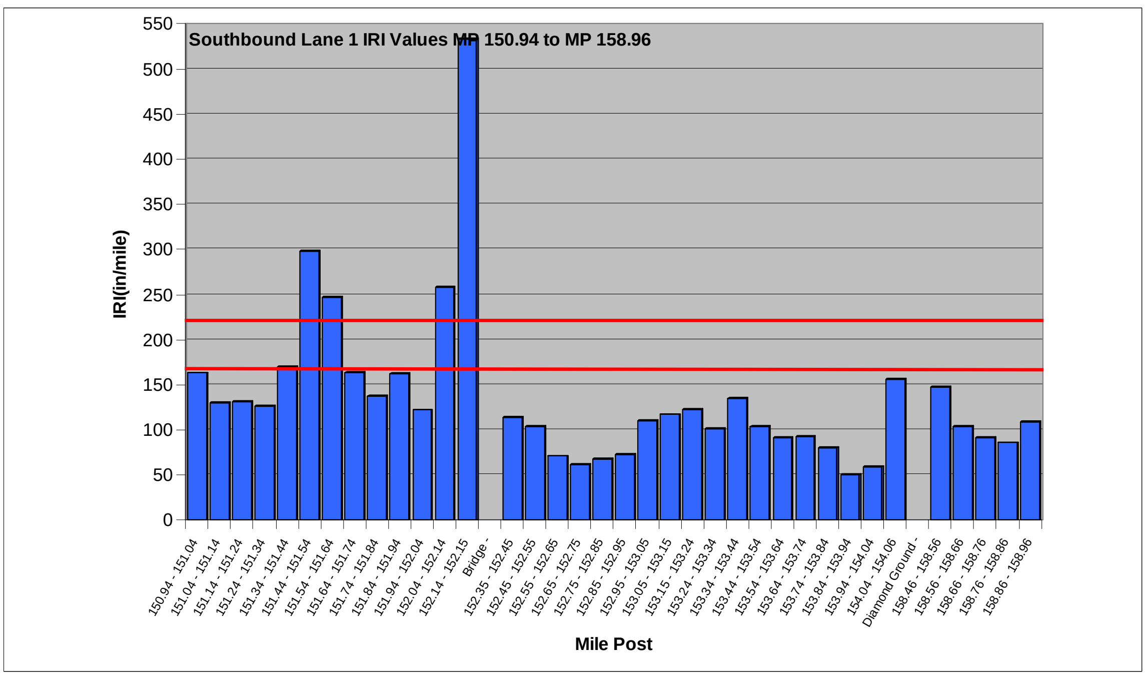

Northbound Lane 4 IRI Values MP 166.41 to MP 172.50
IRI(in/mile)
Mile Post

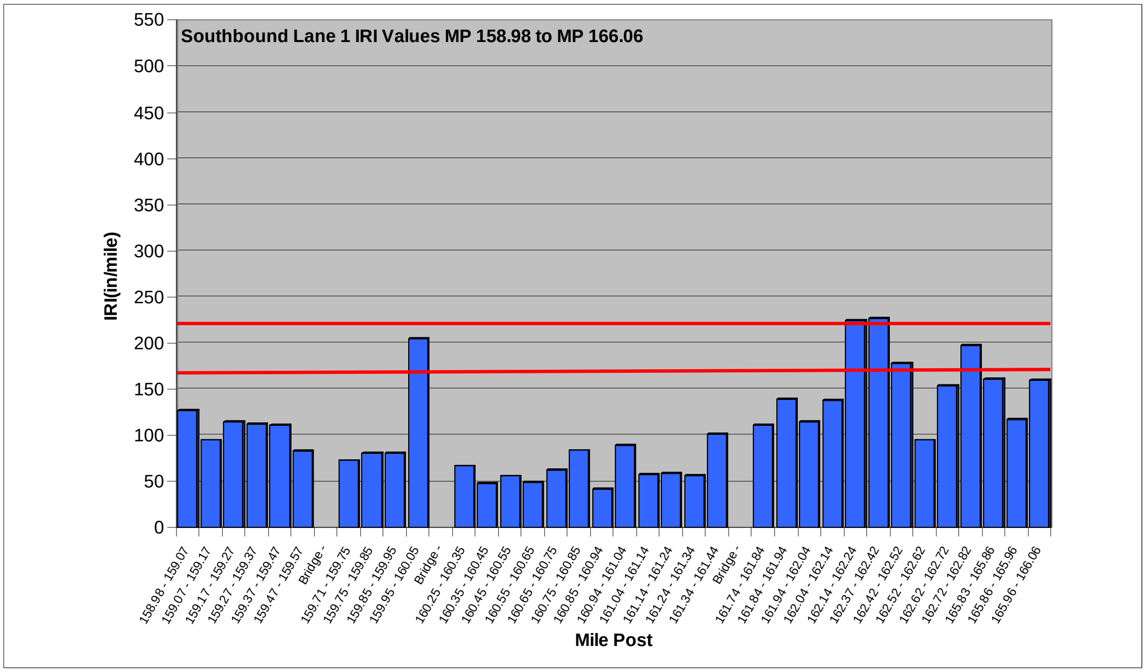


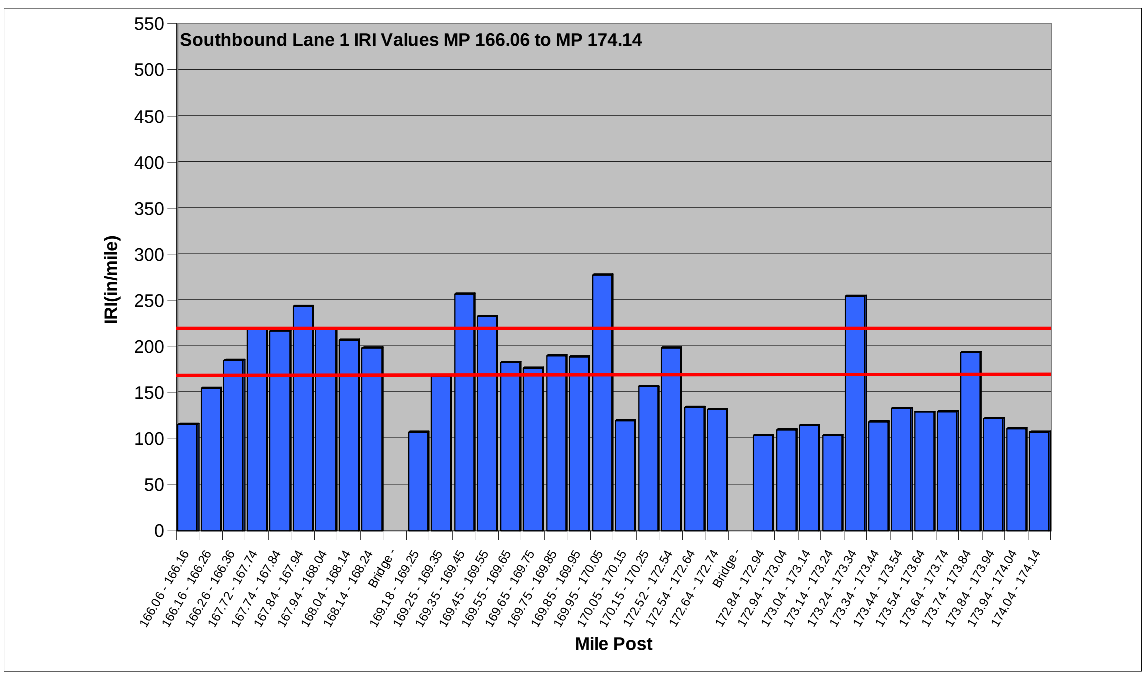
Southbound Lane 1 IRI Value Plots



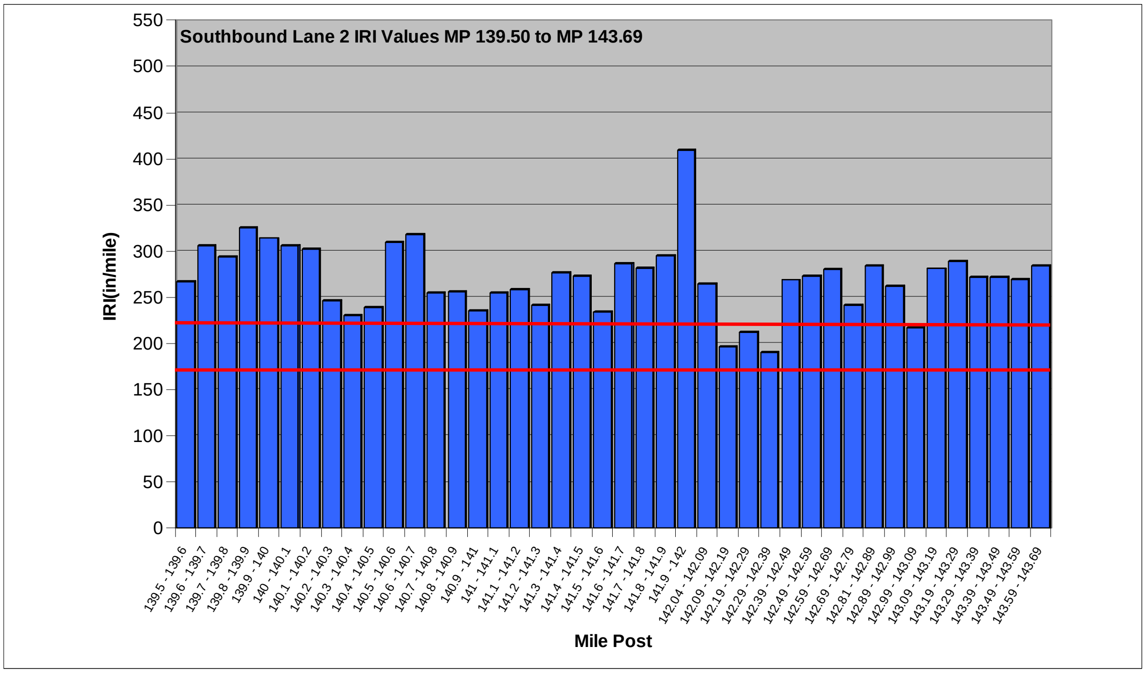

Southbound Lane 1 IRI Values MP 143.29 to MP 150.94
IRI(in/mile)
550
500
450
400
350
300
250
200
150
100
50
0
143.29 - 143.39
143.39 - 143.49
143.49 - 143.59
143.59 - 143.69
143.69 - 143.79
143.79 - 143.89
143.89 - 143.99
143.99 - 144.09
144.09 - 144.19
144.19 - 144.29
144.29 - 144.39
DBR and DG -
146.21 - 146.31
Bridge -
146.51 - 146.61
146.61 - 146.71
Bridge -
146.84 - 146.94
146.94 - 147.04
147.04 - 147.14
147.14 - 147.24
147.24 - 147.34
147.34 - 147.44
147.44 - 147.54
147.54 - 147.58
DBR and DG -
149.76 - 149.84
149.84 - 149.94
149.94 - 150.04
150.04 - 150.14
150.14 - 150.24
150.24 - 150.34
150.34 - 150.44
150.44 - 150.54
150.54 - 150.64
150.64 - 150.74
150.74 - 150.84
150.84 - 150.94
Mile Post

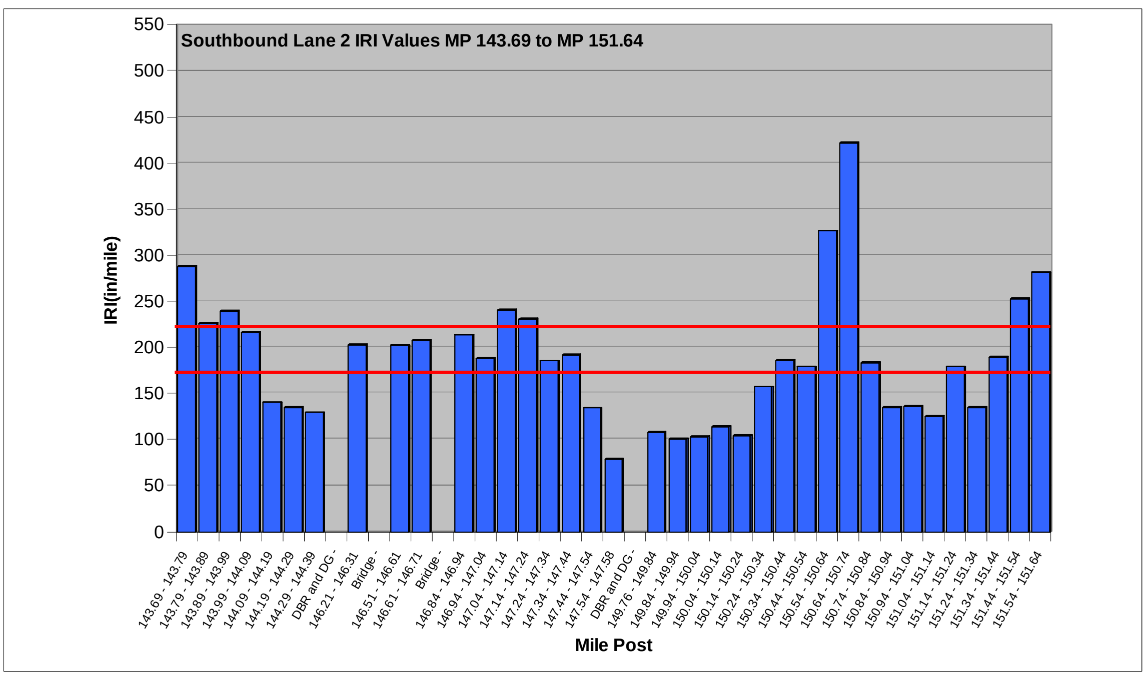

Southbound Lane 1 IRI Values MP 150.94 to MP 158.96
IRI(in/mile)
550
500
450
400
350
300
250
200
150
100
50
0
150.94 - 151.04
151.04 - 151.14
151.14 - 151.24
151.24 - 151.34
151.34 - 151.44
151.44 - 151.54
151.54 - 151.64
151.64 - 151.74
151.74 - 151.84
151.84 - 151.94
151.94 - 152.04
152.04 - 152.14
152.14 - 152.15
Bridge -
152.35 - 152.45
152.45 - 152.55
152.55 - 152.65
152.65 - 152.75
152.75 - 152.85
152.85 - 152.95
152.95 - 153.05
153.05 - 153.15
153.15 - 153.24
153.24 - 153.34
153.34 - 153.44
153.44 - 153.54
153.54 - 153.64
153.64 - 153.74
153.74 - 153.84
153.84 - 153.94
153.94 - 154.04
154.04 - 154.06
Diamond Ground -
158.46 - 158.56
158.56 - 158.66
158.66 - 158.76
158.76 - 158.86
158.86 - 158.96
Mile Post

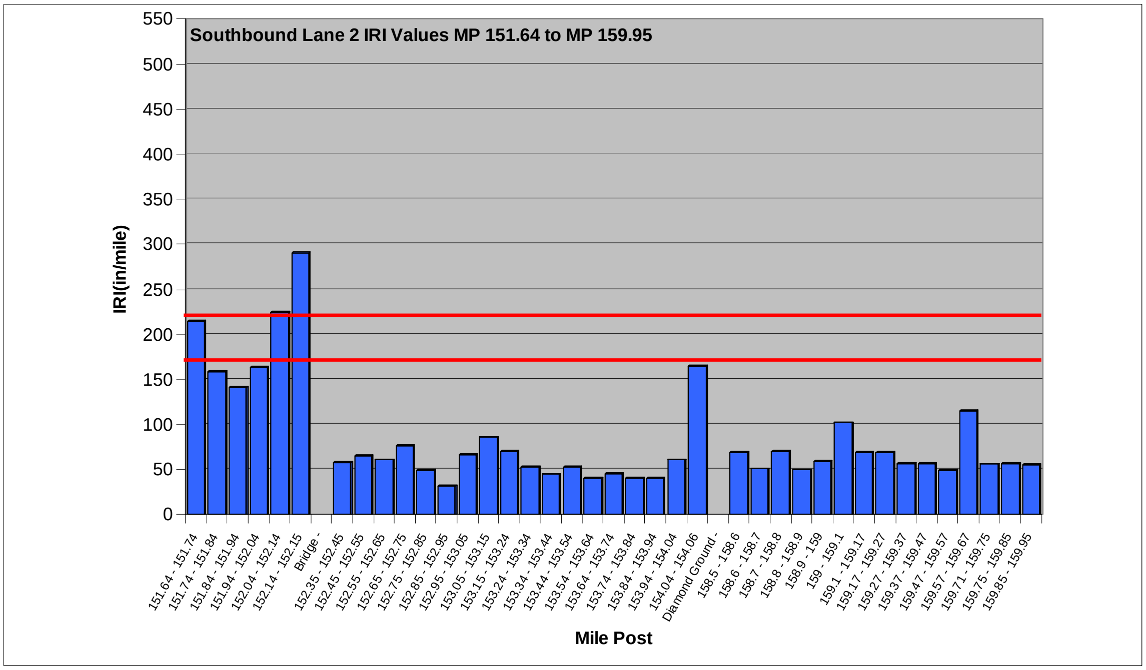

Southbound Lane 1 IRI Values MP 158.98 to MP 166.06
IRI(in/mile)
550
500
450
400
350
300
250
200
150
100
50
0
158.98 - 159.07
159.07 - 159.17
159.17 - 159.27
159.27 - 159.37
159.37 - 159.47
159.47 - 159.57
Bridge -
159.71 - 159.75
159.75 - 159.85
159.85 - 159.95
159.95 - 160.05
Bridge -
160.25 - 160.35
160.35 - 160.45
160.45 - 160.55
160.55 - 160.65
160.65 - 160.75
160.75 - 160.85
160.85 - 160.94
160.94 - 161.04
161.04 - 161.14
161.14 - 161.24
161.24 - 161.34
161.34 - 161.44
Bridge -
161.74 - 161.84
161.84 - 161.94
161.94 - 162.04
162.04 - 162.14
162.14 - 162.24
162.37 - 162.42
162.42 - 162.52
162.52 - 162.62
162.62 - 162.72
162.72 - 162.82
165.83 - 165.86
165.86 - 165.96
165.96 - 166.06
Mile Post

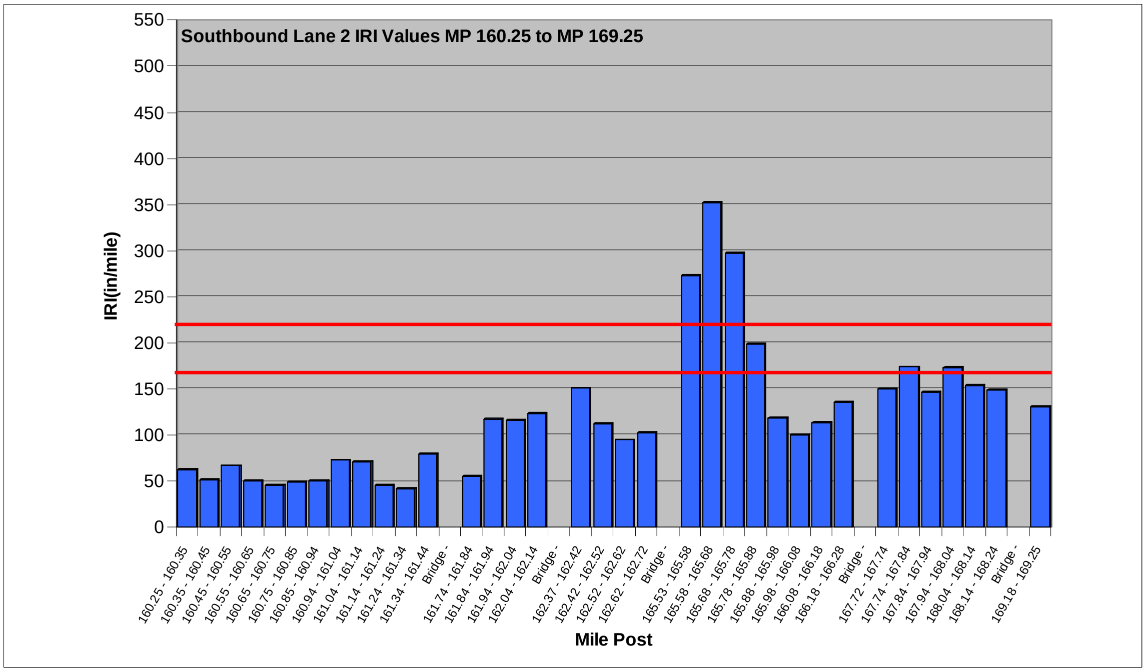

Southbound Lane 1 IRI Values MP 166.06 to MP 174.14
IRI(in/mile)
550
500
450
400
350
300
250
200
150
100
50
0
166.06 - 166.16
166.16 - 166.26
166.26 - 166.36
167.72 - 167.74
167.74 - 167.84
167.84 - 167.94
167.94 - 168.04
168.04 - 168.14
168.14 - 168.24
Bridge -
169.18 - 169.25
169.25 - 169.35
169.35 - 169.45
169.45 - 169.55
169.55 - 169.65
169.65 - 169.75
169.75 - 169.85
169.85 - 169.95
169.95 - 170.05
170.05 - 170.15
170.15 - 170.25
172.52 - 172.54
172.54 - 172.64
172.64 - 172.74
Bridge -
172.84 - 172.94
172.94 - 173.04
173.04 - 173.14
173.14 - 173.24
173.24 - 173.34
173.34 - 173.44
173.44 - 173.54
173.54 - 173.64
173.64 - 173.74
173.74 - 173.84
173.84 - 173.94
173.94 - 174.04
174.04 - 174.14
Mile Post

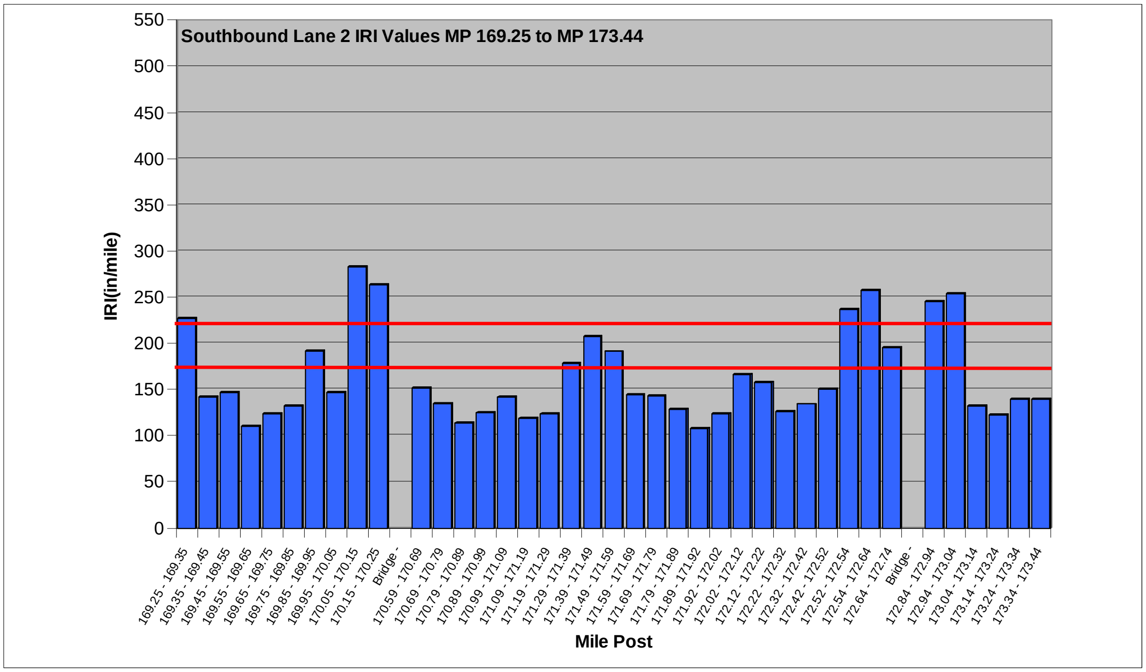
<u>Southbound Lane 2 IRI Value Plots</u>

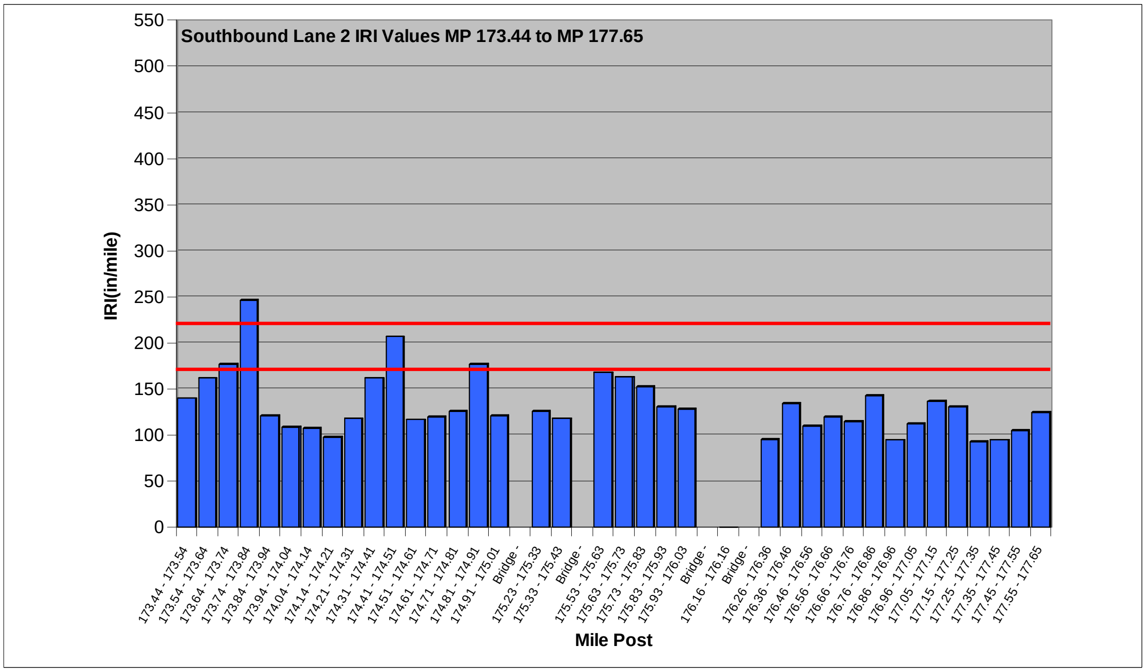




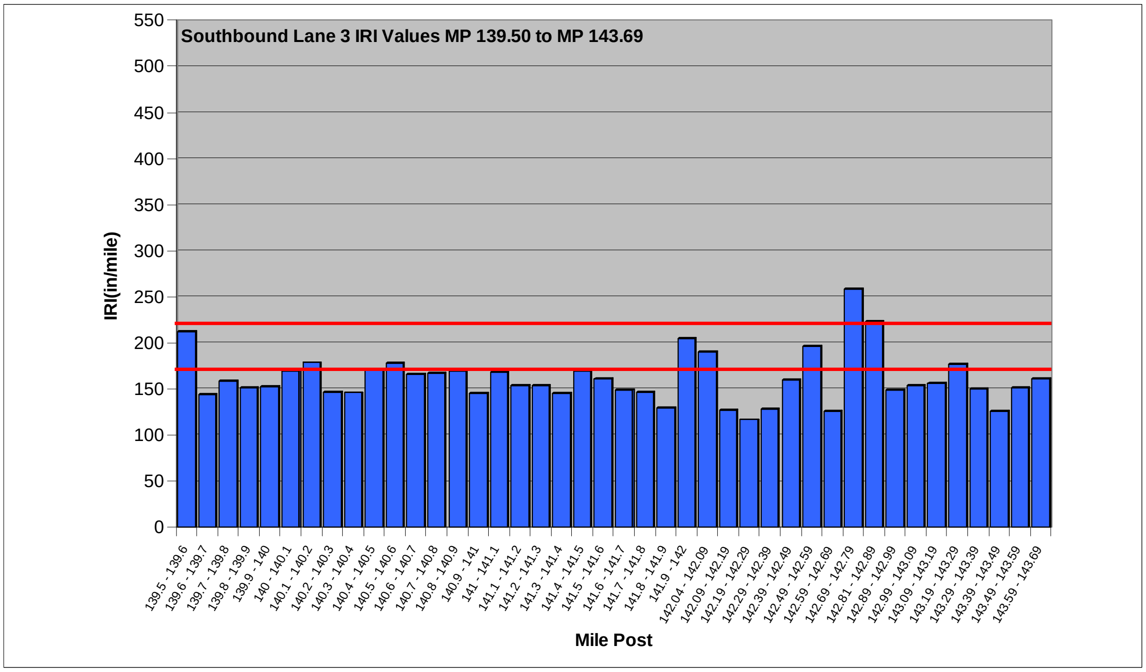

Southbound Lane 2 IRI Values MP 151.64 to MP 159.95
IRI(in/mile)
550
500
450
400
350
300
250
200
150
100
50
0
151.64 - 151.74
151.74 - 151.84
151.84 - 151.94
151.94 - 152.04
152.04 - 152.14
152.14 - 152.15
Bridge -
152.35 - 152.45
152.45 - 152.55
152.55 - 152.65
152.65 - 152.75
152.75 - 152.85
152.85 - 152.95
152.95 - 153.05
153.05 - 153.15
153.15 - 153.24
153.24 - 153.34
153.34 - 153.44
153.44 - 153.54
153.54 - 153.64
153.64 - 153.74
153.74 - 153.84
153.84 - 153.94
153.94 - 154.04
154.04 - 154.06
Diamond Ground -
158.5 - 158.6
158.6 - 158.7
158.7 - 158.8
158.8 - 158.9
158.9 - 159
159 - 159.1
159.1 - 159.17
159.17 - 159.27
159.27 - 159.37
159.37 - 159.47
159.47 - 159.57
159.57 - 159.67
159.71 - 159.75
159.75 - 159.85
159.85 - 159.95
Mile Post

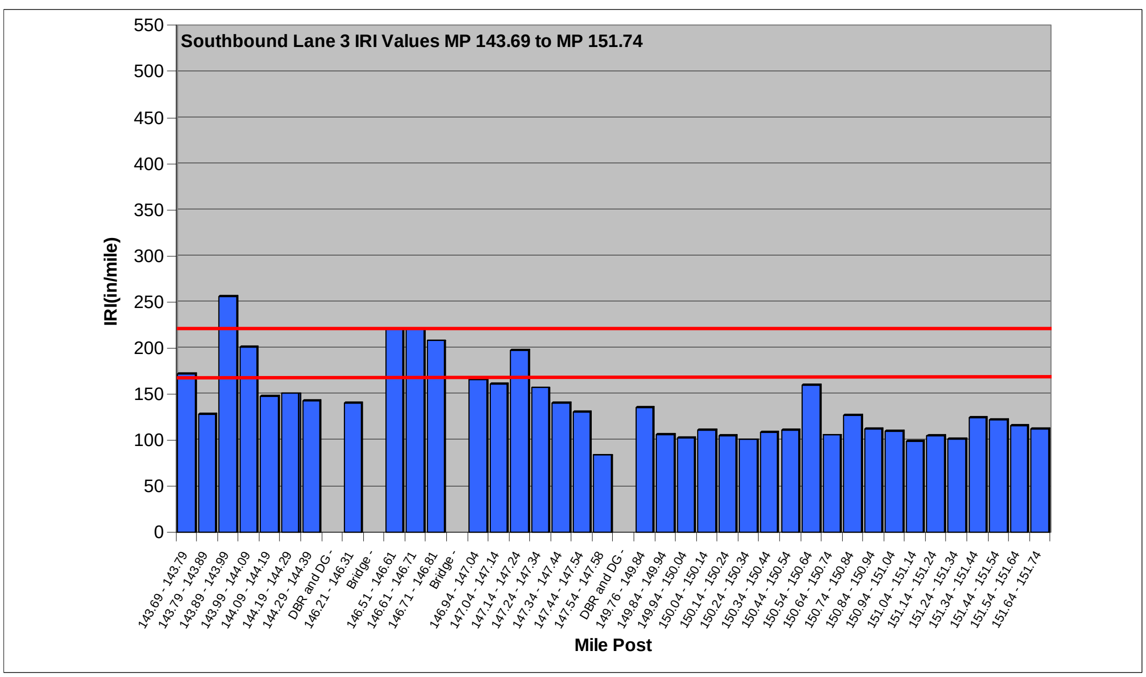

Southbound Lane 2 IRI Values MP 160.25 to MP 169.25
IRI(in/mile)
550
500
450
400
350
300
250
200
150
100
50
0
160.25 - 160.35
160.35 - 160.45
160.45 - 160.55
160.55 - 160.65
160.65 - 160.75
160.75 - 160.85
160.85 - 160.94
160.94 - 161.04
161.04 - 161.14
161.14 - 161.24
161.24 - 161.34
161.34 - 161.44
Bridge -
161.74 - 161.84
161.84 - 161.94
161.94 - 162.04
162.04 - 162.14
Bridge -
162.37 - 162.42
162.42 - 162.52
162.52 - 162.62
162.62 - 162.72
Bridge -
165.53 - 165.58
165.58 - 165.68
165.68 - 165.78
165.78 - 165.88
165.88 - 165.98
165.98 - 166.08
166.08 - 166.18
166.18 - 166.28
Bridge -
167.72 - 167.74
167.74 - 167.84
167.84 - 167.94
167.94 - 168.04
168.04 - 168.14
168.14 - 168.24
Bridge -
169.18 - 169.25
Mile Post

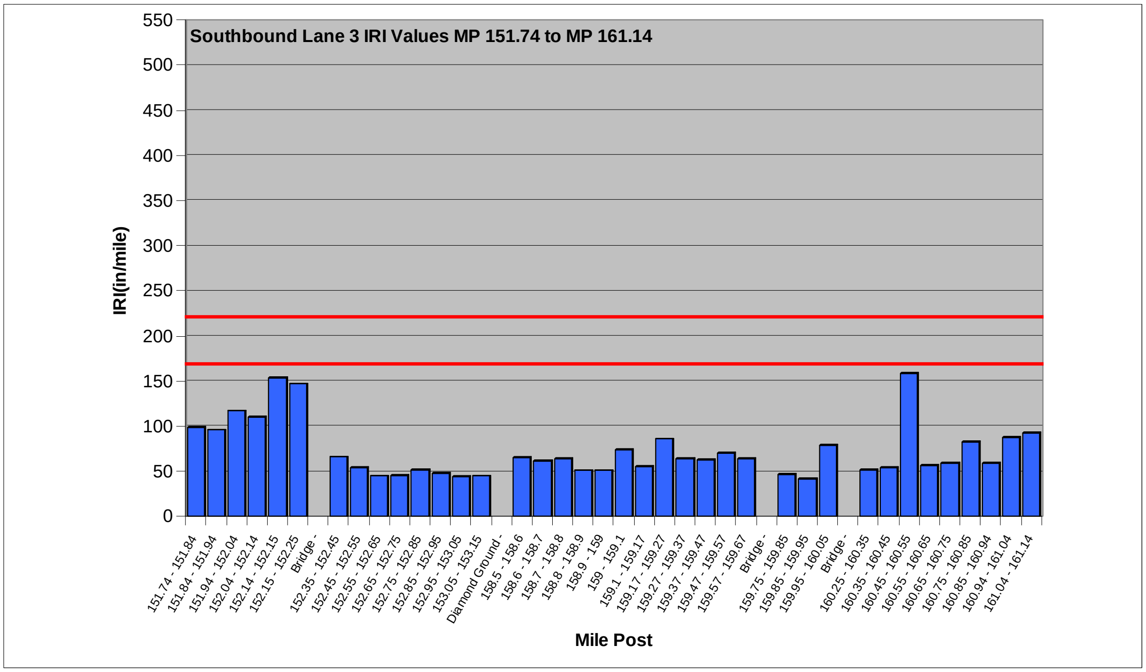

Southbound Lane 2 IRI Values MP 169.25 to MP 173.44
IRI(in/mile)
Mile Post

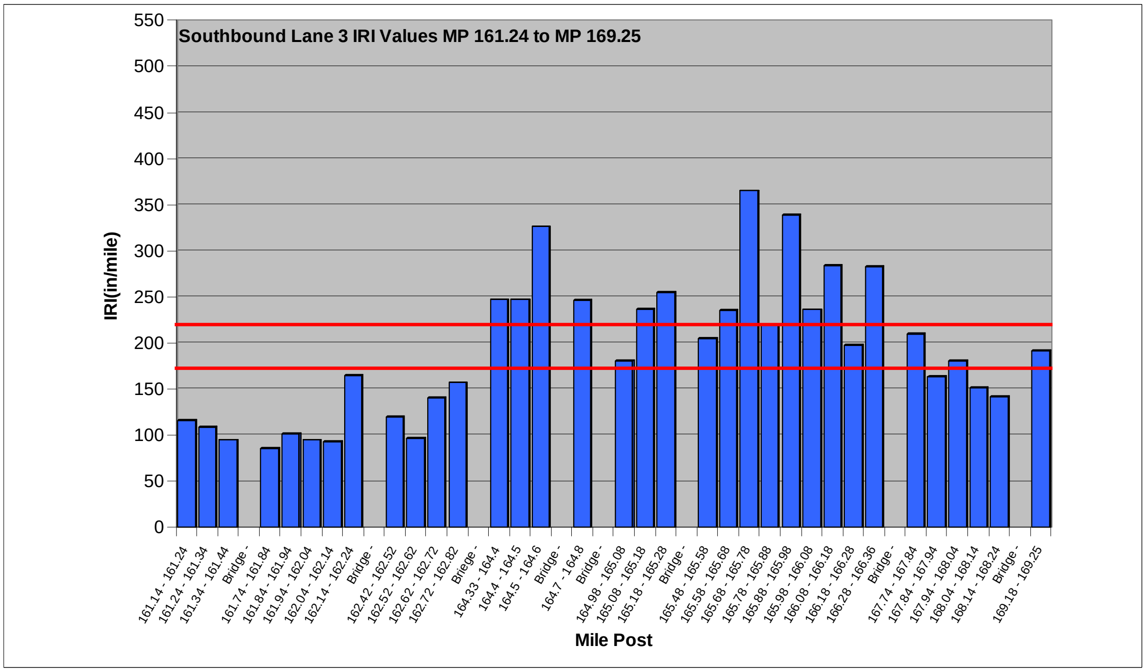

Southbound Lane 2 IRI Values MP 173.44 to MP 177.65
IRI(in/mile)
Mile Post

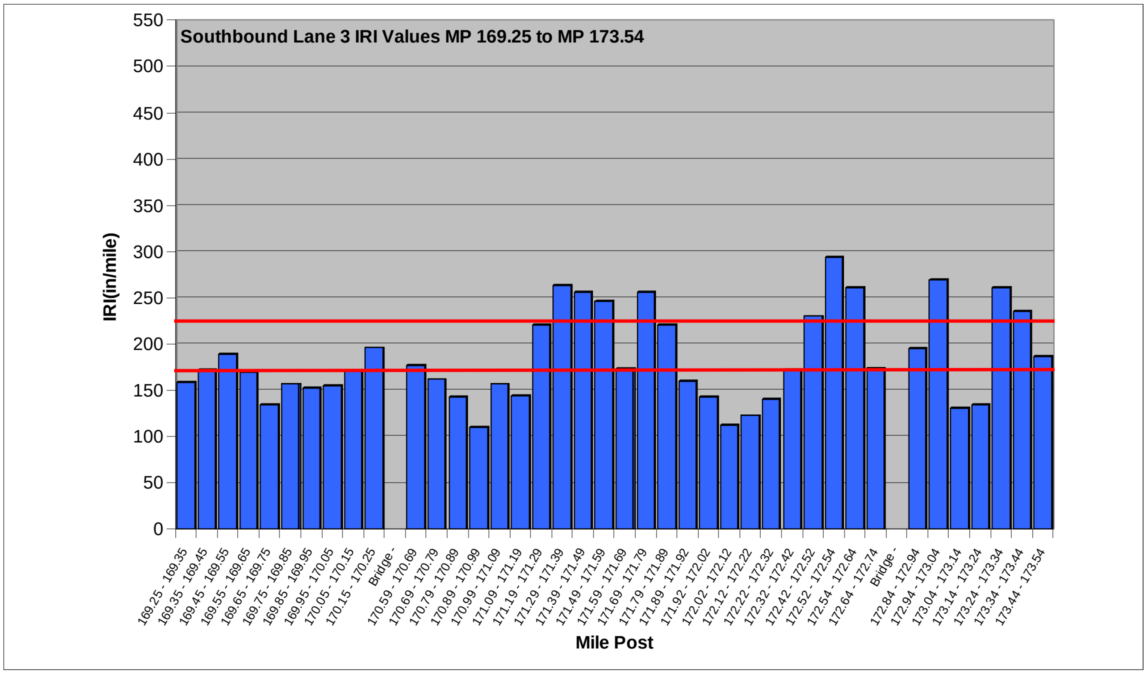
Southbound Lane 3 IRI Value Plots

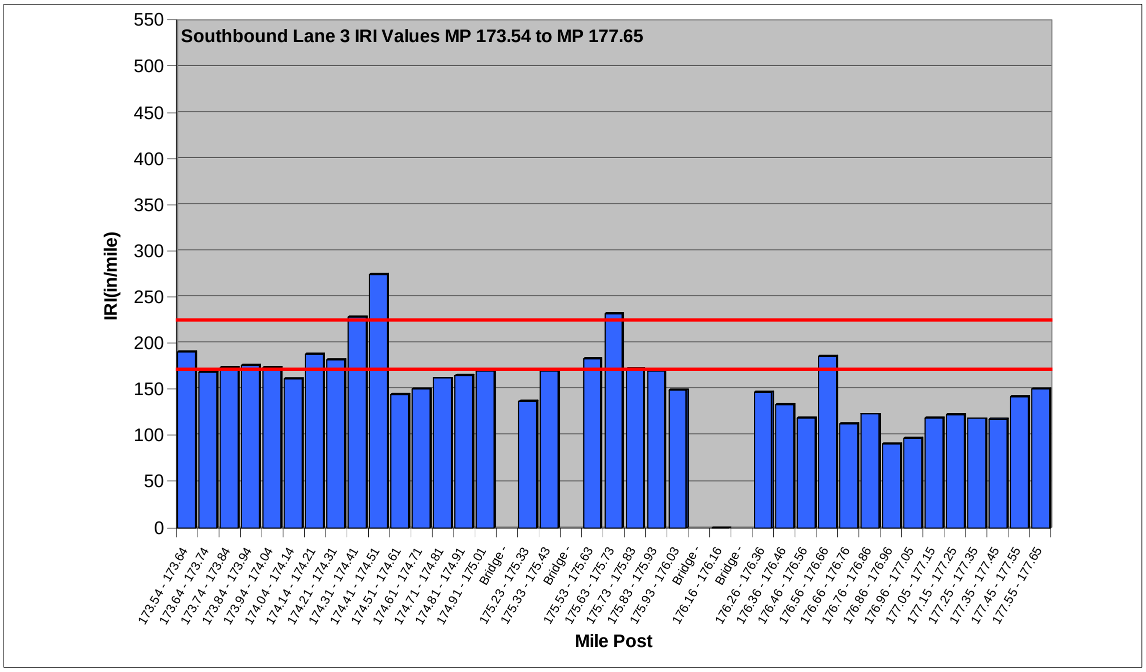




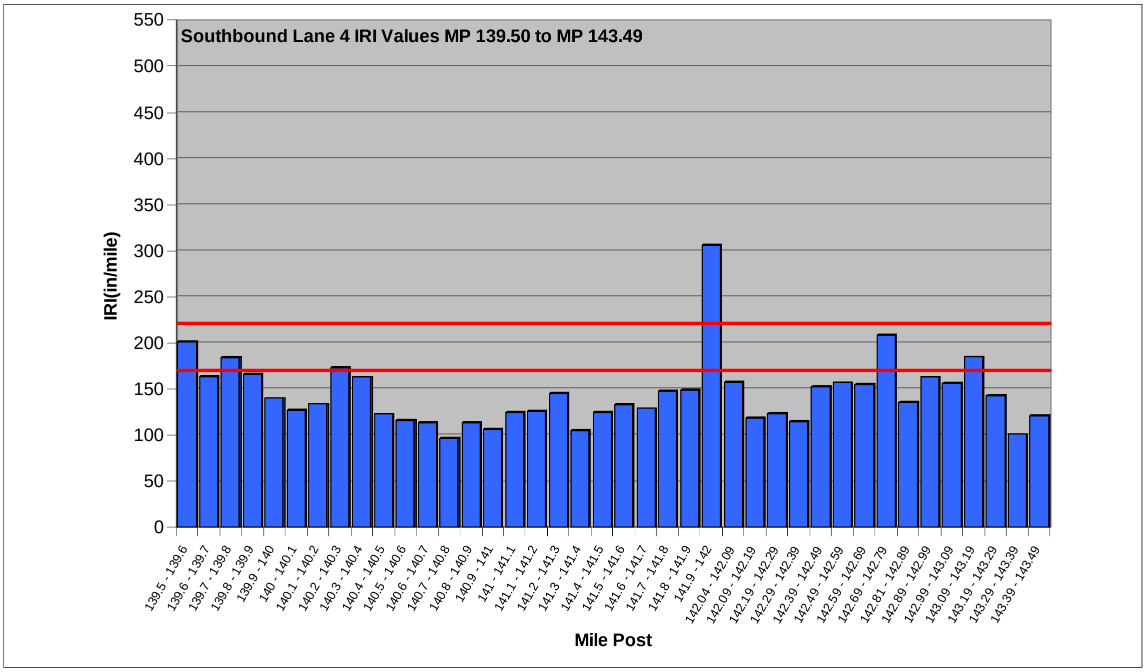

Southbound Lane 3 IRI Values MP 151.74 to MP 161.14
IRI(in/mile)
Mile Post

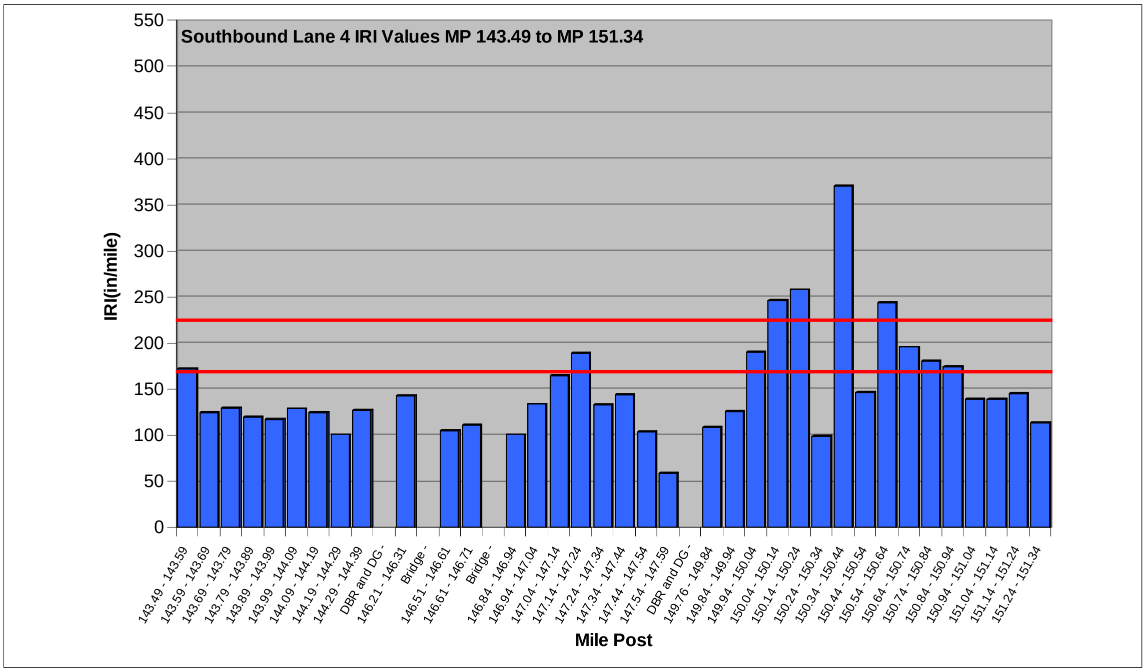

Southbound Lane 3 IRI Values MP 161.24 to MP 169.25
IRI(in/mile)
Mile Post

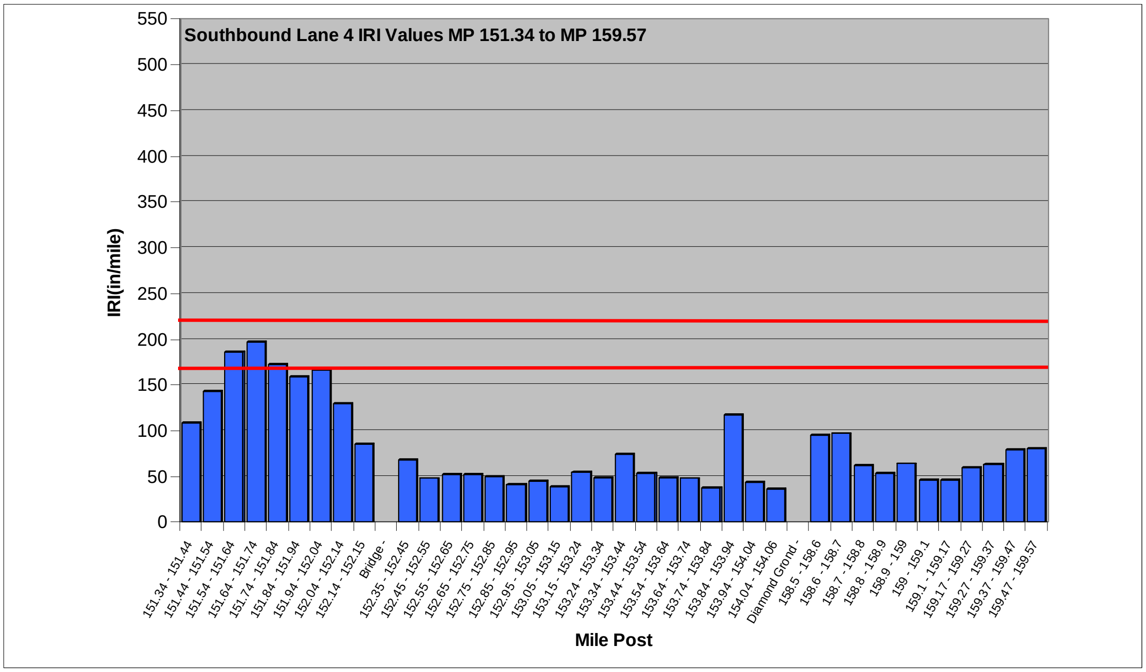

Southbound Lane 3 IRI Values MP 169.25 to MP 173.54
IRI(in/mile)
Mile Post

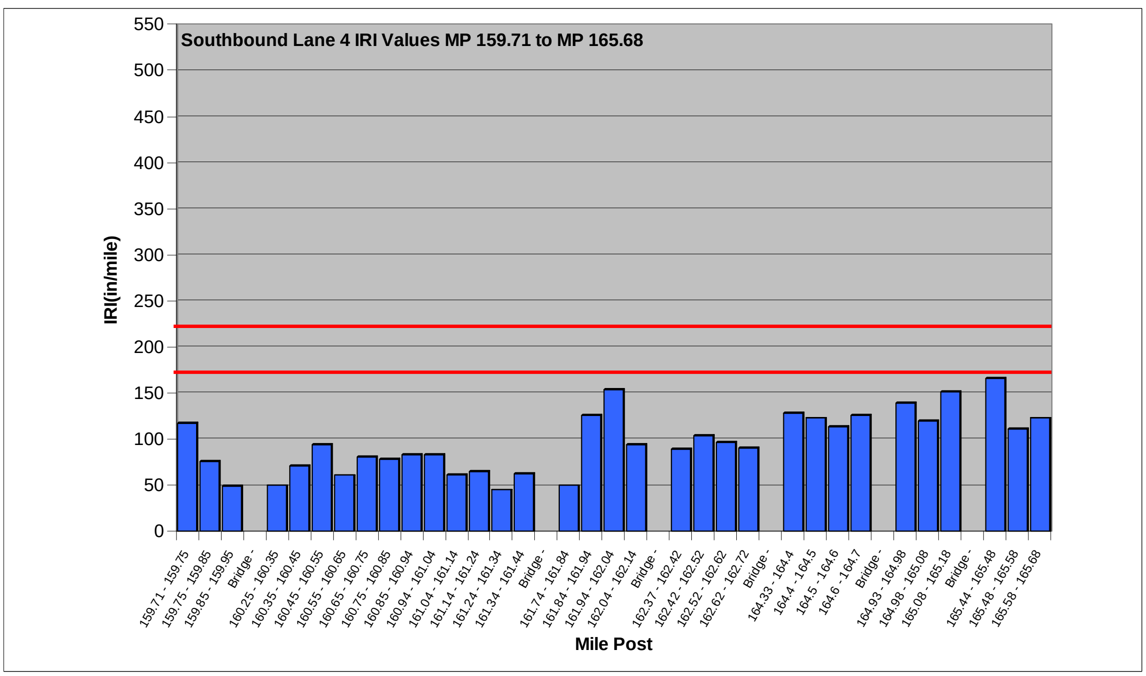

Southbound Lane 3 IRI Values MP 173.54 to MP 177.65
IRI(in/mile)
Mile Post

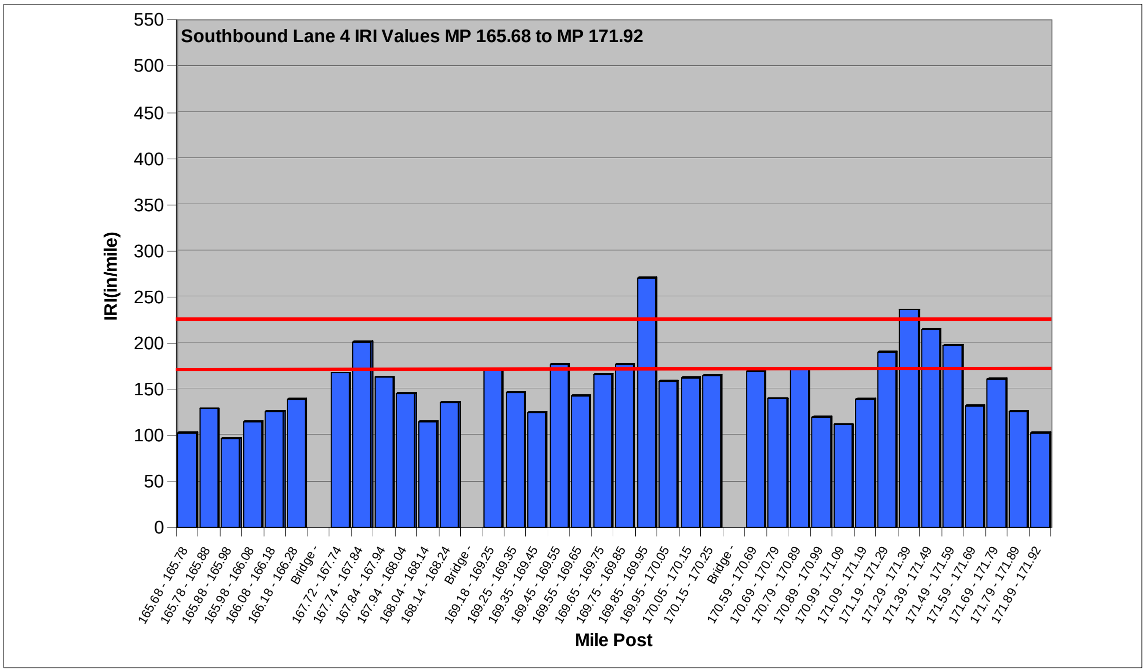
Southbound Lane 4 IRI Value Plots

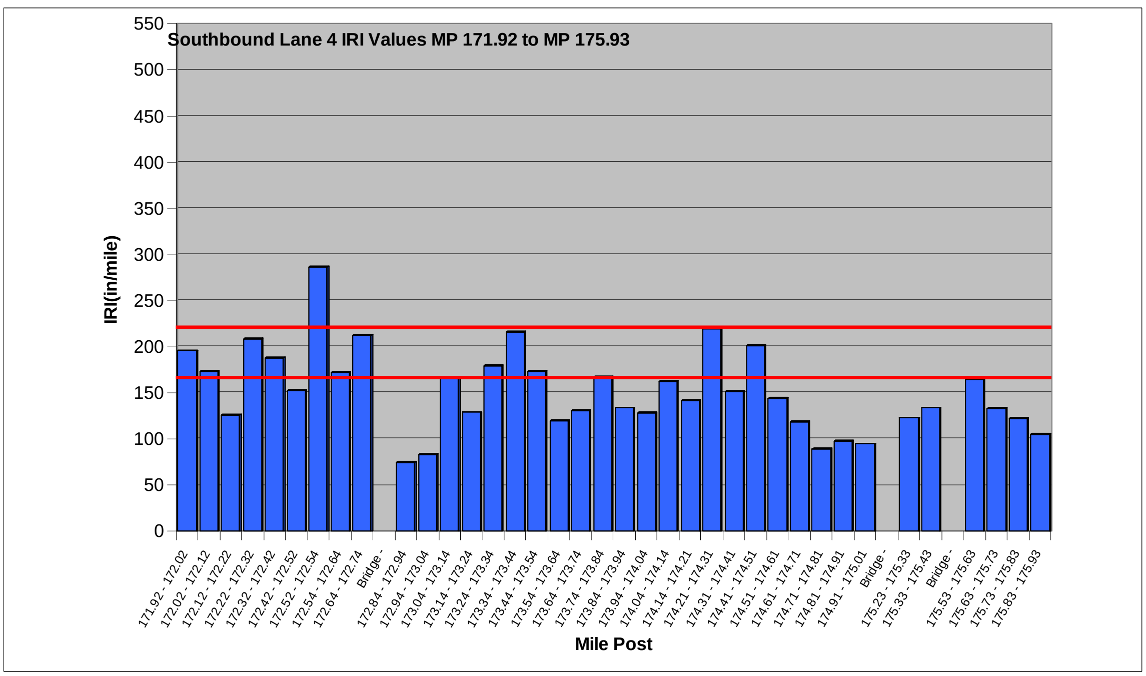


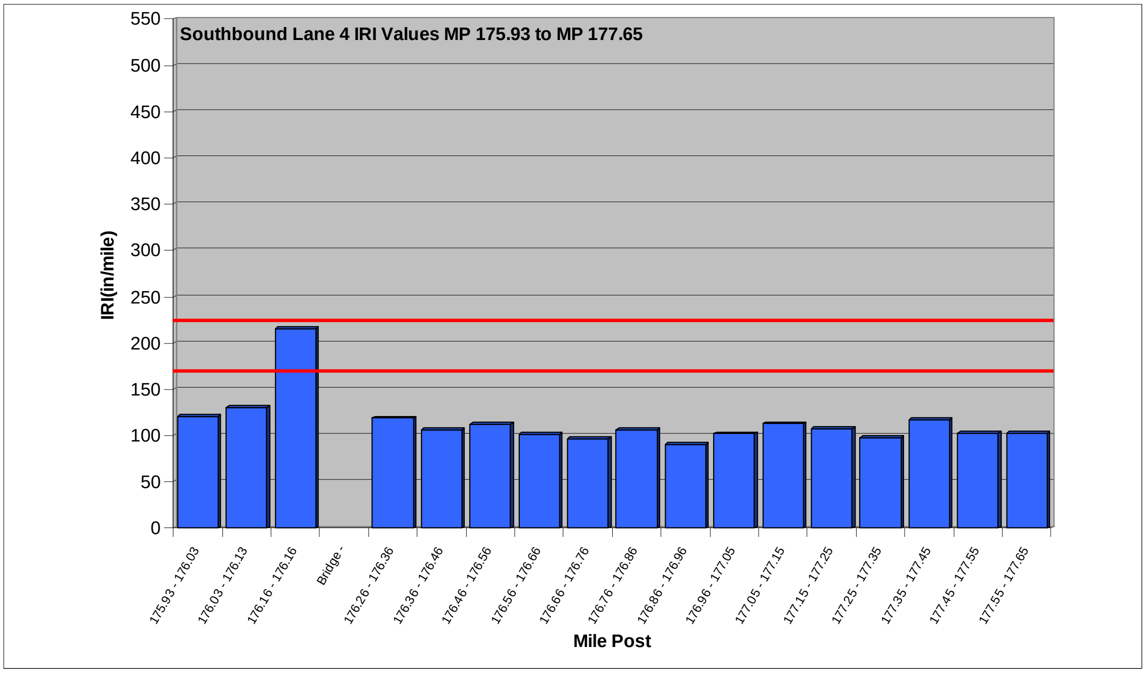



Southbound Lane 4 IRI Values MP 151.34 to MP 159.57
IRI(in/mile)
550
500
450
400
350
300
250
200
150
100
50
0
151.34 - 151.44
151.44 - 151.54
151.54 - 151.64
151.64 - 151.74
151.74 - 151.84
151.84 - 151.94
151.94 - 152.04
152.04 - 152.14
152.14 - 152.15
Bridge -
152.35 - 152.45
152.45 - 152.55
152.55 - 152.65
152.65 - 152.75
152.75 - 152.85
152.85 - 152.95
152.95 - 153.05
153.05 - 153.15
153.15 - 153.24
153.24 - 153.34
153.34 - 153.44
153.44 - 153.54
153.54 - 153.64
153.64 - 153.74
153.74 - 153.84
153.84 - 153.94
153.94 - 154.04
154.04 - 154.06
Diamond Grond -
158.5 - 158.6
158.6 - 158.7
158.7 - 158.8
158.8 - 158.9
158.9 - 159
159 - 159.1
159.1 - 159.17
159.17 - 159.27
159.27 - 159.37
159.37 - 159.47
159.47 - 159.57
Mile Post


Southbound Lane 4 IRI Values MP 159.71 to MP 165.68
IRI(in/mile)
550
500
450
400
350
300
250
200
150
100
50
0
159.71 - 159.75
159.75 - 159.85
159.85 - 159.95
Bridge -
160.25 - 160.35
160.35 - 160.45
160.45 - 160.55
160.55 - 160.65
160.65 - 160.75
160.75 - 160.85
160.85 - 160.94
160.94 - 161.04
161.04 - 161.14
161.14 - 161.24
161.24 - 161.34
161.34 - 161.44
Bridge -
161.74 - 161.84
161.84 - 161.94
161.94 - 162.04
162.04 - 162.14
Bridge -
162.37 - 162.42
162.42 - 162.52
162.52 - 162.62
162.62 - 162.72
Bridge -
164.33 - 164.4
164.4 - 164.5
164.5 - 164.6
164.6 - 164.7
Bridge -
164.93 - 164.98
164.98 - 165.08
165.08 - 165.18
Bridge -
165.44 - 165.48
165.48 - 165.58
165.58 - 165.68
Mile Post

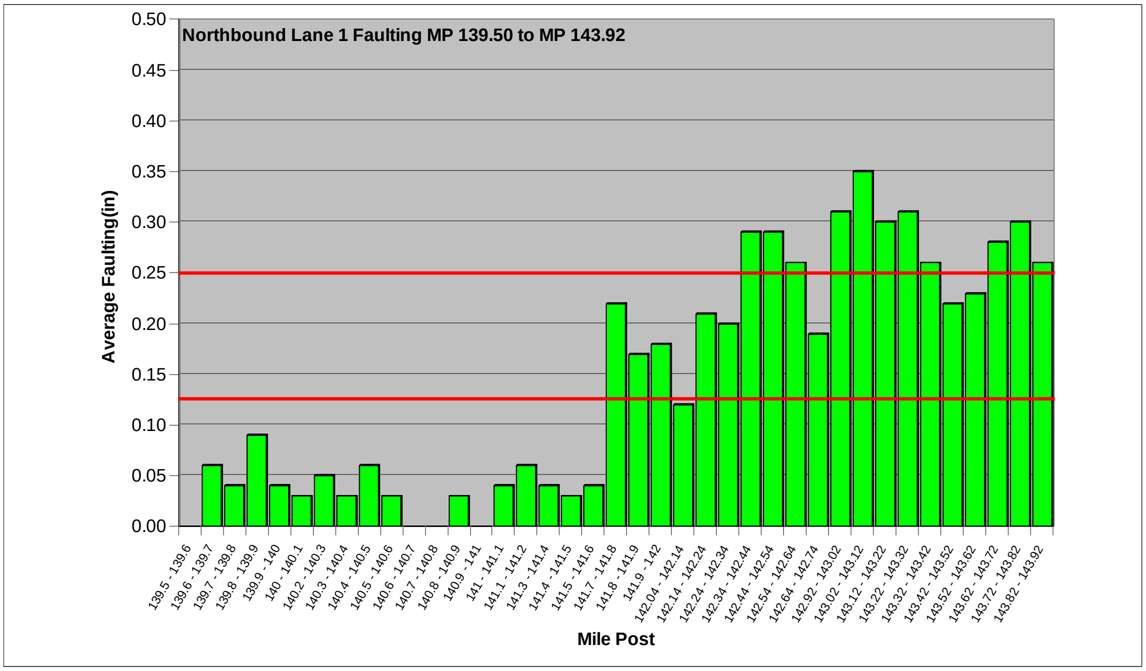

Southbound Lane 4 IRI Values MP 165.68 to MP 171.92
IRI(in/mile)
550
500
450
400
350
300
250
200
150
100
50
0
165.68 - 165.78
165.78 - 165.88
165.88 - 165.98
165.98 - 166.08
166.08 - 166.18
166.18 - 166.28
Bridge -
167.72 - 167.74
167.74 - 167.84
167.84 - 167.94
167.94 - 168.04
168.04 - 168.14
168.14 - 168.24
Bridge -
169.18 - 169.25
169.25 - 169.35
169.35 - 169.45
169.45 - 169.55
169.55 - 169.65
169.65 - 169.75
169.75 - 169.85
169.85 - 169.95
169.95 - 170.05
170.05 - 170.15
170.15 - 170.25
Bridge -
170.59 - 170.69
170.69 - 170.79
170.79 - 170.89
170.89 - 170.99
170.99 - 171.09
171.09 - 171.19
171.19 - 171.29
171.29 - 171.39
171.39 - 171.49
171.49 - 171.59
171.59 - 171.69
171.69 - 171.79
171.79 - 171.89
171.89 - 171.92
Mile Post

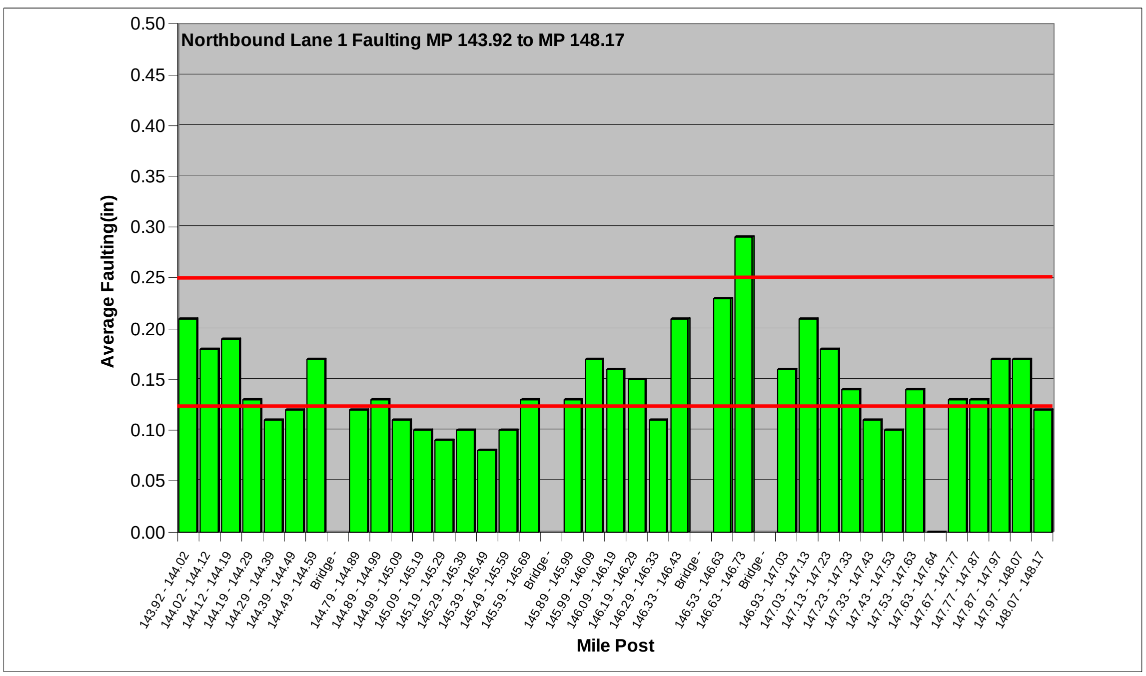

Southbound Lane 4 IRI Values MP 171.92 to MP 175.93
IRI(in/mile)
550
500
450
400
350
300
250
200
150
100
50
0
171.92 - 172.02
172.02 - 172.12
172.12 - 172.22
172.22 - 172.32
172.32 - 172.42
172.42 - 172.52
172.52 - 172.54
172.54 - 172.64
172.64 - 172.74
Bridge -
172.84 - 172.94
172.94 - 173.04
173.04 - 173.14
173.14 - 173.24
173.24 - 173.34
173.34 - 173.44
173.44 - 173.54
173.54 - 173.64
173.64 - 173.74
173.74 - 173.84
173.84 - 173.94
173.94 - 174.04
174.04 - 174.14
174.14 - 174.21
174.21 - 174.31
174.31 - 174.41
174.41 - 174.51
174.51 - 174.61
174.61 - 174.71
174.71 - 174.81
174.81 - 174.91
174.91 - 175.01
Bridge -
175.23 - 175.33
175.33 - 175.43
Bridge -
175.53 - 175.63
175.63 - 175.73
175.73 - 175.83
175.83 - 175.93
Mile Post

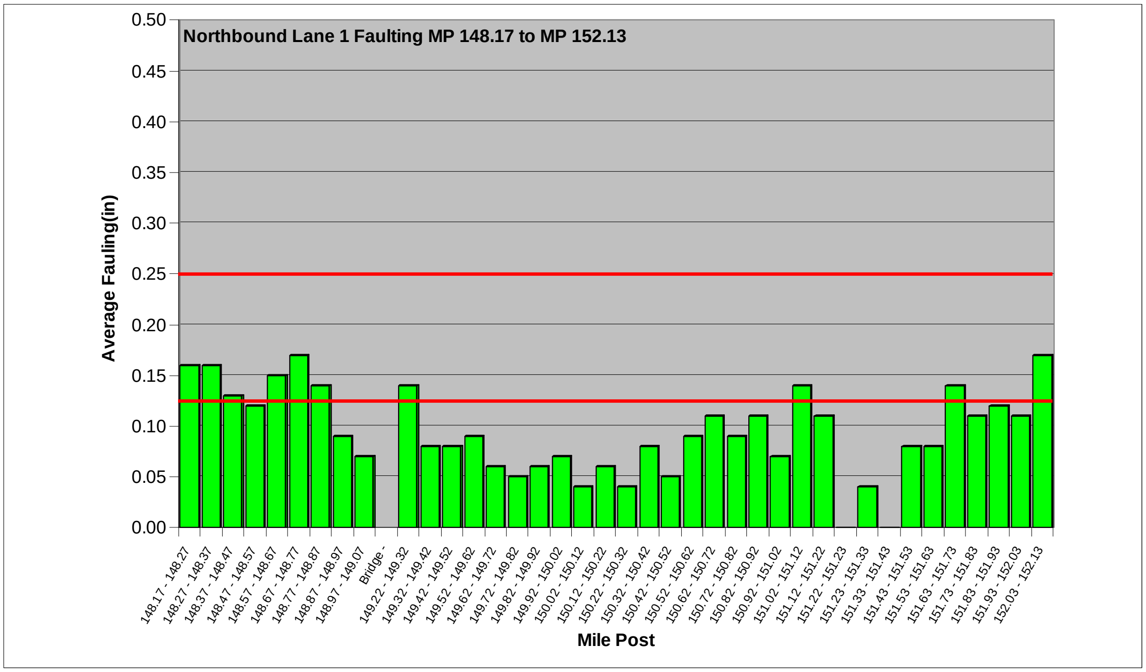

Southbound Lane 4 IRI Values MP 175.93 to MP 177.65
IRI(in/mile)
550
500
450
400
350
300
250
200
150
100
50
0
175.93 - 176.03
176.03 - 176.13
176.16 - 176.16
Bridge -
176.26 - 176.36
176.36 - 176.46
176.46 - 176.56
176.56 - 176.66
176.66 - 176.76
176.76 - 176.86
176.86 - 176.96
176.96 - 177.05
177.05 - 177.15
177.15 - 177.25
177.25 - 177.35
177.35 - 177.45
177.45 - 177.55
177.55 - 177.65
Mile Post

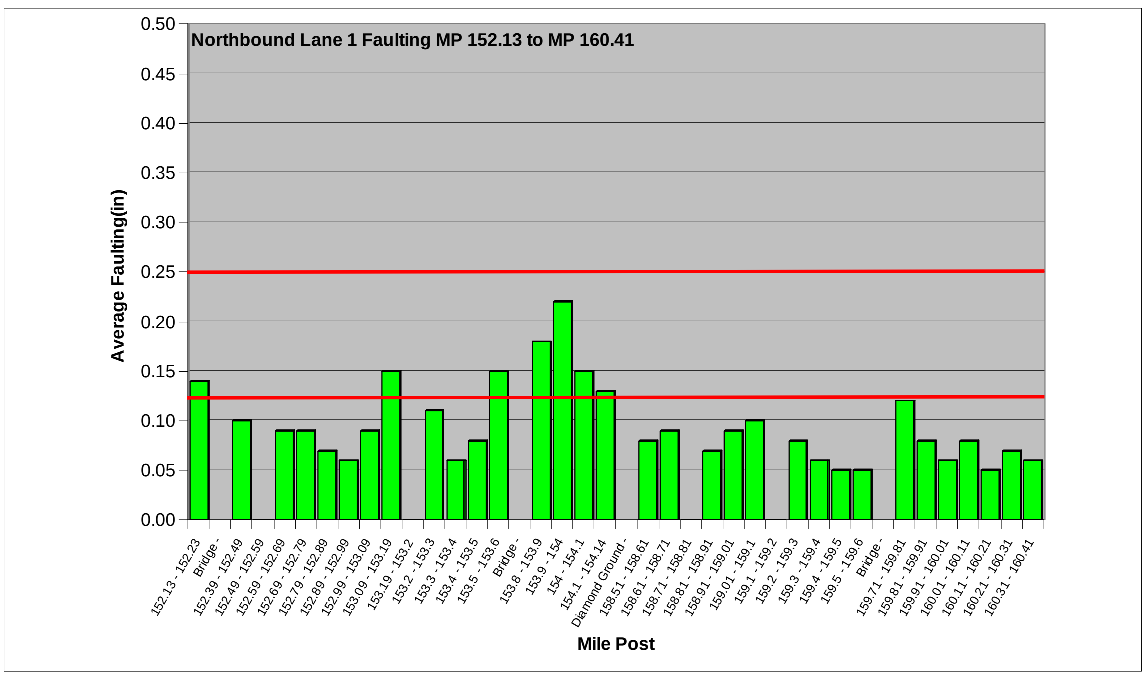
Appendix I –
Average Faulting Distress Plots

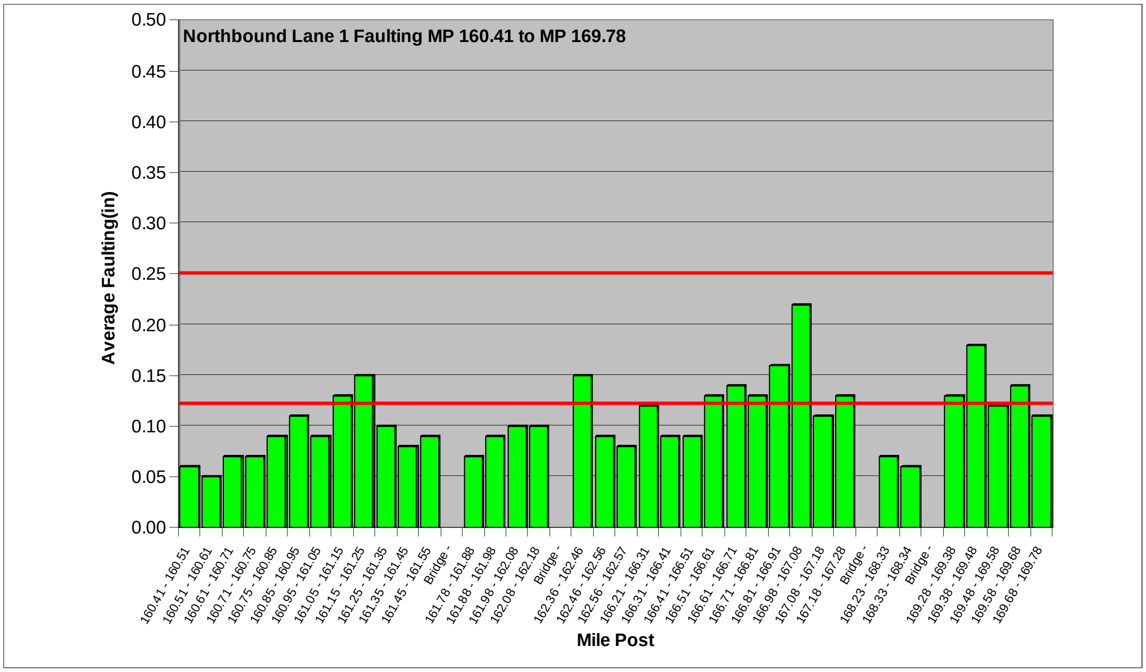
Northbound Lane 1 Faulting Plots

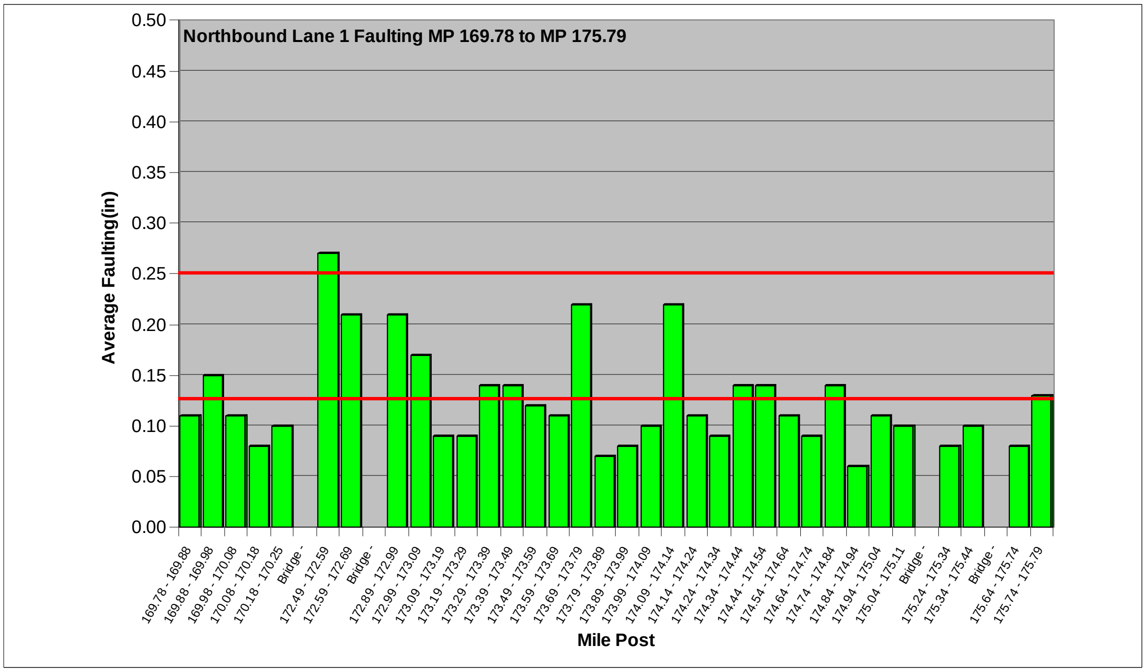




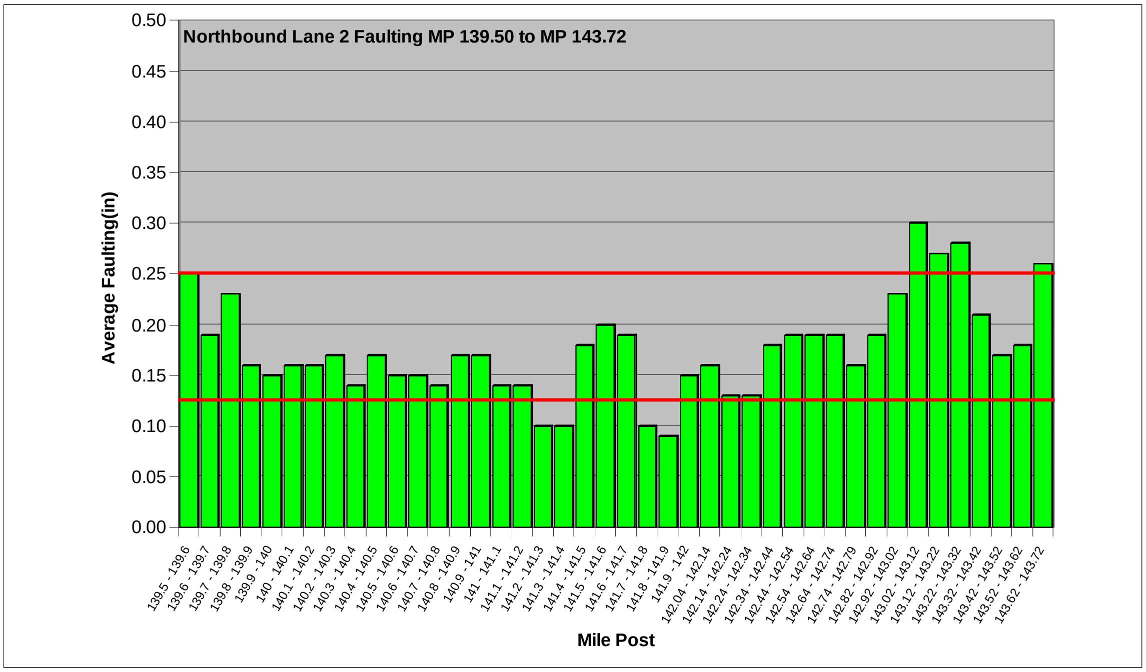

Northbound Lane 1 Faulting MP 148.17 to MP 152.13
Average Fauling(in)
Mile Post

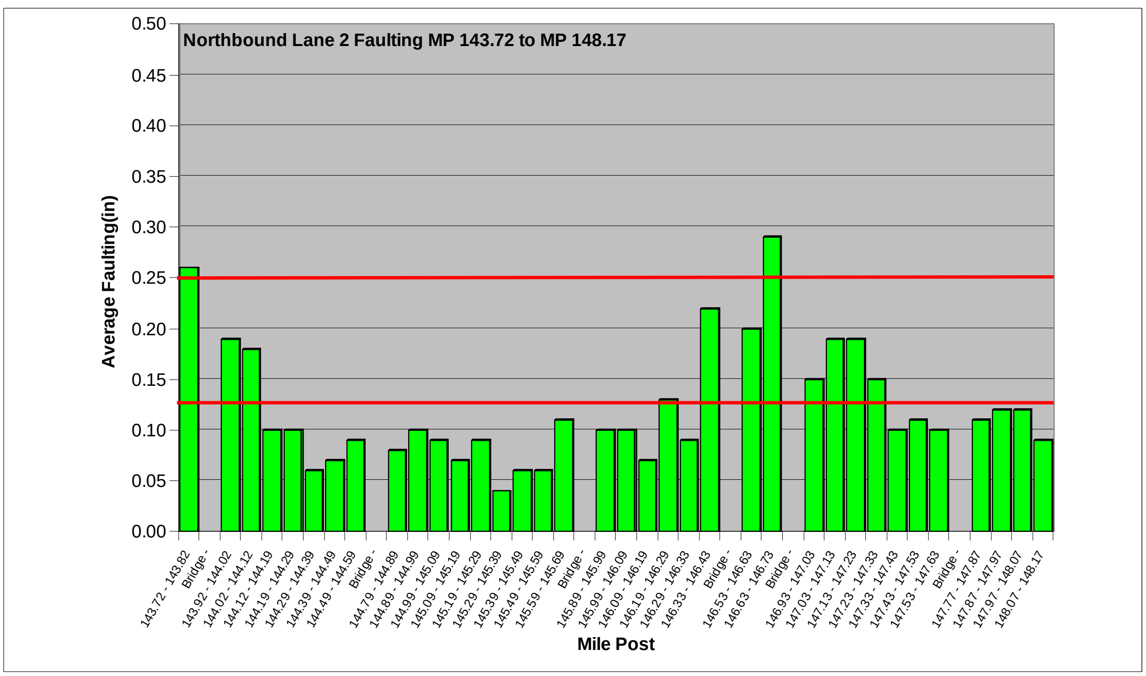

Northbound Lane 1 Faulting MP 152.13 to MP 160.41
Average Faulting(in)
Mile Post

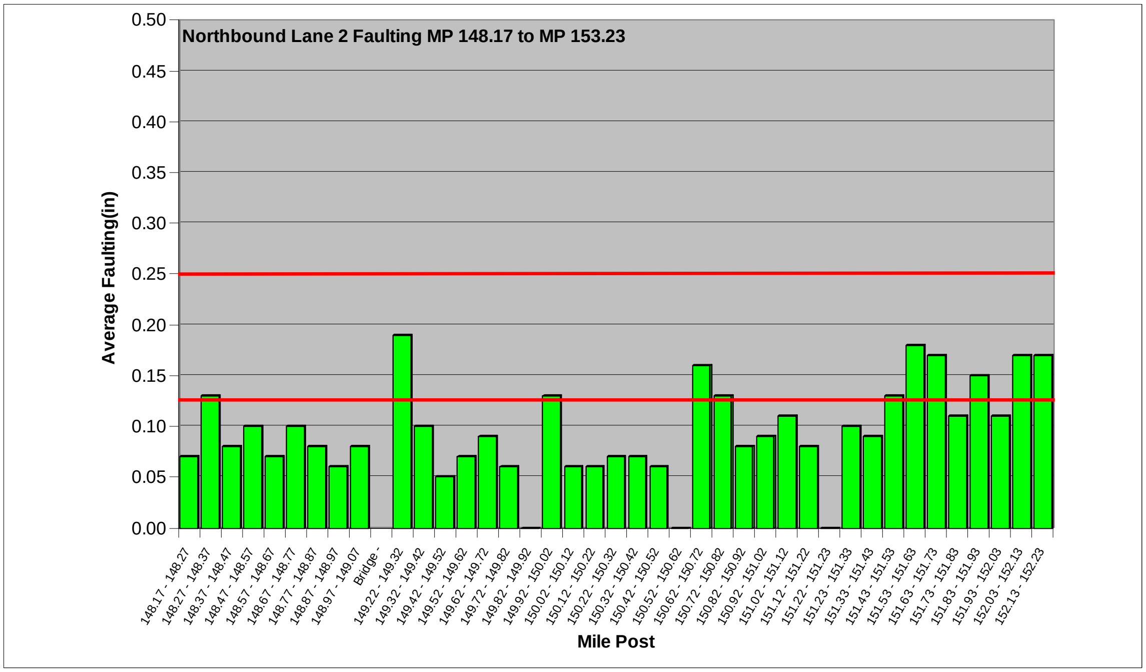

Northbound Lane 1 Faulting MP 160.41 to MP 169.78
Average Faulting(in)
Mile Post

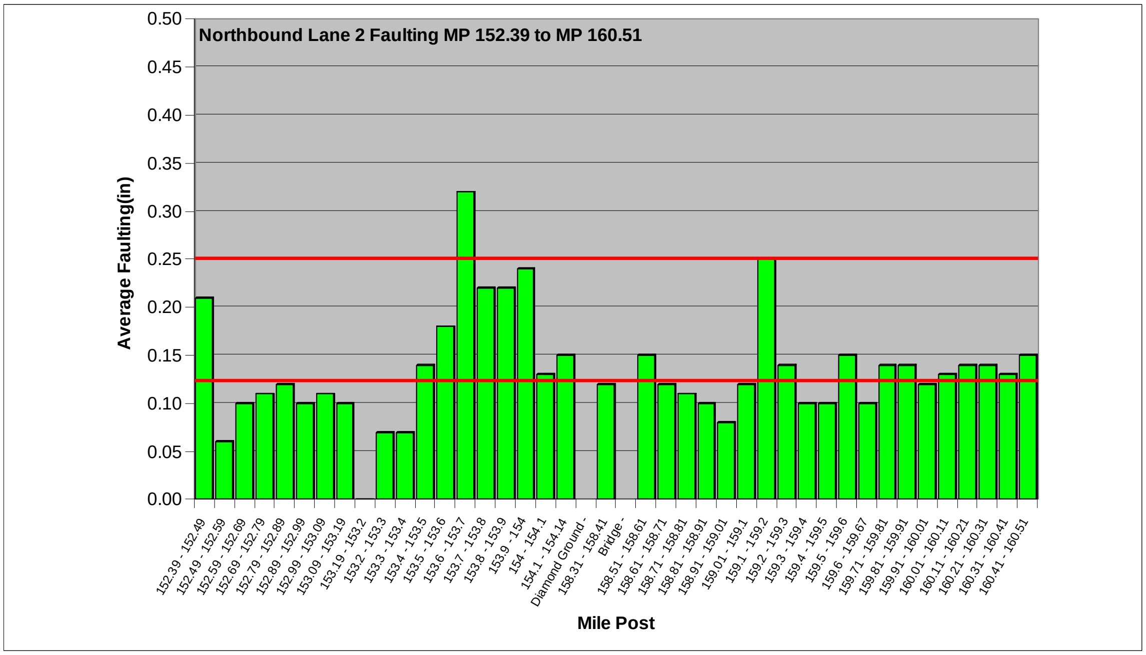

Northbound Lane 1 Faulting MP 169.78 to MP 175.79
Average Faulting(in)
Mile Post

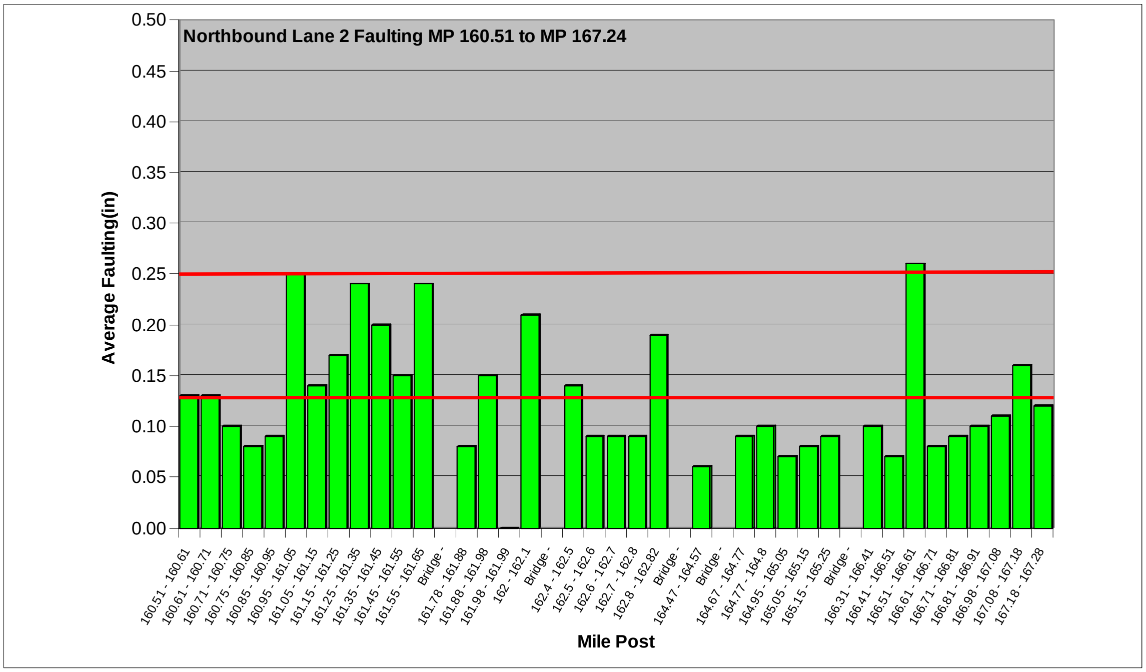
Northbound Lane 2 Faulting Plots

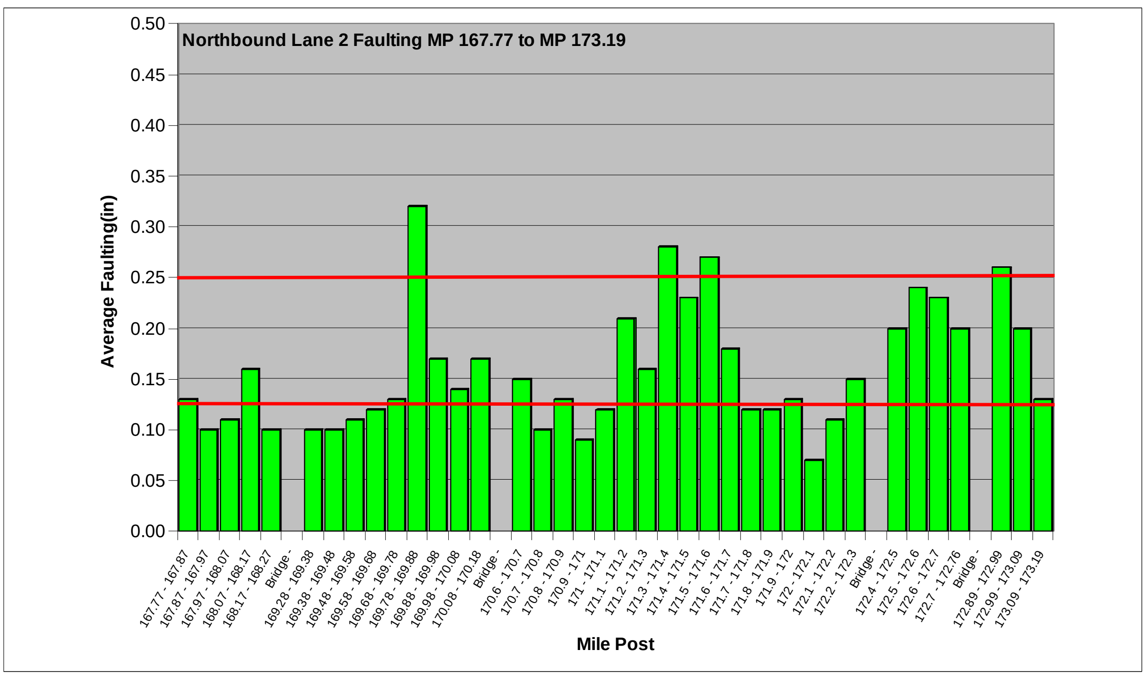


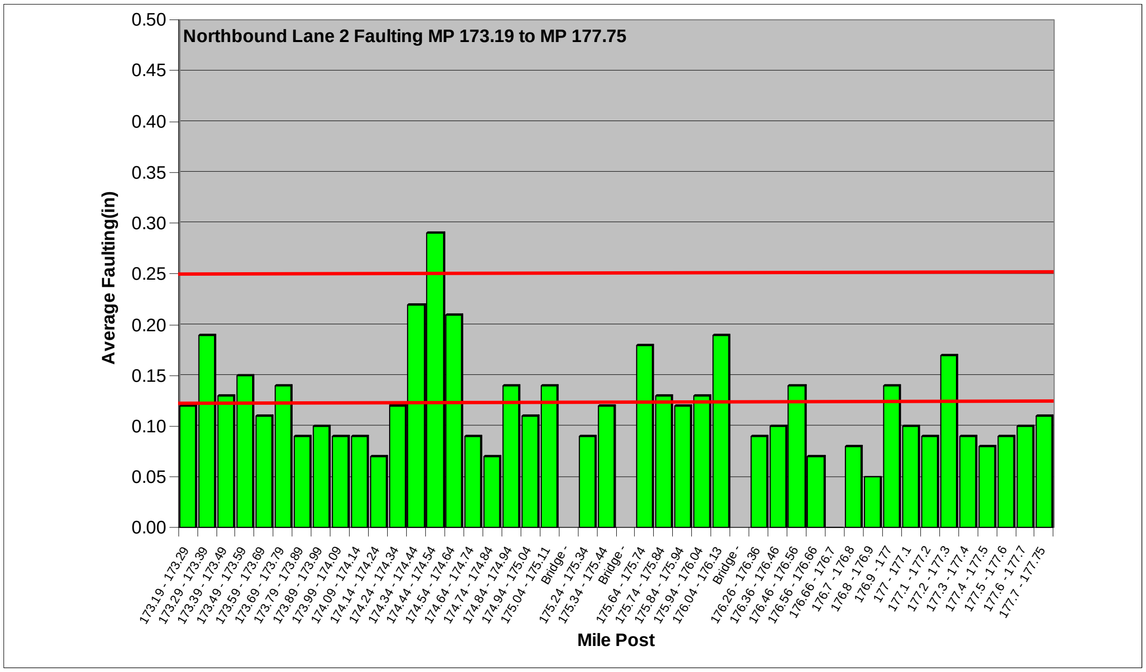



Northbound Lane 2 Faulting MP 148.17 to MP 153.23
Average Faulting(in)
Mile Post

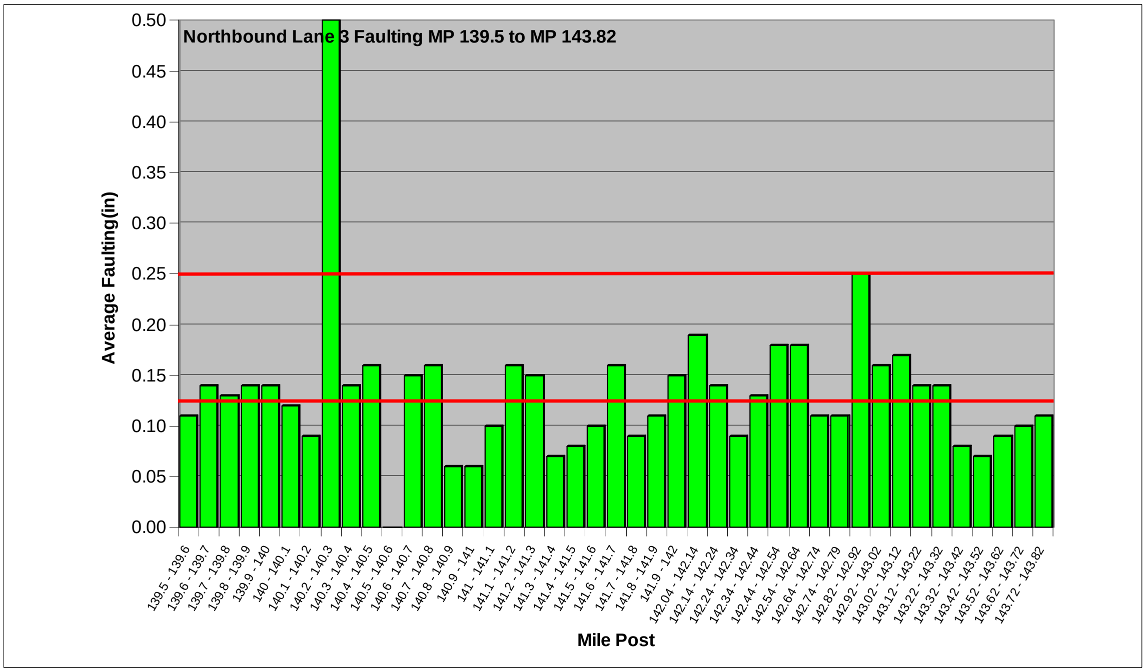

Northbound Lane 2 Faulting MP 152.39 to MP 160.51
Average Faulting(in)
Mile Post

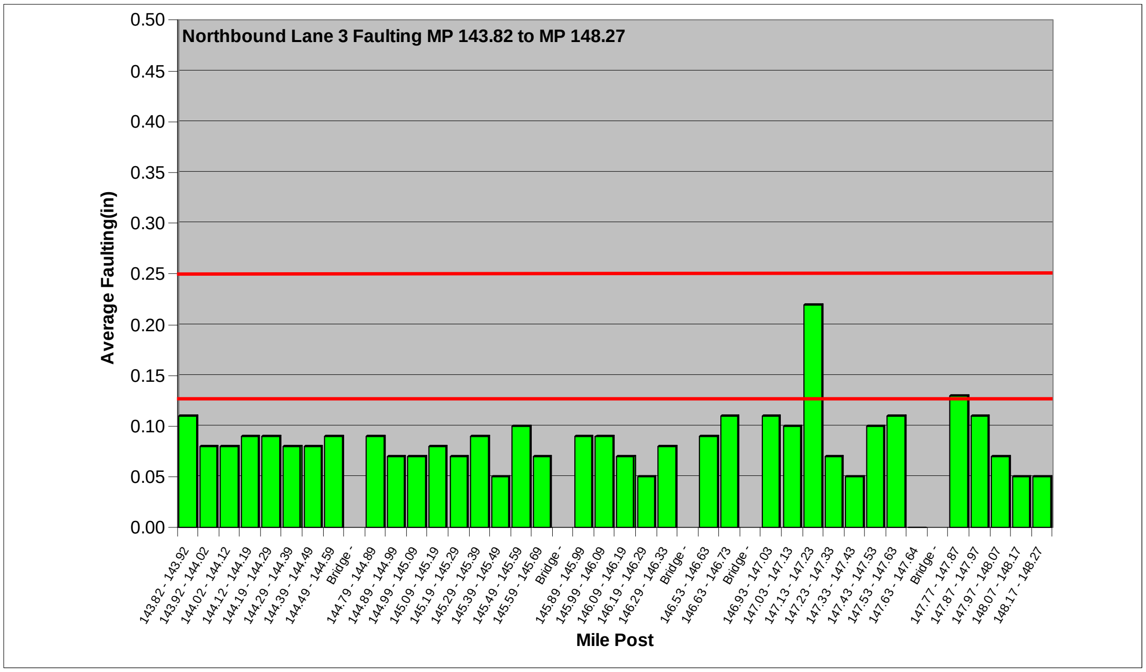

Northbound Lane 2 Faulting MP 160.51 to MP 167.24
Average Faulting(in)
Mile Post

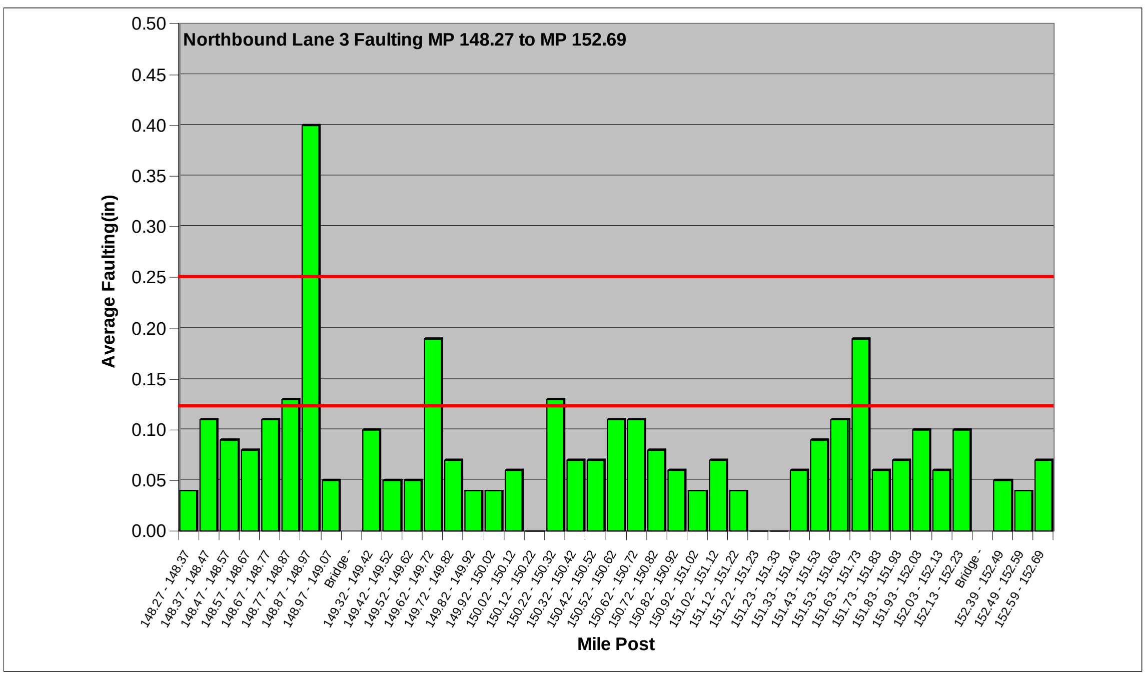

Northbound Lane 2 Faulting MP 167.77 to MP 173.19
Average Faulting(in)
Mile Post

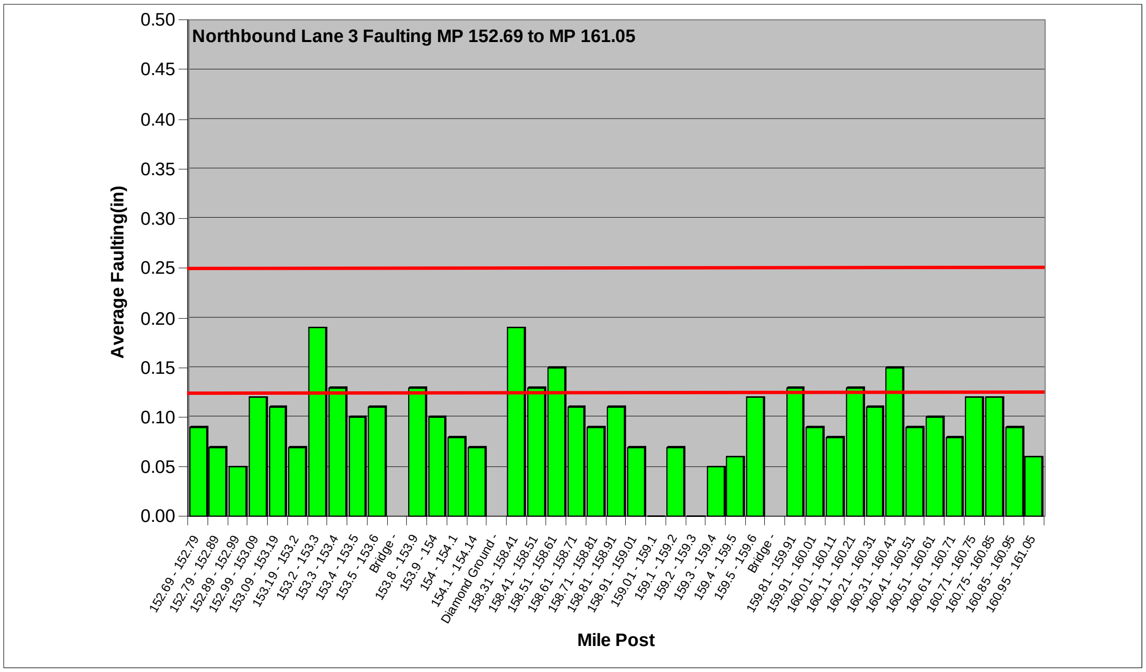


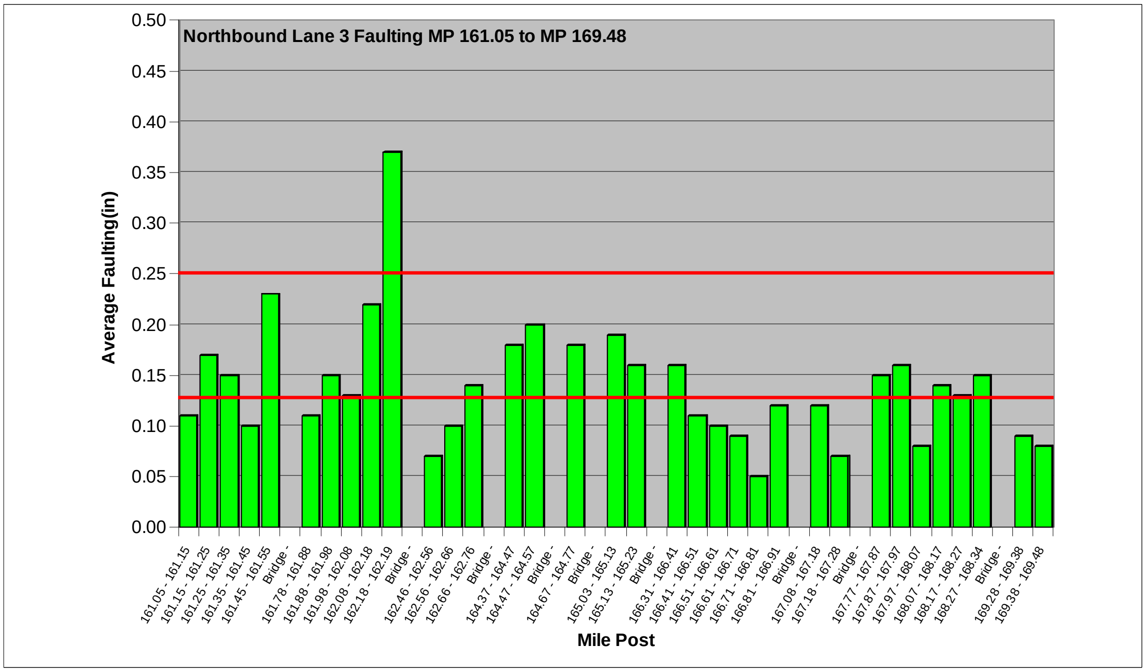
Northbound Lane 3 Faulting Plots

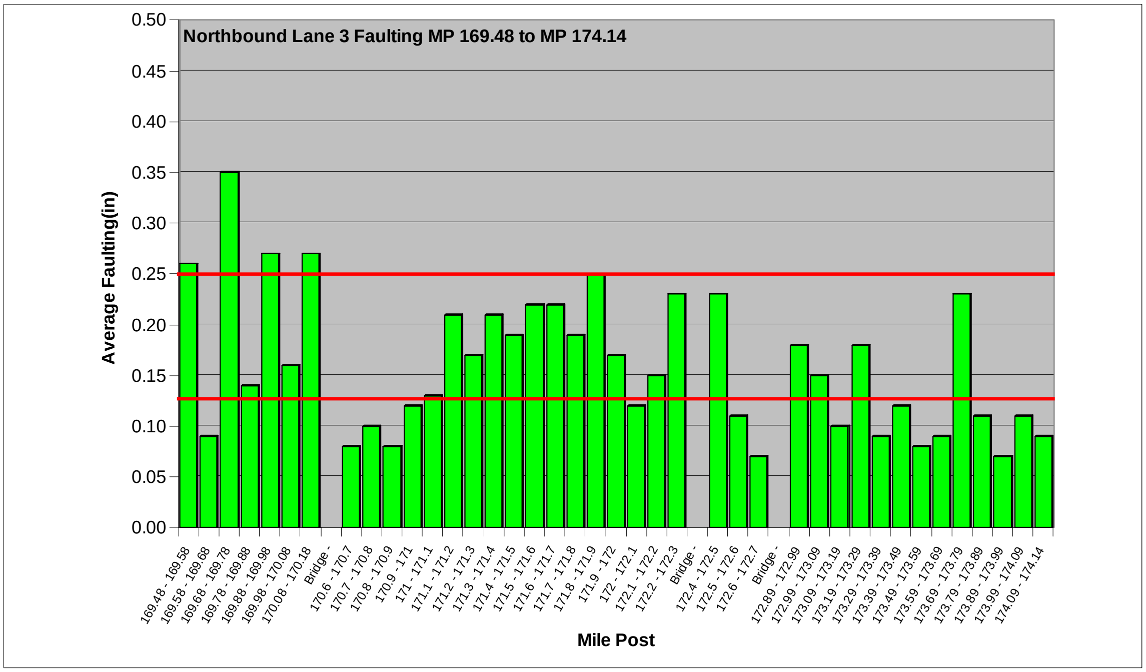


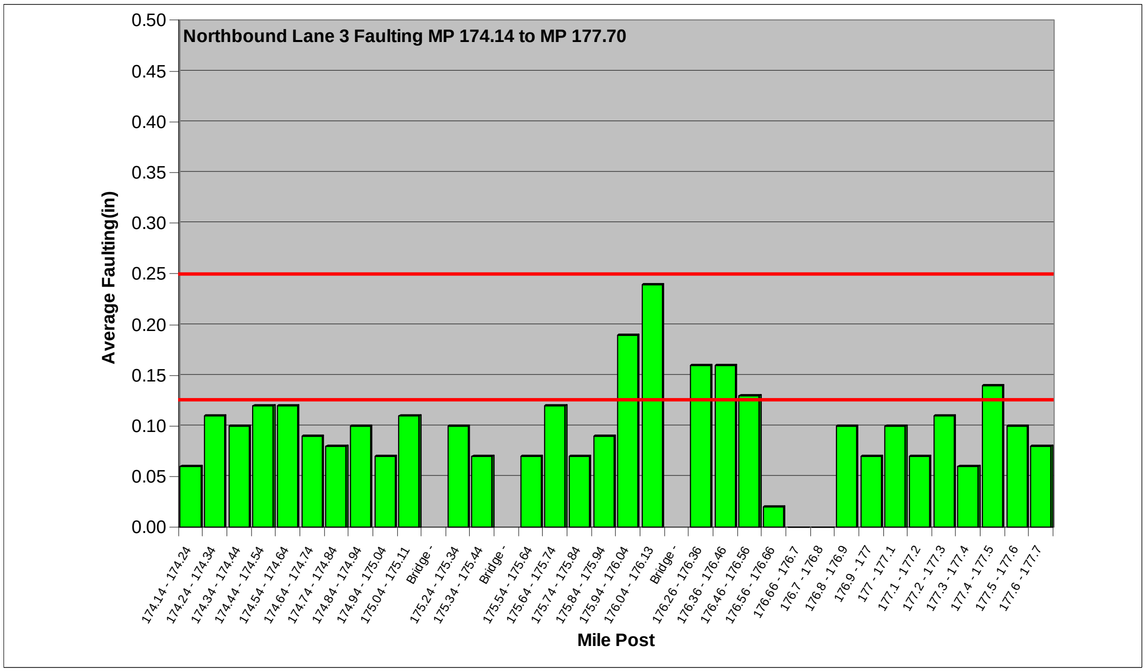

Northbound Lane 3 Faulting MP 143.82 to MP 148.27
Average Faulting(in)
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
143.82 - 143.92
143.92 - 144.02
144.02 - 144.12
144.12 - 144.19
144.19 - 144.29
144.29 - 144.39
144.39 - 144.49
144.49 - 144.59
Bridge -
144.79 - 144.89
144.89 - 144.99
144.99 - 145.09
145.09 - 145.19
145.19 - 145.29
145.29 - 145.39
145.39 - 145.49
145.49 - 145.59
145.59 - 145.69
Bridge -
145.89 - 145.99
145.99 - 146.09
146.09 - 146.19
146.19 - 146.29
146.29 - 146.33
Bridge -
146.53 - 146.63
146.63 - 146.73
Bridge -
146.93 - 147.03
147.03 - 147.13
147.13 - 147.23
147.23 - 147.33
147.33 - 147.43
147.43 - 147.53
147.53 - 147.63
147.63 - 147.64
Bridge -
147.77 - 147.87
147.87 - 147.97
147.97 - 148.07
148.07 - 148.17
148.17 - 148.27
Mile Post


Northbound Lane 3 Faulting MP 148.27 to MP 152.69
Average Faulting(in)
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
148.27 - 148.37
148.37 - 148.47
148.47 - 148.57
148.57 - 148.67
148.67 - 148.77
148.77 - 148.87
148.87 - 148.97
148.97 - 149.07
Bridge -
149.32 - 149.42
149.42 - 149.52
149.52 - 149.62
149.62 - 149.72
149.72 - 149.82
149.82 - 149.92
149.92 - 150.02
150.02 - 150.12
150.12 - 150.22
150.22 - 150.32
150.32 - 150.42
150.42 - 150.52
150.52 - 150.62
150.62 - 150.72
150.72 - 150.82
150.82 - 150.92
150.92 - 151.02
151.02 - 151.12
151.12 - 151.22
151.22 - 151.23
151.23 - 151.33
151.33 - 151.43
151.43 - 151.53
151.53 - 151.63
151.63 - 151.73
151.73 - 151.83
151.83 - 151.93
151.93 - 152.03
152.03 - 152.13
152.13 - 152.23
Bridge -
152.39 - 152.49
152.49 - 152.59
152.59 - 152.69
Mile Post

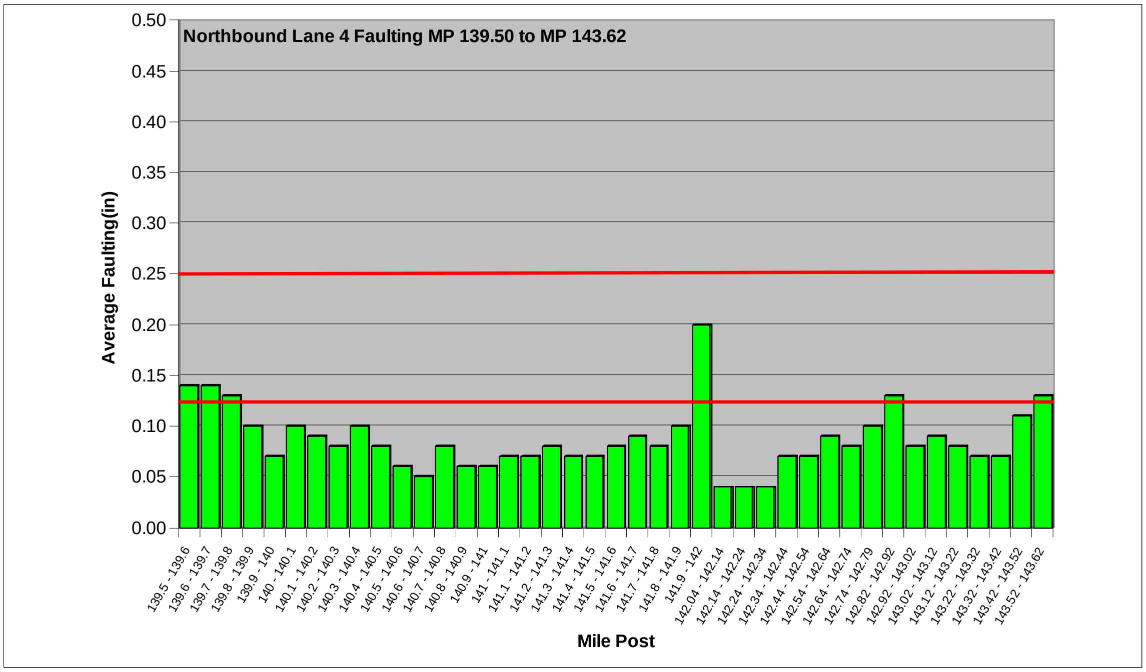

Northbound Lane 3 Faulting MP 152.69 to MP 161.05
Average Faulting(in)
Mile Post

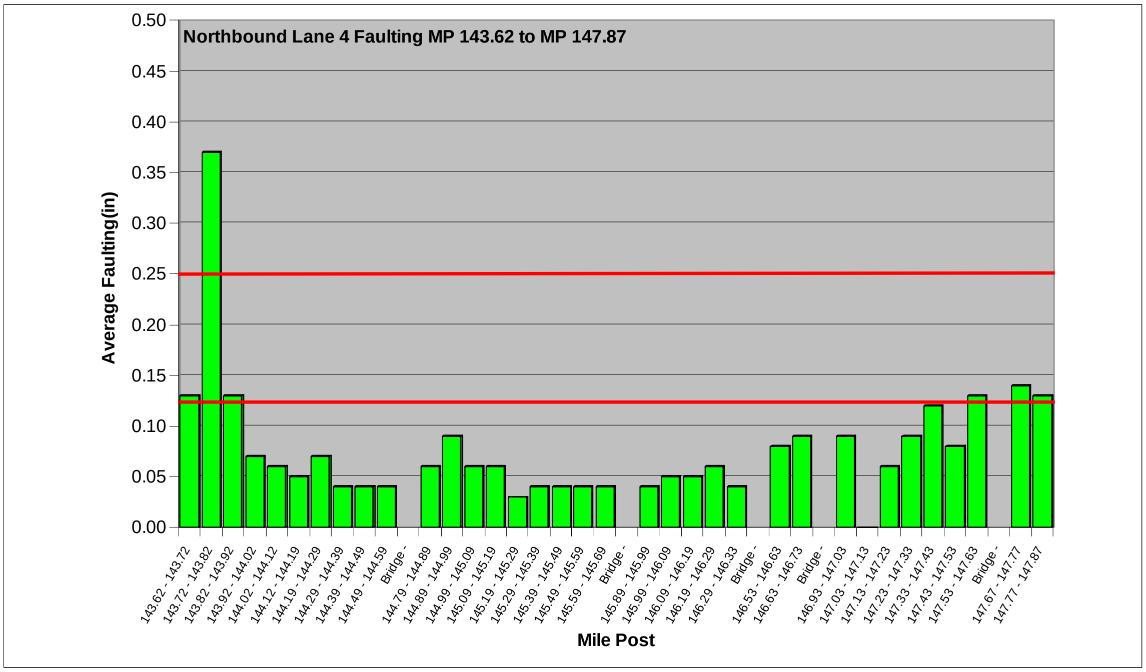

Northbound Lane 3 Faulting MP 161.05 to MP 169.48
Average Faulting(in)
Mile Post

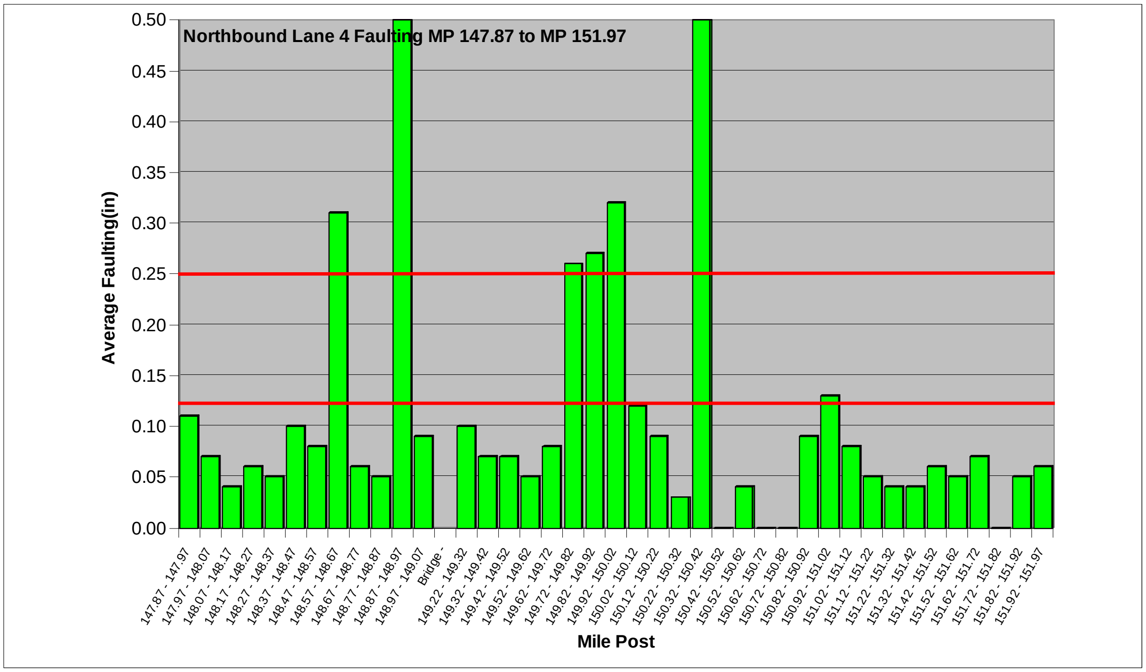

Northbound Lane 3 Faulting MP 169.48 to MP 174.14
Average Faulting(in)
Mile Post

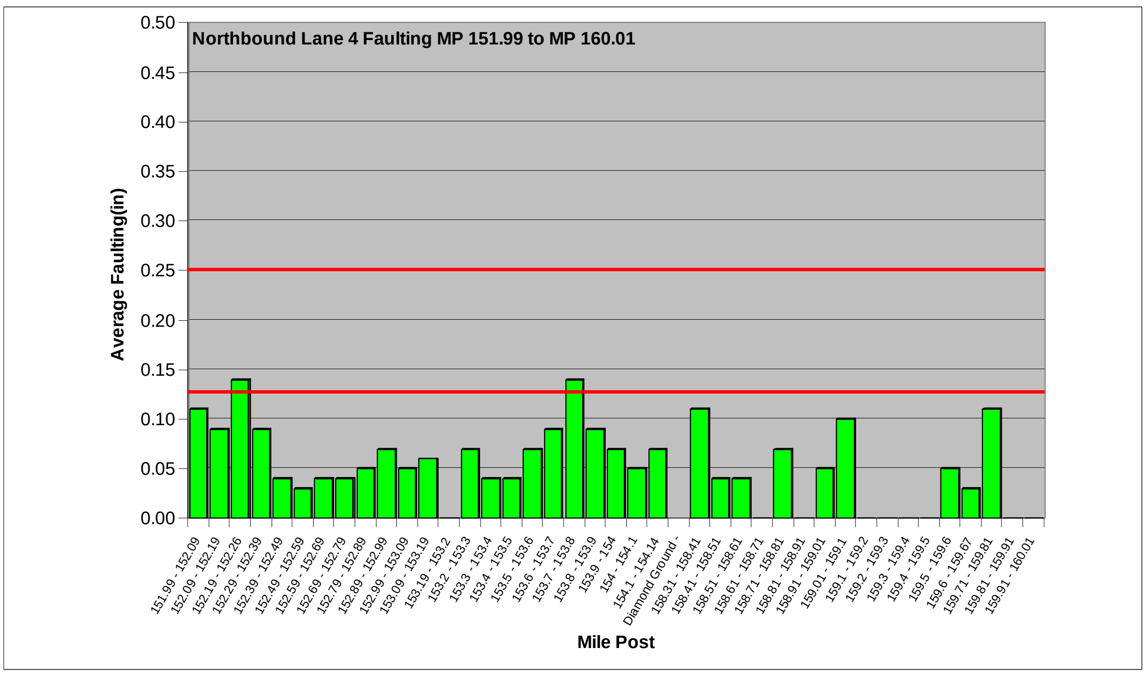

Northbound Lane 3 Faulting MP 174.14 to MP 177.70
Average Faulting(in)
Mile Post

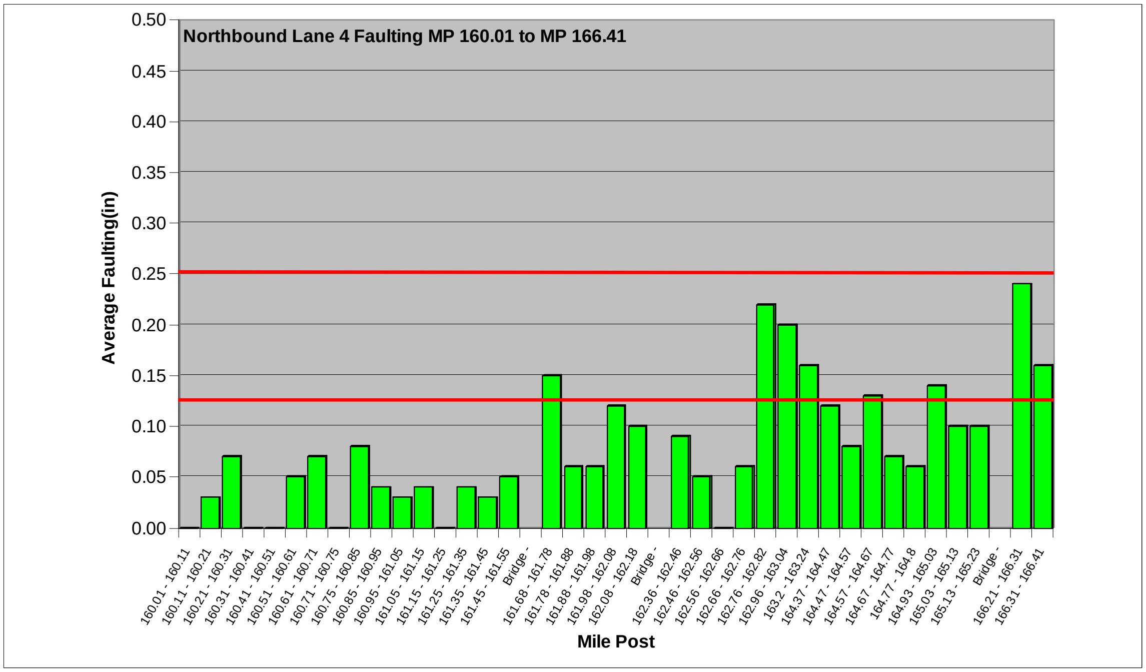
Northbound Lane 4 Faulting Plots

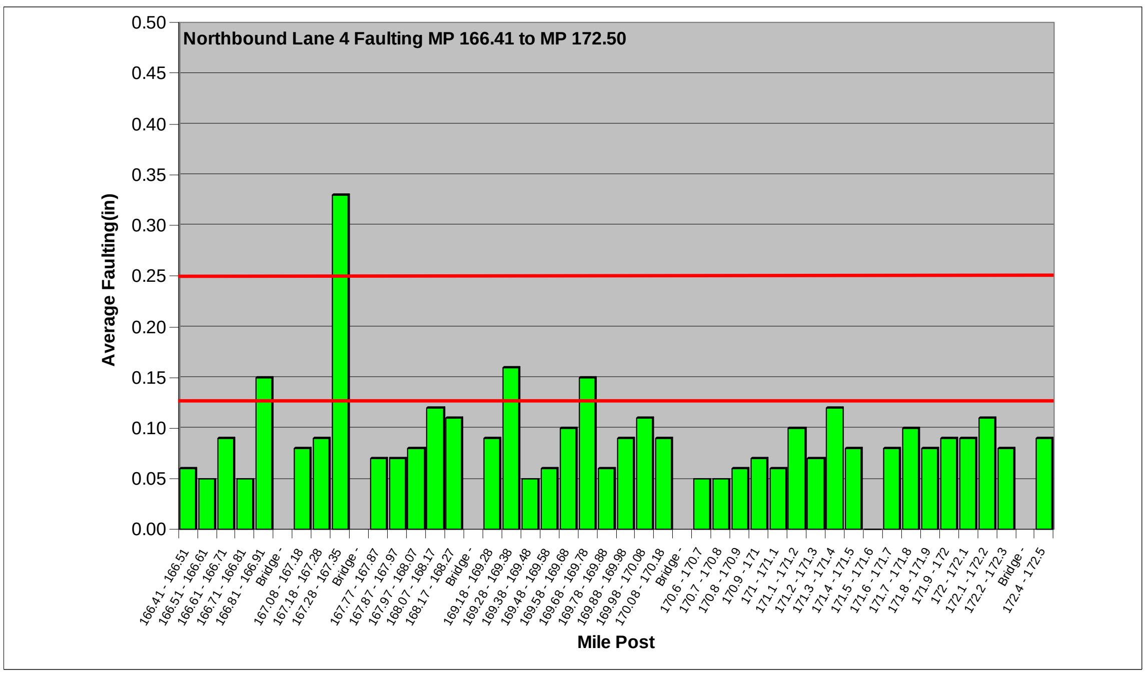


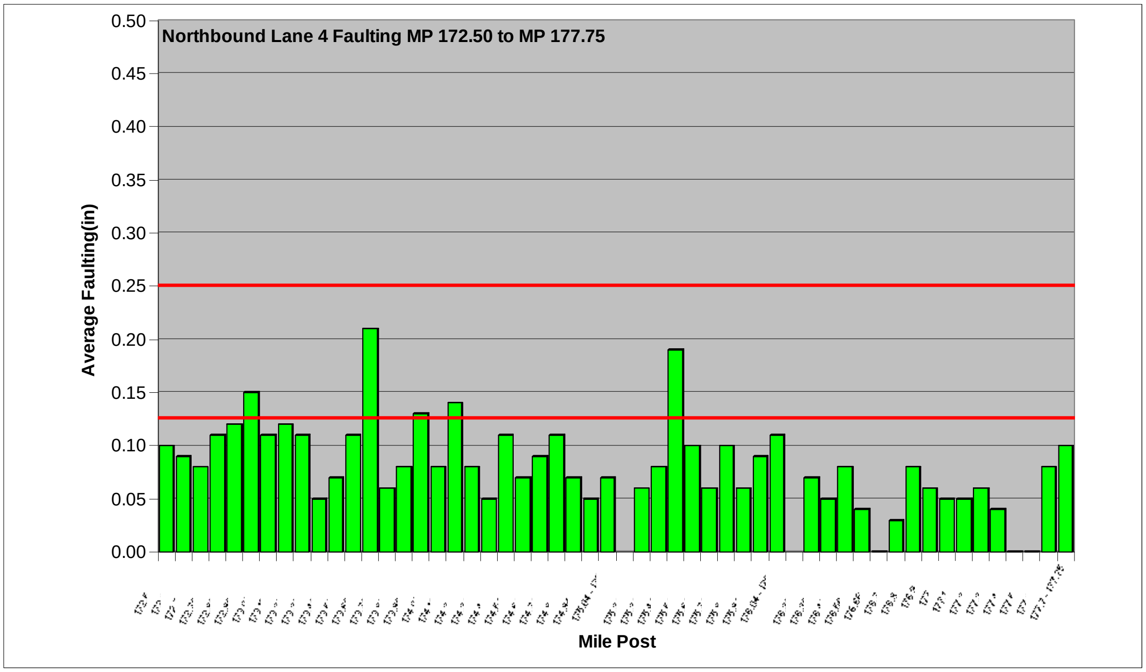



Northbound Lane 4 Faulting MP 147.87 to MP 151.97
Average Faulting(in)
Mile Post

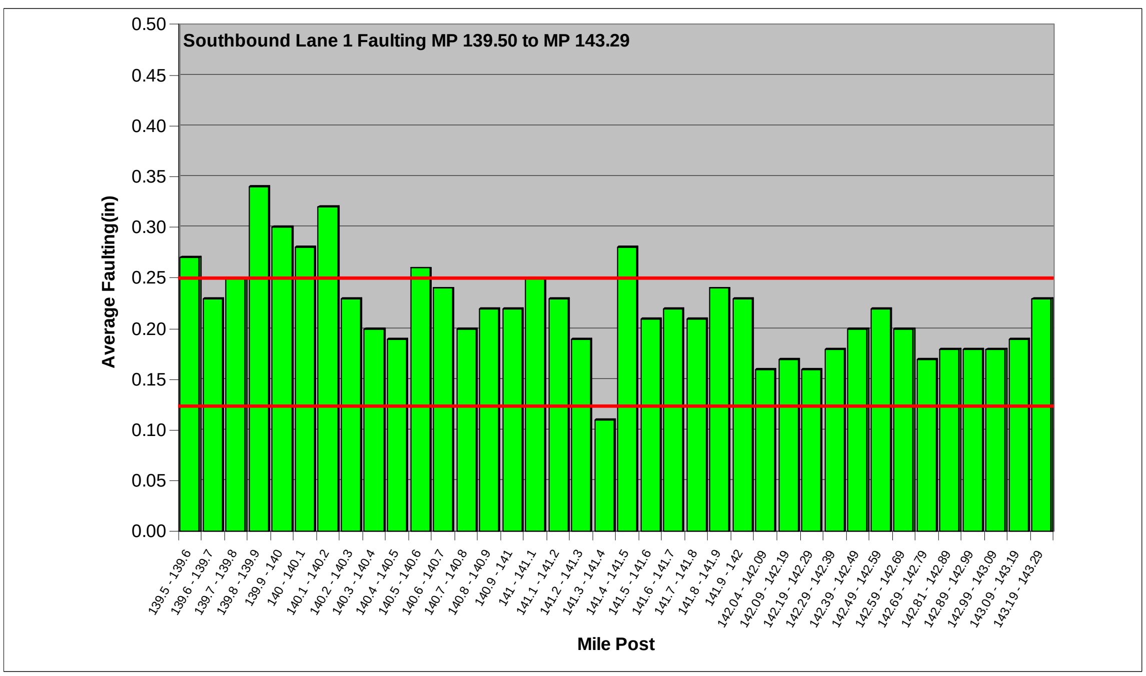

Northbound Lane 4 Faulting MP 151.99 to MP 160.01
Average Faulting(in)
Mile Post

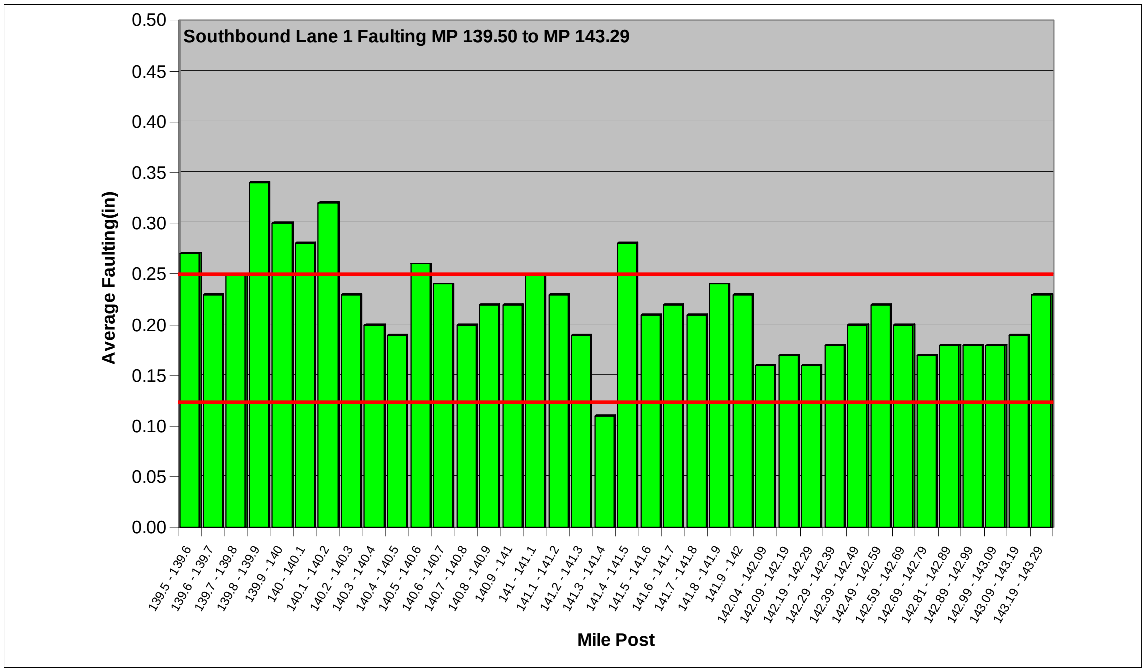

Northbound Lane 4 Faulting MP 160.01 to MP 166.41
Average Faulting(in)
Mile Post

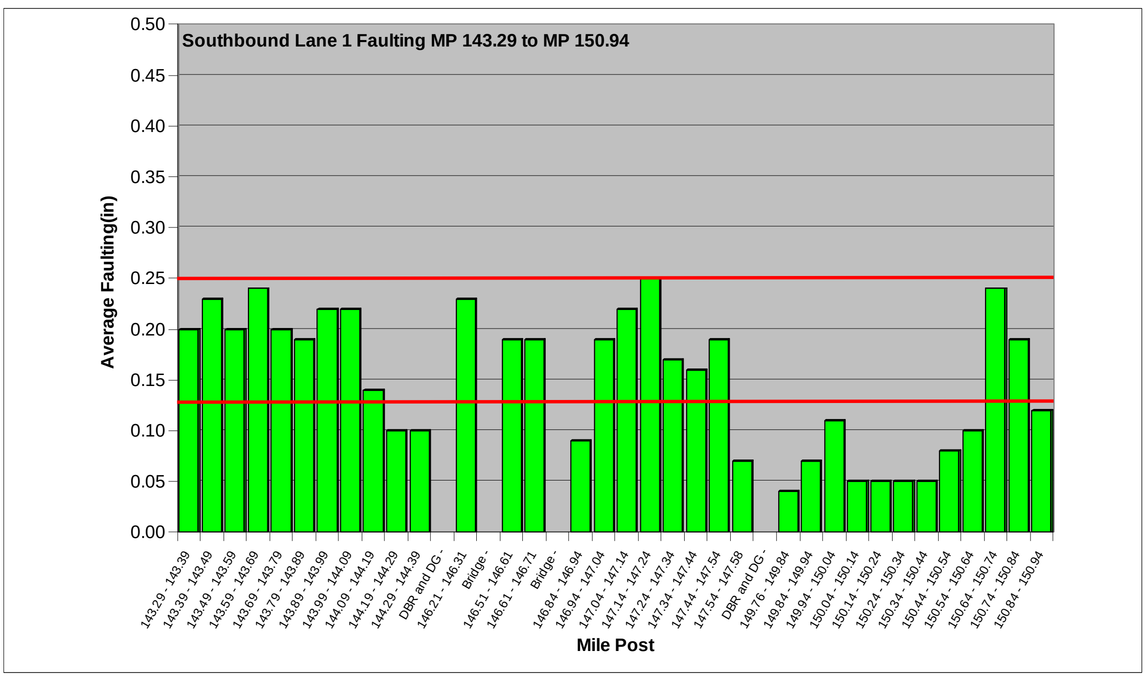

Northbound Lane 4 Faulting MP 166.41 to MP 172.50
Average Faulting(in)
Mile Post

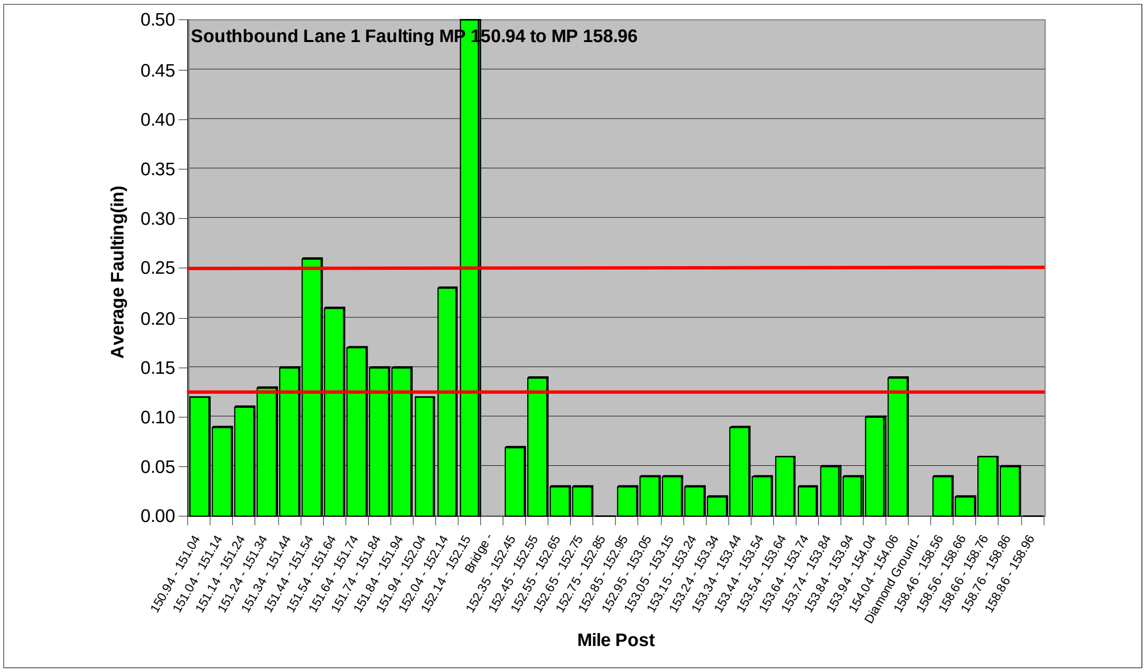


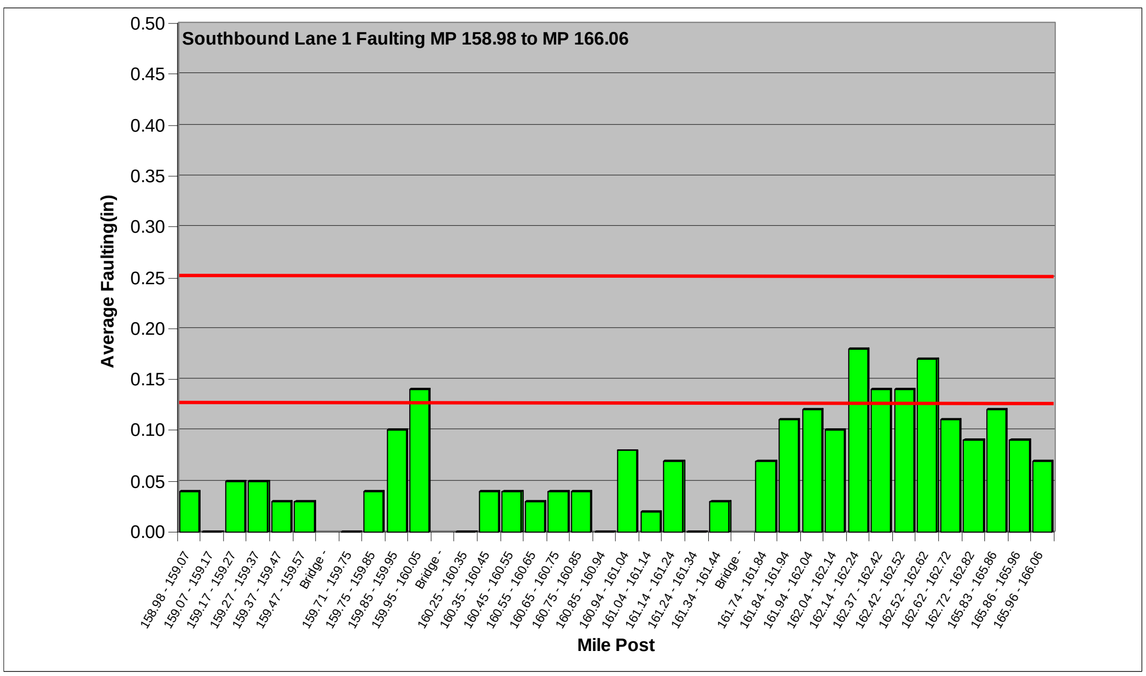
Southbound Lane 1 Faulting Plots

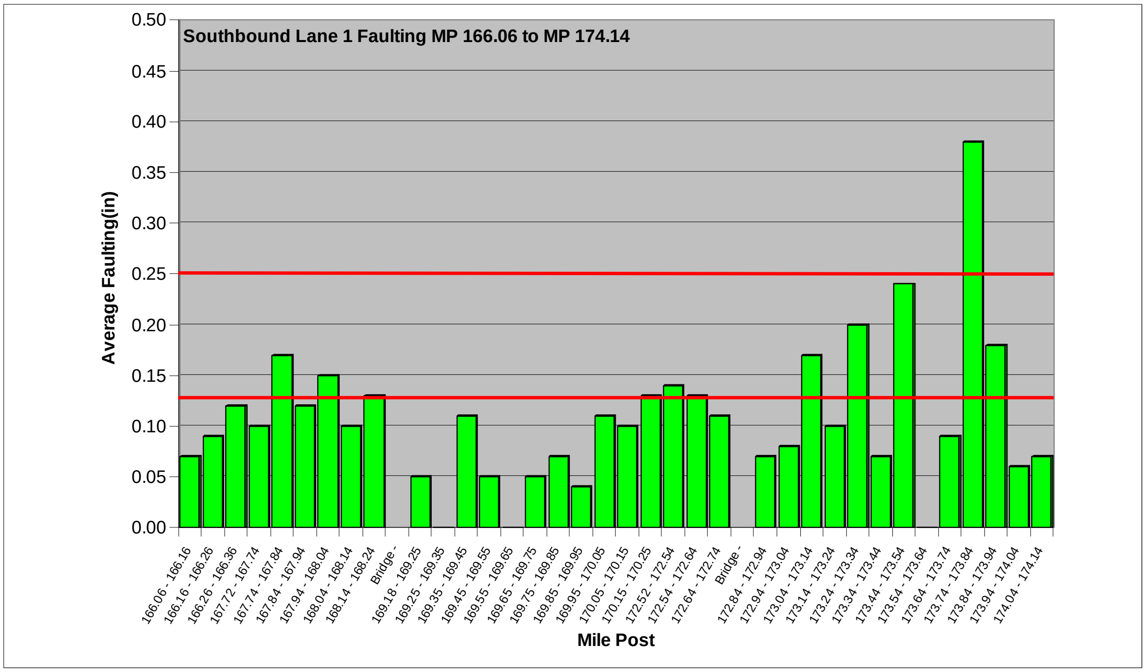



Southbound Lane 1 Faulting MP 139.50 to MP 143.29
Average Faulting(in)
Mile Post

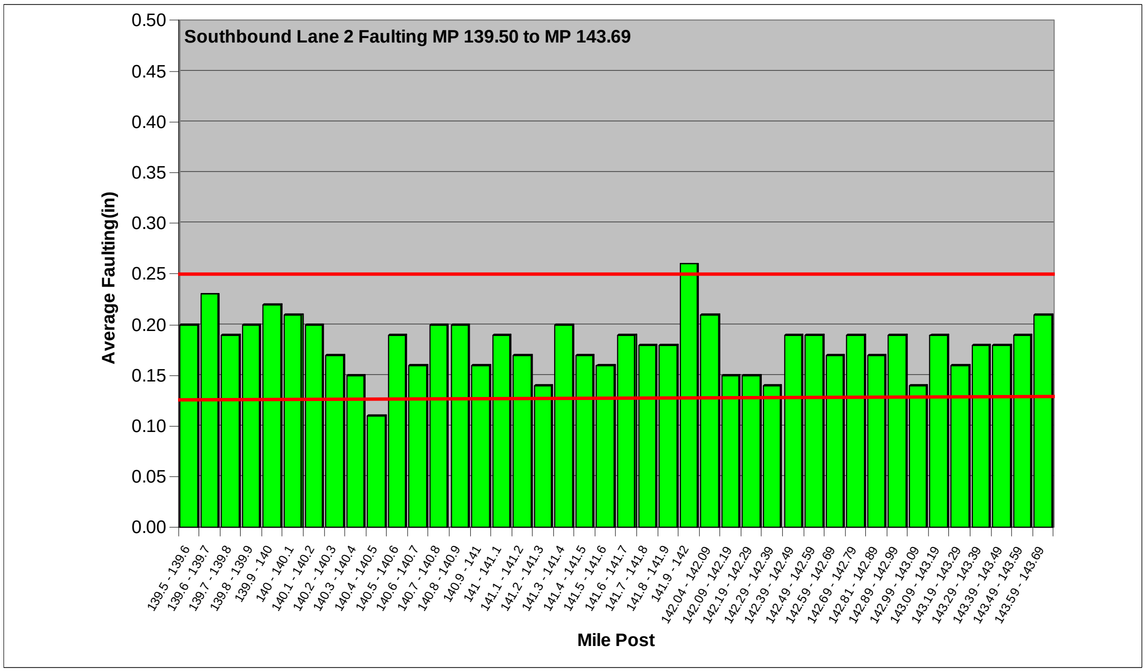

Southbound Lane 1 Faulting MP 143.29 to MP 150.94
Average Faulting(in)
Mile Post

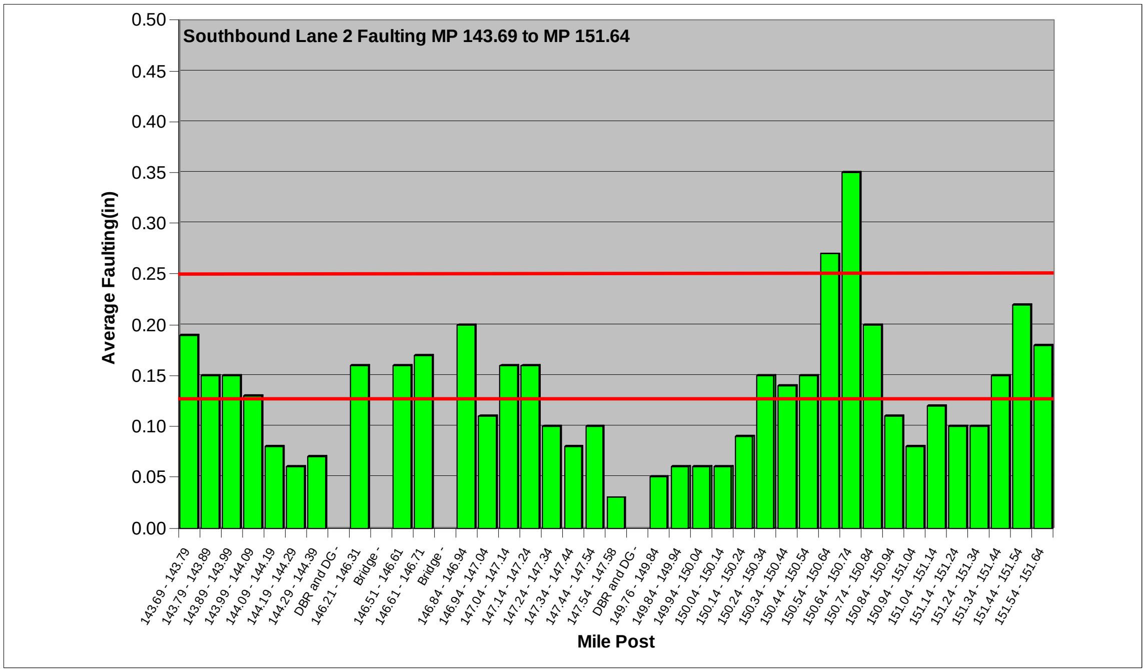

Southbound Lane 1 Faulting MP 150.94 to MP 158.96
Average Faulting(in)
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
150.94 - 151.04
151.04 - 151.14
151.14 - 151.24
151.24 - 151.34
151.34 - 151.44
151.44 - 151.54
151.54 - 151.64
151.64 - 151.74
151.74 - 151.84
151.84 - 151.94
151.94 - 152.04
152.04 - 152.14
152.14 - 152.15
Bridge -
152.35 - 152.45
152.45 - 152.55
152.55 - 152.65
152.65 - 152.75
152.75 - 152.85
152.85 - 152.95
152.95 - 153.05
153.05 - 153.15
153.15 - 153.24
153.24 - 153.34
153.34 - 153.44
153.44 - 153.54
153.54 - 153.64
153.64 - 153.74
153.74 - 153.84
153.84 - 153.94
153.94 - 154.04
154.04 - 154.06
Diamond Ground -
158.46 - 158.56
158.56 - 158.66
158.66 - 158.76
158.76 - 158.86
158.86 - 158.96
Mile Post

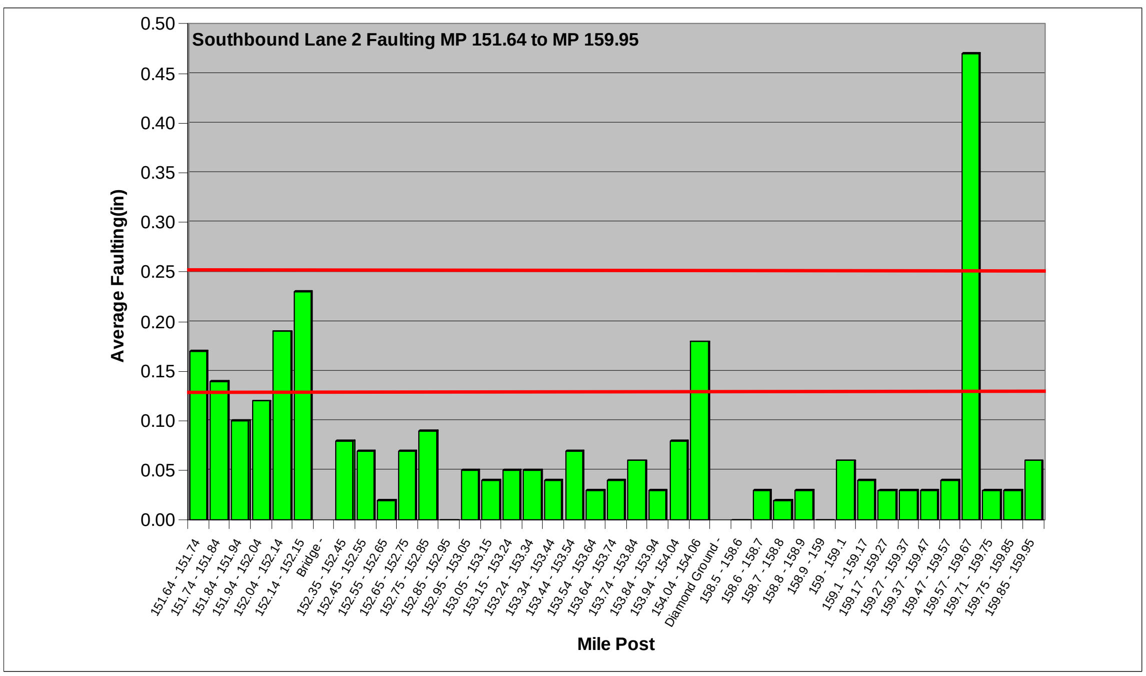

Southbound Lane 1 Faulting MP 158.98 to MP 166.06
Average Faulting(in)
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
158.98 - 159.07
159.07 - 159.17
159.17 - 159.27
159.27 - 159.37
159.37 - 159.47
159.47 - 159.57
Bridge -
159.71 - 159.75
159.75 - 159.85
159.85 - 159.95
159.95 - 160.05
Bridge -
160.25 - 160.35
160.35 - 160.45
160.45 - 160.55
160.55 - 160.65
160.65 - 160.75
160.75 - 160.85
160.85 - 160.94
160.94 - 161.04
161.04 - 161.14
161.14 - 161.24
161.24 - 161.34
161.34 - 161.44
Bridge -
161.74 - 161.84
161.84 - 161.94
161.94 - 162.04
162.04 - 162.14
162.14 - 162.24
162.37 - 162.42
162.42 - 162.52
162.52 - 162.62
162.62 - 162.72
162.72 - 162.82
165.83 - 165.86
165.86 - 165.96
165.96 - 166.06
Mile Post

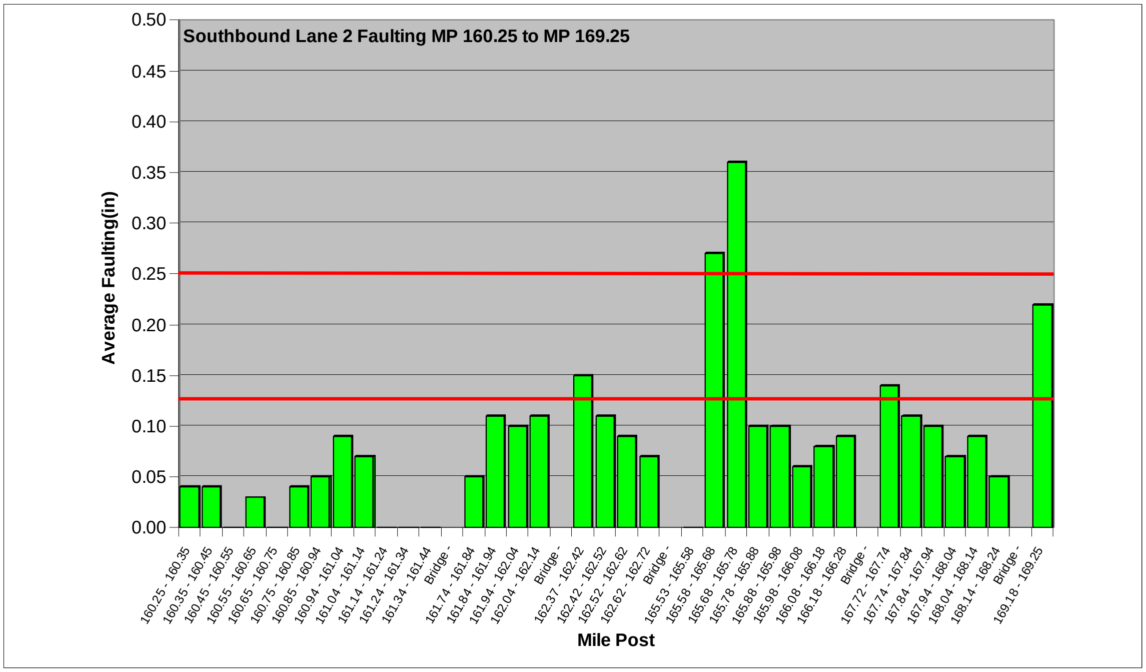


Southbound Lane 2 Faulting Plots

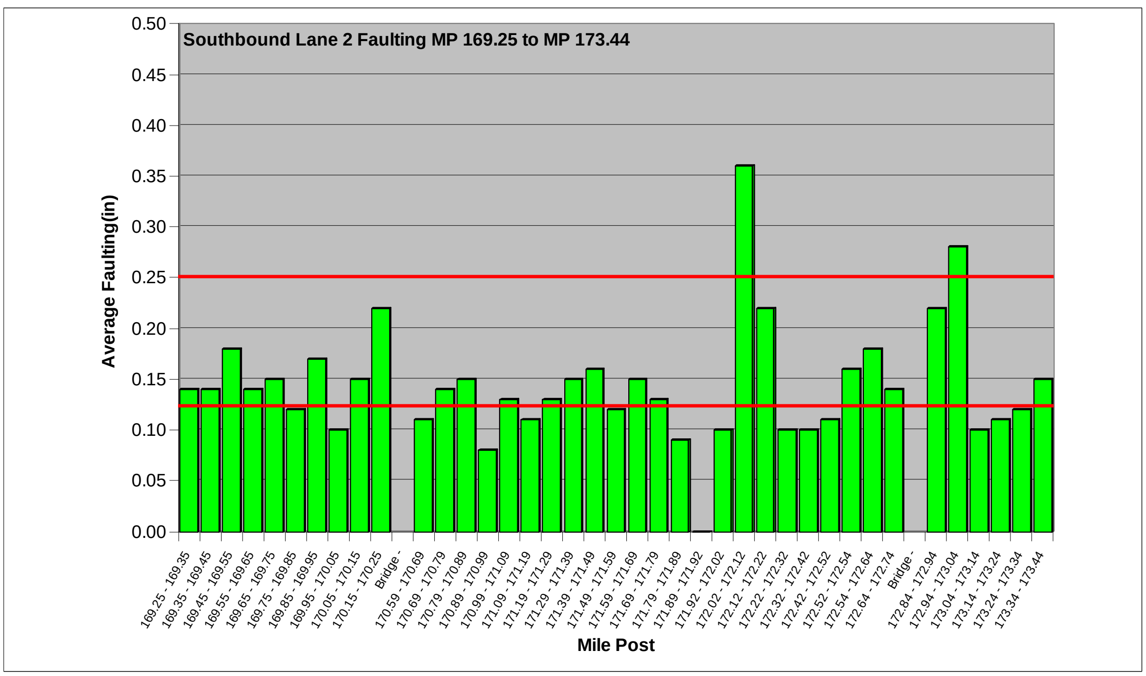



Southbound Lane 2 Faulting MP 143.69 to MP 151.64
Average Faulting(in)
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
143.69 - 143.79
143.79 - 143.89
143.89 - 143.99
143.99 - 144.09
144.09 - 144.19
144.19 - 144.29
144.29 - 144.39
DBR and DG -
146.21 - 146.31
Bridge -
146.51 - 146.61
146.61 - 146.71
Bridge -
146.84 - 146.94
146.94 - 147.04
147.04 - 147.14
147.14 - 147.24
147.24 - 147.34
147.34 - 147.44
147.44 - 147.54
147.54 - 147.58
DBR and DG -
149.76 - 149.84
149.84 - 149.94
149.94 - 150.04
150.04 - 150.14
150.14 - 150.24
150.24 - 150.34
150.34 - 150.44
150.44 - 150.54
150.54 - 150.64
150.64 - 150.74
150.74 - 150.84
150.84 - 150.94
150.94 - 151.04
151.04 - 151.14
151.14 - 151.24
151.24 - 151.34
151.34 - 151.44
151.44 - 151.54
151.54 - 151.64
Mile Post

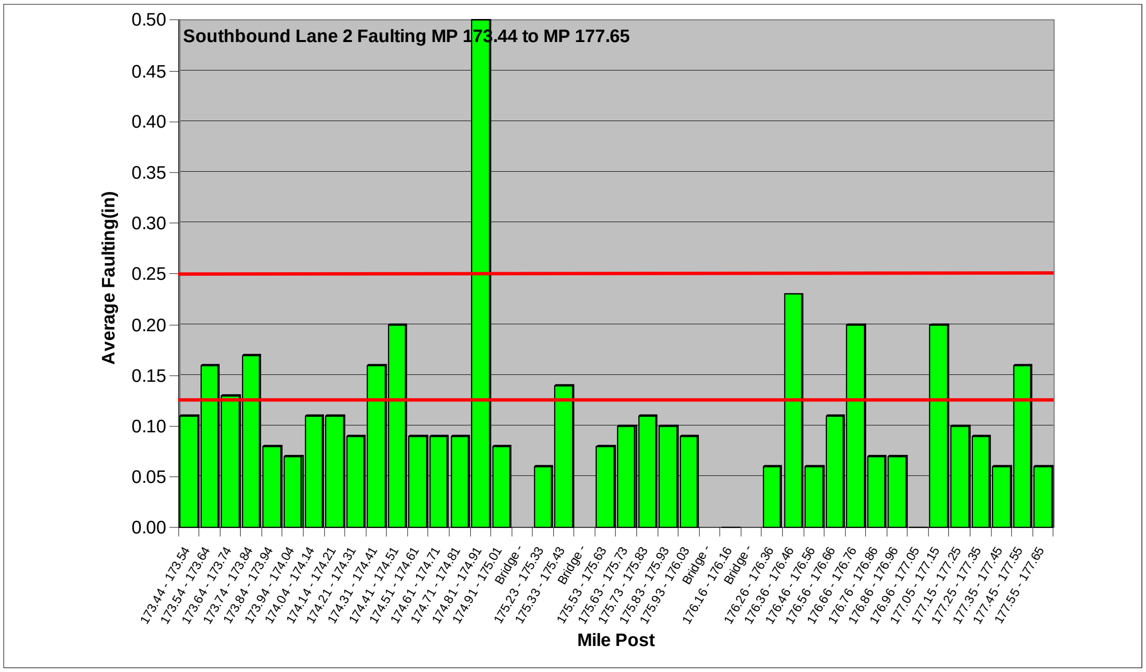

Southbound Lane 2 Faulting MP 151.64 to MP 159.95
Average Faulting(in)
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
151.64 - 151.74
151.74 - 151.84
151.84 - 151.94
151.94 - 152.04
152.04 - 152.14
152.14 - 152.15
Bridge -
152.35 - 152.45
152.45 - 152.55
152.55 - 152.65
152.65 - 152.75
152.75 - 152.85
152.85 - 152.95
152.95 - 153.05
153.05 - 153.15
153.15 - 153.24
153.24 - 153.34
153.34 - 153.44
153.44 - 153.54
153.54 - 153.64
153.64 - 153.74
153.74 - 153.84
153.84 - 153.94
153.94 - 154.04
154.04 - 154.06
Diamond Ground -
158.5 - 158.6
158.6 - 158.7
158.7 - 158.8
158.8 - 158.9
158.9 - 159
159 - 159.1
159.1 - 159.17
159.17 - 159.27
159.27 - 159.37
159.37 - 159.47
159.47 - 159.57
159.57 - 159.67
159.71 - 159.75
159.75 - 159.85
159.85 - 159.95
Mile Post



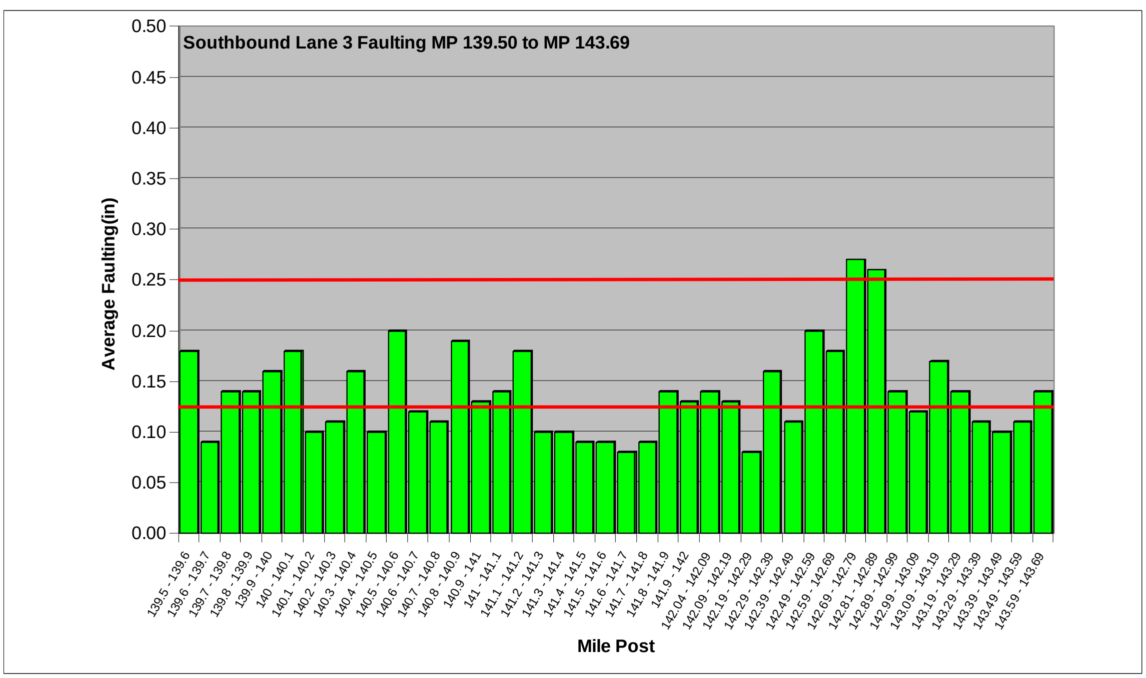
Southbound Lane 2 Faulting MP 160.25 to MP 169.25
Average Faulting(in)
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
160.25 - 160.35
160.35 - 160.45
160.45 - 160.55
160.55 - 160.65
160.65 - 160.75
160.75 - 160.85
160.85 - 160.94
160.94 - 161.04
161.04 - 161.14
161.14 - 161.24
161.24 - 161.34
161.34 - 161.44
Bridge -
161.74 - 161.84
161.84 - 161.94
161.94 - 162.04
162.04 - 162.14
Bridge -
162.37 - 162.42
162.42 - 162.52
162.52 - 162.62
162.62 - 162.72
Bridge -
165.53 - 165.58
165.58 - 165.68
165.68 - 165.78
165.78 - 165.88
165.88 - 165.98
165.98 - 166.08
166.08 - 166.18
166.18 - 166.28
Bridge -
167.72 - 167.74
167.74 - 167.84
167.84 - 167.94
167.94 - 168.04
168.04 - 168.14
168.14 - 168.24
Bridge -
169.18 - 169.25
Mile Post

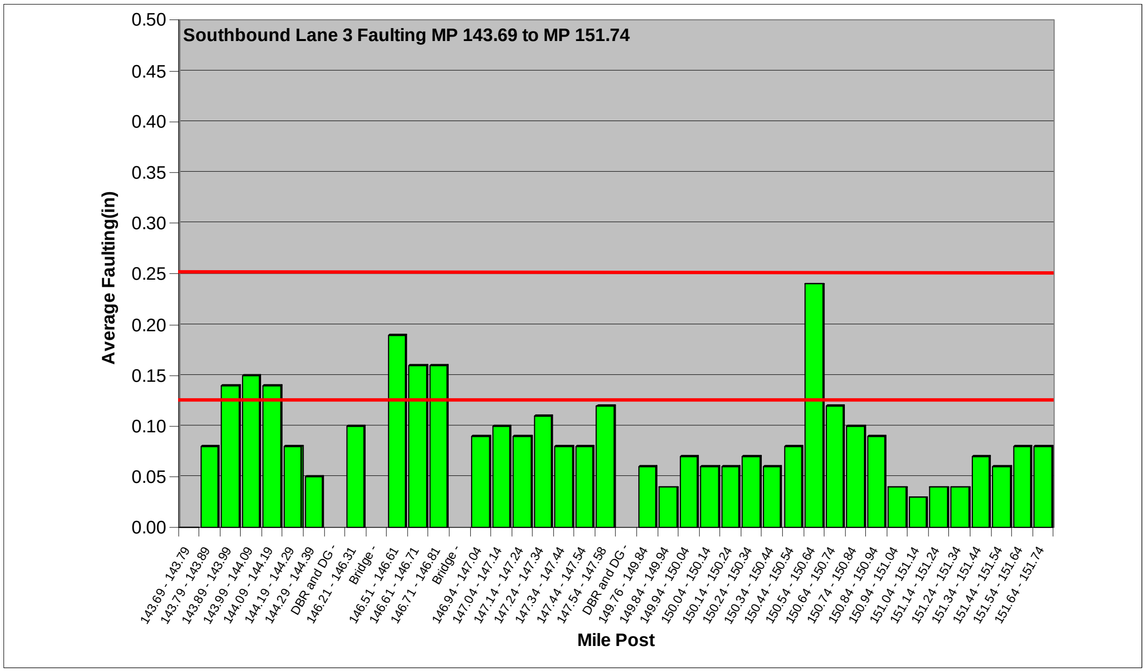


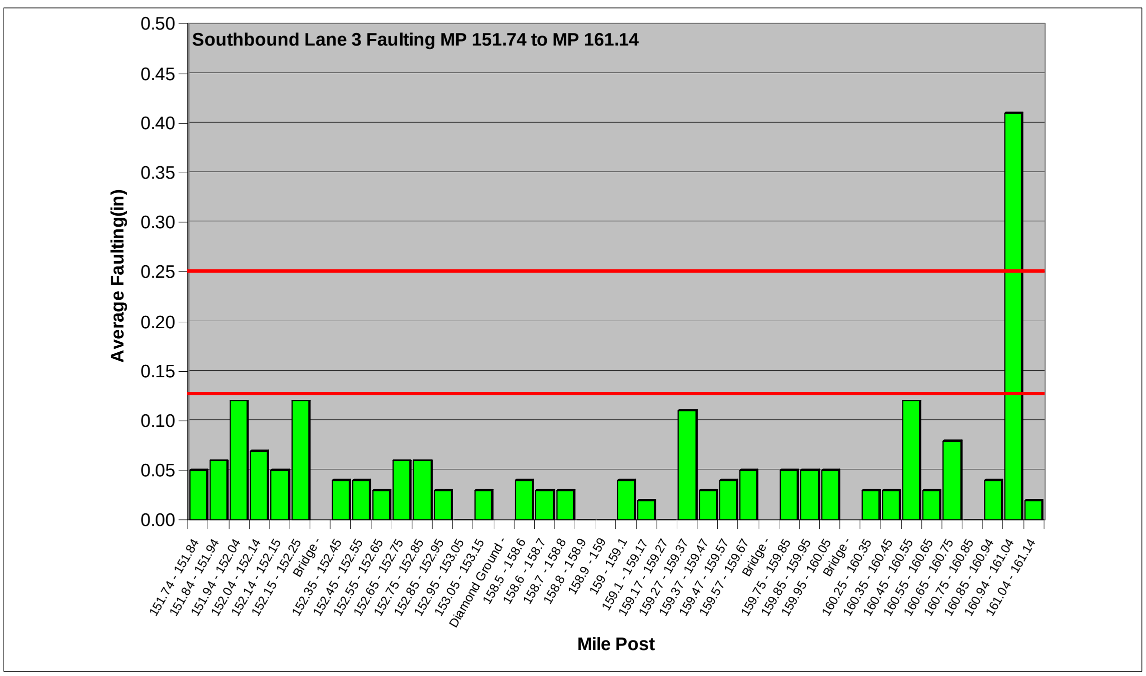
Southbound Lane 2 Faulting MP 169.25 to MP 173.44
Average Faulting(in)
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
169.25 - 169.35
169.35 - 169.45
169.45 - 169.55
169.55 - 169.65
169.65 - 169.75
169.75 - 169.85
169.85 - 169.95
169.95 - 170.05
170.05 - 170.15
170.15 - 170.25
Bridge -
170.59 - 170.69
170.69 - 170.79
170.79 - 170.89
170.89 - 170.99
170.99 - 171.09
171.09 - 171.19
171.19 - 171.29
171.29 - 171.39
171.39 - 171.49
171.49 - 171.59
171.59 - 171.69
171.69 - 171.79
171.79 - 171.89
171.89 - 171.92
171.92 - 172.02
172.02 - 172.12
172.12 - 172.22
172.22 - 172.32
172.32 - 172.42
172.42 - 172.52
172.52 - 172.54
172.54 - 172.64
172.64 - 172.74
Bridge -
172.84 - 172.94
172.94 - 173.04
173.04 - 173.14
173.14 - 173.24
173.24 - 173.34
173.34 - 173.44
Mile Post

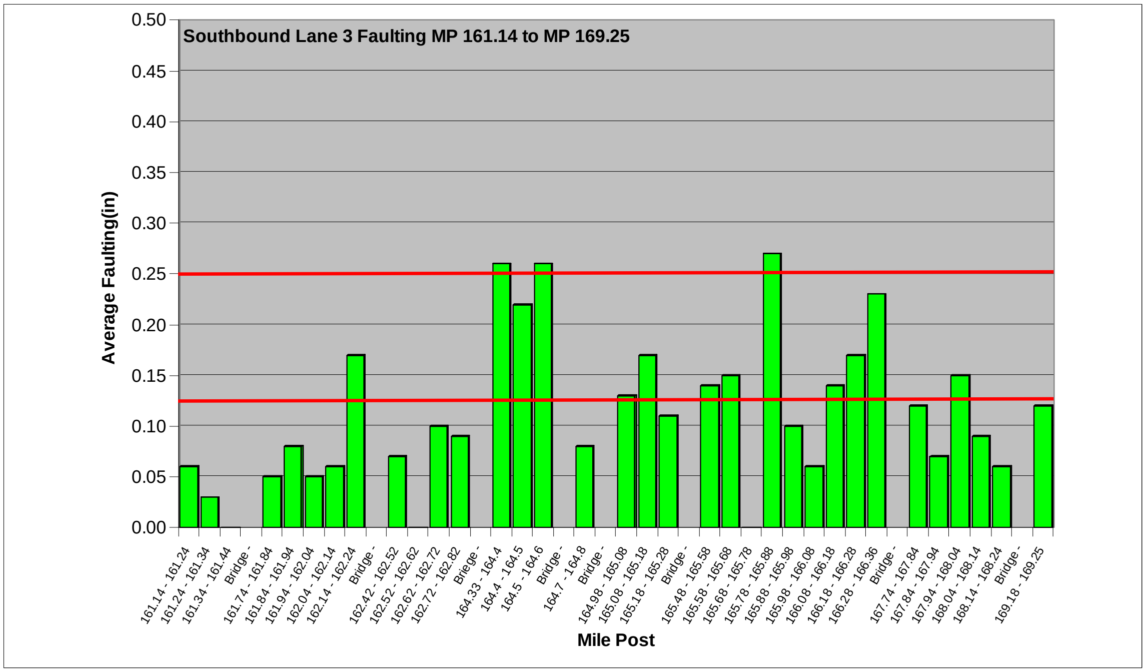


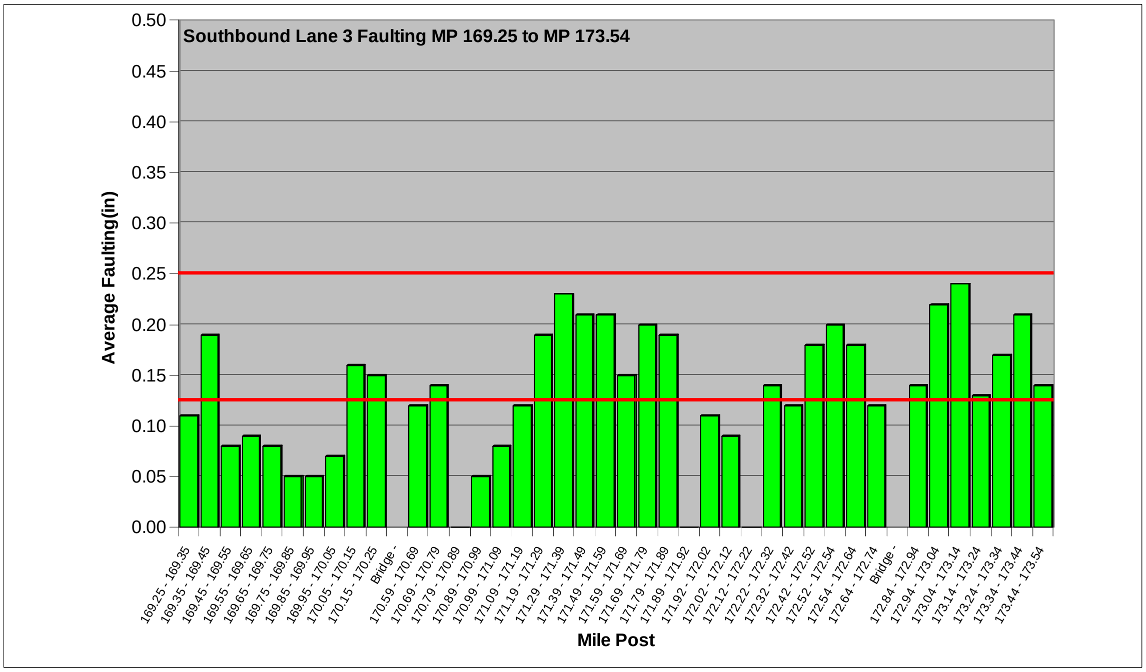
Southbound Lane 3 Faulting Plots

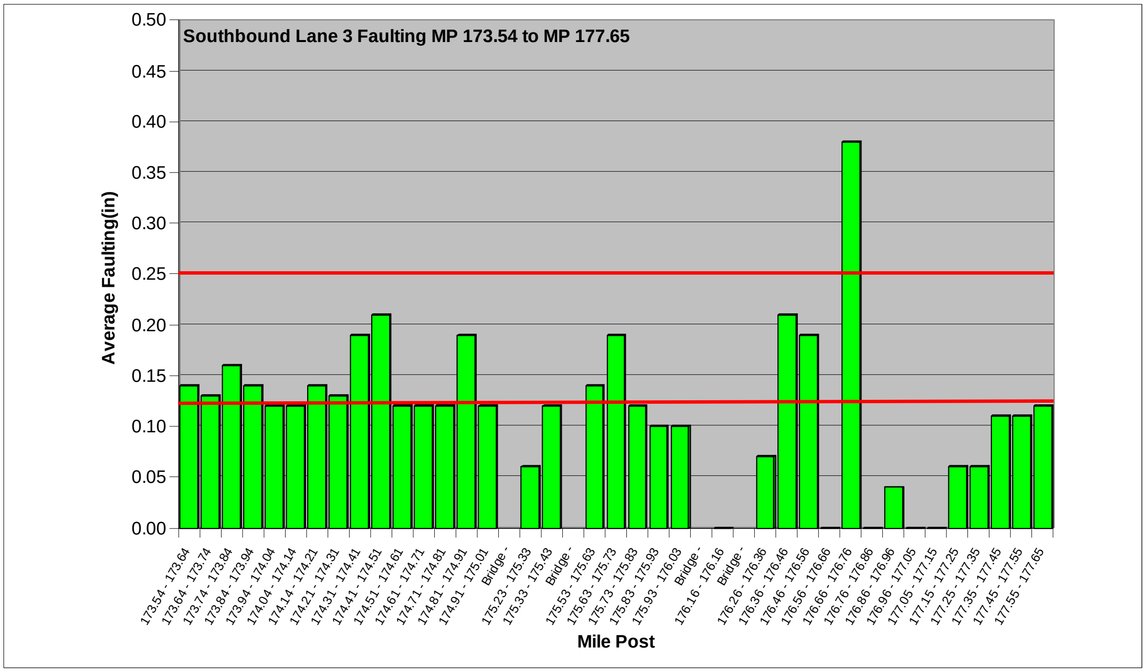



Southbound Lane 3 Faulting MP 143.69 to MP 151.74
Average Faulting(in)
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
143.69 - 143.79
143.79 - 143.89
143.89 - 143.99
143.99 - 144.09
144.09 - 144.19
144.19 - 144.29
144.29 - 144.39
DBR and DG -
146.21 - 146.31
Bridge -
146.51 - 146.61
146.61 - 146.71
146.71 - 146.81
Bridge -
146.94 - 147.04
147.04 - 147.14
147.14 - 147.24
147.24 - 147.34
147.34 - 147.44
147.44 - 147.54
147.54 - 147.58
DBR and DG -
149.76 - 149.84
149.84 - 149.94
149.94 - 150.04
150.04 - 150.14
150.14 - 150.24
150.24 - 150.34
150.34 - 150.44
150.44 - 150.54
150.54 - 150.64
150.64 - 150.74
150.74 - 150.84
150.84 - 150.94
150.94 - 151.04
151.04 - 151.14
151.14 - 151.24
151.24 - 151.34
151.34 - 151.44
151.44 - 151.54
151.54 - 151.64
151.64 - 151.74
Mile Post

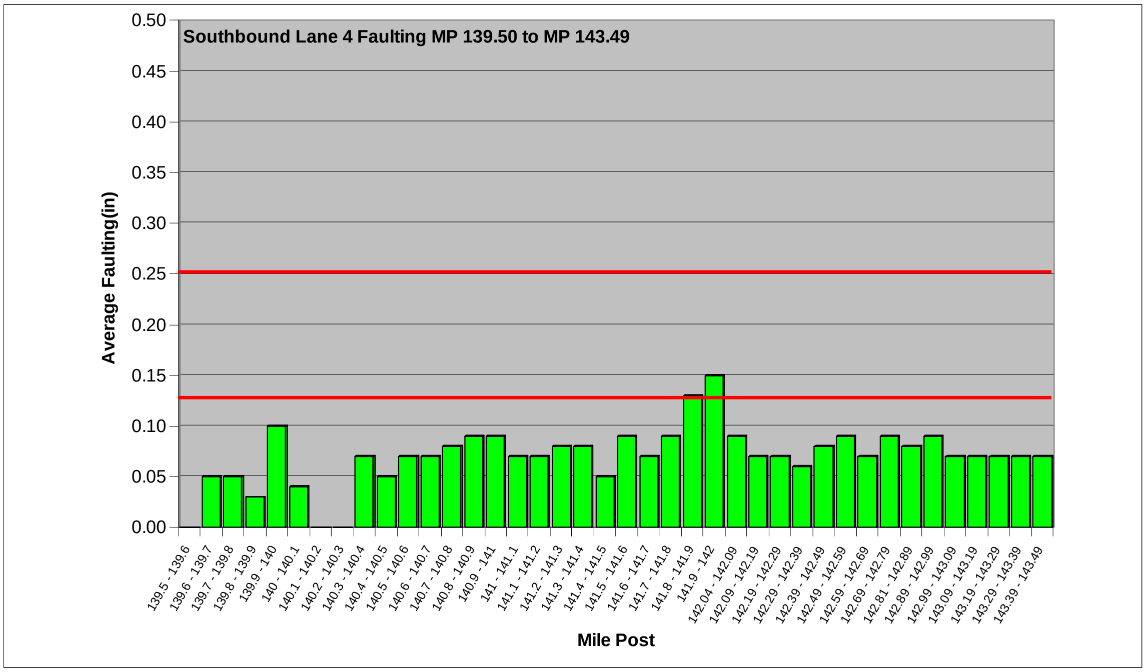

Southbound Lane 3 Faulting MP 151.74 to MP 161.14
Average Faulting(in)
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
151.74 - 151.84
151.84 - 151.94
151.94 - 152.04
152.04 - 152.14
152.14 - 152.15
152.15 - 152.25
Bridge -
152.35 - 152.45
152.45 - 152.55
152.55 - 152.65
152.65 - 152.75
152.75 - 152.85
152.85 - 152.95
152.95 - 153.05
153.05 - 153.15
Diamond Ground -
158.5 - 158.6
158.6 - 158.7
158.7 - 158.8
158.8 - 158.9
158.9 - 159
159 - 159.1
159.1 - 159.17
159.17 - 159.27
159.27 - 159.37
159.37 - 159.47
159.47 - 159.57
159.57 - 159.67
Bridge -
159.75 - 159.85
159.85 - 159.95
159.95 - 160.05
Bridge -
160.25 - 160.35
160.35 - 160.45
160.45 - 160.55
160.55 - 160.65
160.65 - 160.75
160.75 - 160.85
160.85 - 160.94
160.94 - 161.04
161.04 - 161.14
Mile Post

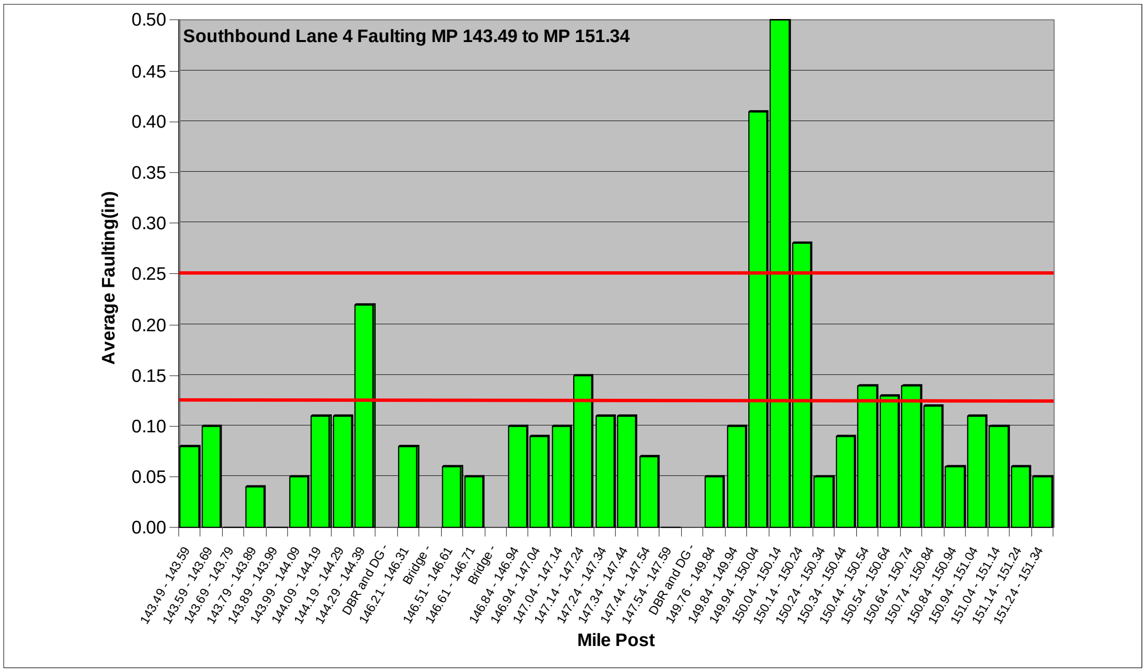

Southbound Lane 3 Faulting MP 161.14 to MP 169.25
Average Faulting(in)
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
161.14 - 161.24
161.24 - 161.34
161.34 - 161.44
Bridge -
161.74 - 161.84
161.84 - 161.94
161.94 - 162.04
162.04 - 162.14
162.14 - 162.24
Bridge -
162.42 - 162.52
162.52 - 162.62
162.62 - 162.72
162.72 - 162.82
Briege -
164.33 - 164.4
164.4 - 164.5
164.5 - 164.6
Bridge -
164.7 - 164.8
Bridge -
164.98 - 165.08
165.08 - 165.18
165.18 - 165.28
Bridge -
165.48 - 165.58
165.58 - 165.68
165.68 - 165.78
165.78 - 165.88
165.88 - 165.98
165.98 - 166.08
166.08 - 166.18
166.18 - 166.28
166.28 - 166.36
Bridge -
167.74 - 167.84
167.84 - 167.94
167.94 - 168.04
168.04 - 168.14
168.14 - 168.24
Bridge -
169.18 - 169.25
Mile Post

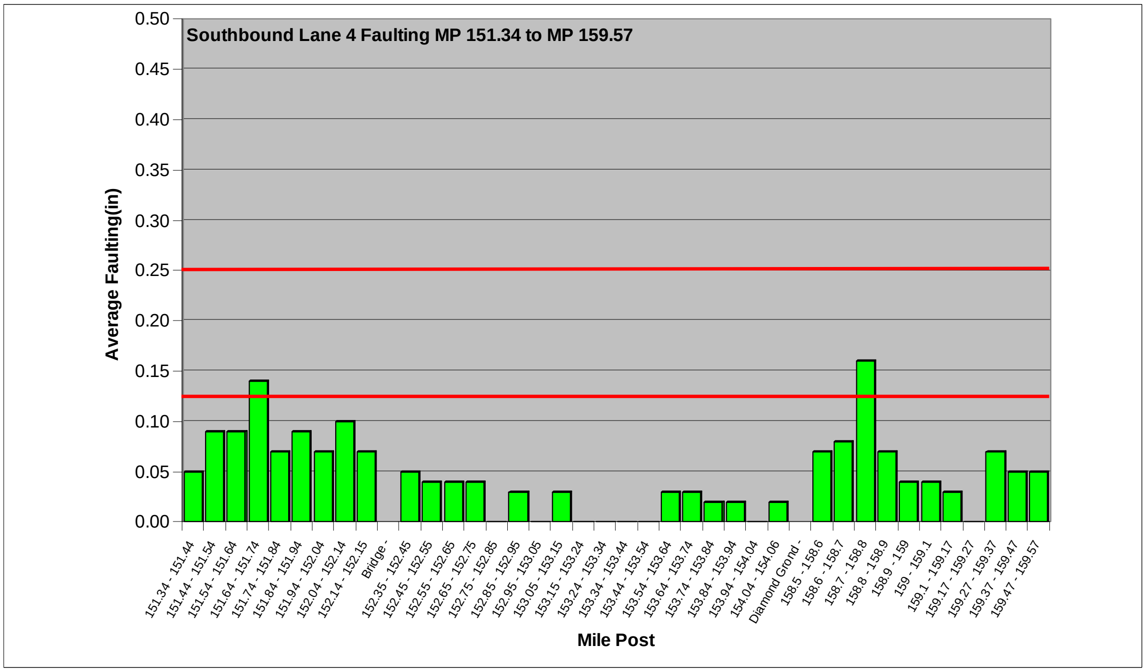

Southbound Lane 3 Faulting MP 169.25 to MP 173.54
Average Faulting(in)
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
169.25 - 169.35
169.35 - 169.45
169.45 - 169.55
169.55 - 169.65
169.65 - 169.75
169.75 - 169.85
169.85 - 169.95
169.95 - 170.05
170.05 - 170.15
170.15 - 170.25
Bridge -
170.59 - 170.69
170.69 - 170.79
170.79 - 170.89
170.89 - 170.99
170.99 - 171.09
171.09 - 171.19
171.19 - 171.29
171.29 - 171.39
171.39 - 171.49
171.49 - 171.59
171.59 - 171.69
171.69 - 171.79
171.79 - 171.89
171.89 - 171.92
171.92 - 172.02
172.02 - 172.12
172.12 - 172.22
172.22 - 172.32
172.32 - 172.42
172.42 - 172.52
172.52 - 172.54
172.54 - 172.64
172.64 - 172.74
Bridge -
172.84 - 172.94
172.94 - 173.04
173.04 - 173.14
173.14 - 173.24
173.24 - 173.34
173.34 - 173.44
173.44 - 173.54
Mile Post

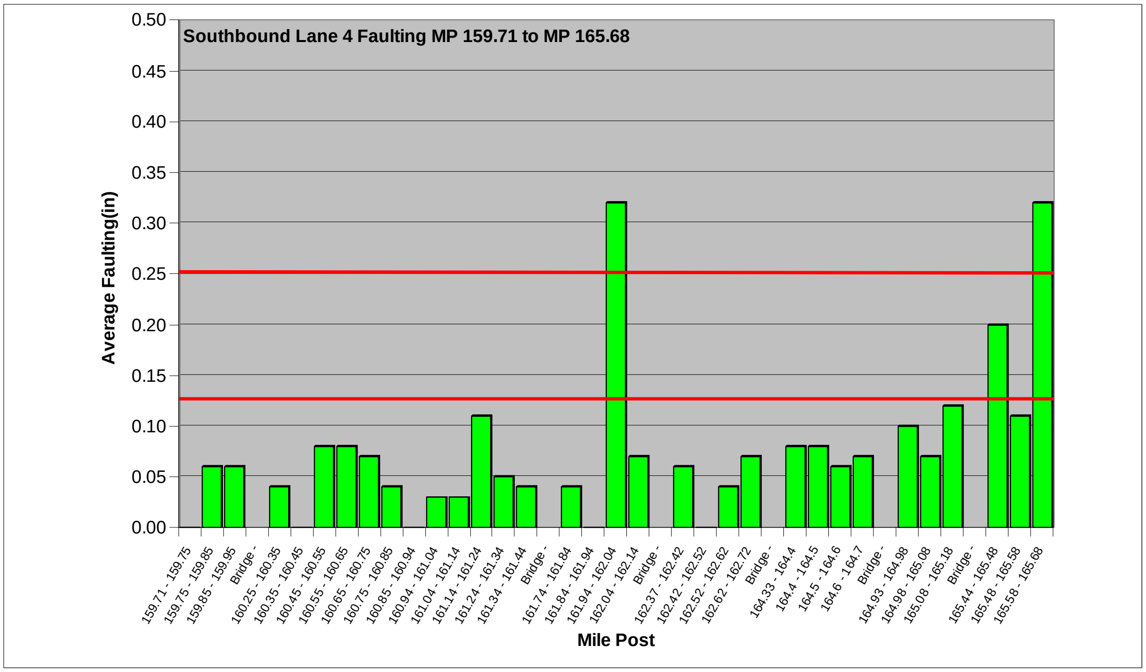


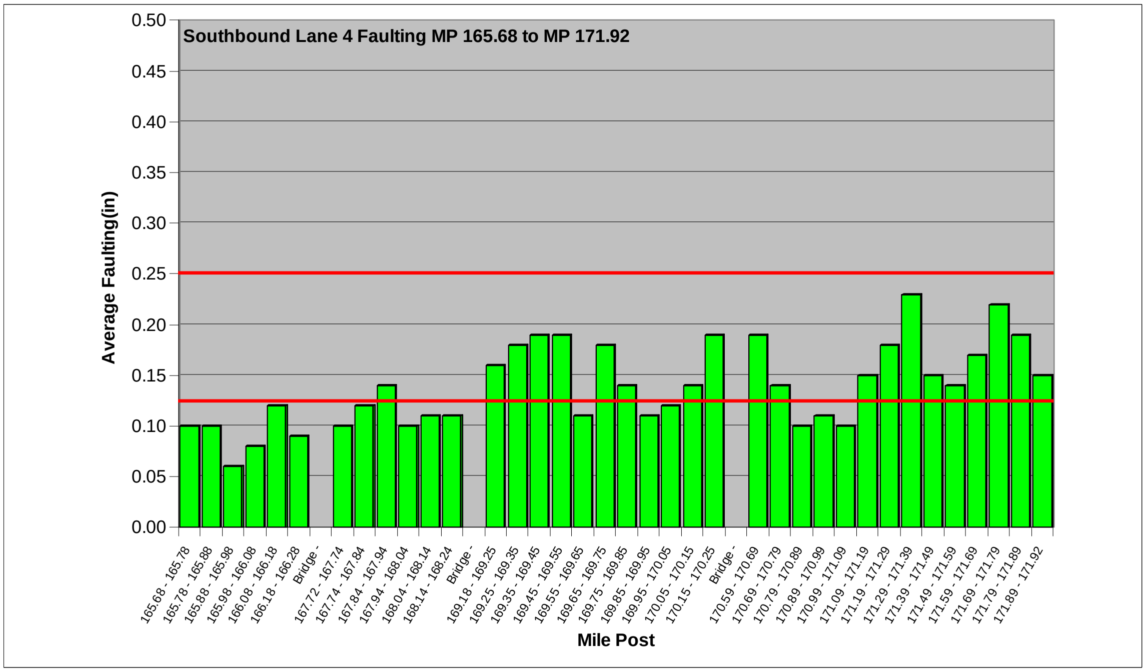
Southbound Lane 4 Faulting Plots

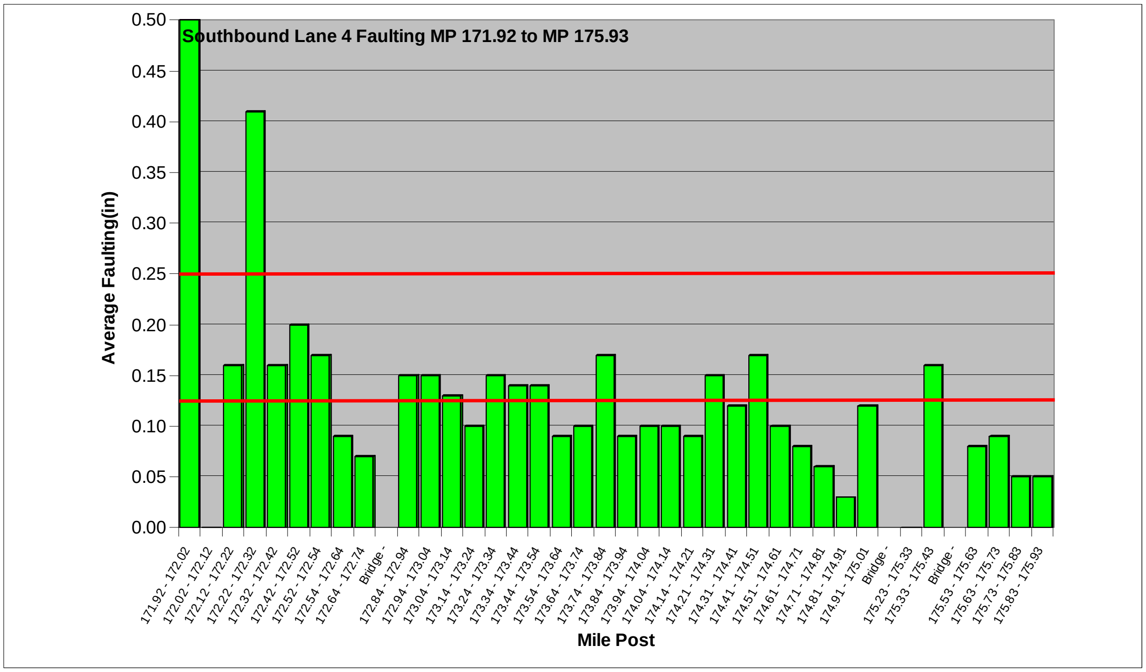


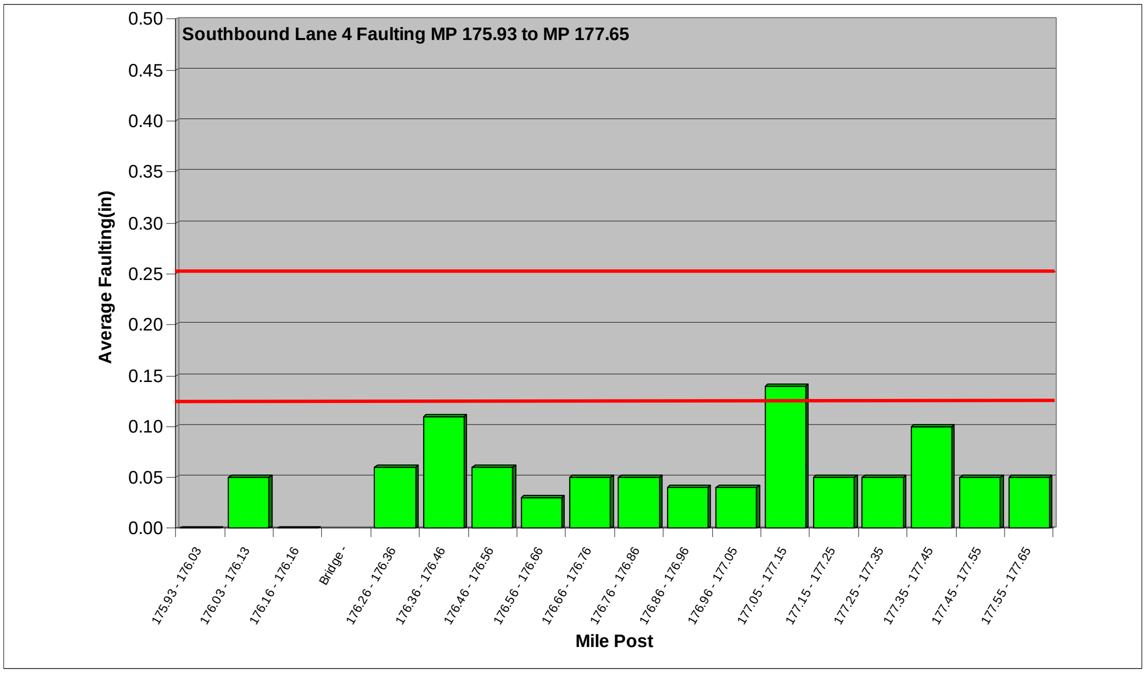

Southbound Lane 4 Faulting MP 143.49 to MP 151.34
Average Faulting(in)
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
143.49 - 143.59
143.59 - 143.69
143.69 - 143.79
143.79 - 143.89
143.89 - 143.99
143.99 - 144.09
144.09 - 144.19
144.19 - 144.29
144.29 - 144.39
DBR and DG -
146.21 - 146.31
Bridge -
146.51 - 146.61
146.61 - 146.71
Bridge -
146.84 - 146.94
146.94 - 147.04
147.04 - 147.14
147.14 - 147.24
147.24 - 147.34
147.34 - 147.44
147.44 - 147.54
147.54 - 147.59
DBR and DG -
149.76 - 149.84
149.84 - 149.94
149.94 - 150.04
150.04 - 150.14
150.14 - 150.24
150.24 - 150.34
150.34 - 150.44
150.44 - 150.54
150.54 - 150.64
150.64 - 150.74
150.74 - 150.84
150.84 - 150.94
150.94 - 151.04
151.04 - 151.14
151.14 - 151.24
151.24 - 151.34
Mile Post


Southbound Lane 4 Faulting MP 151.34 to MP 159.57
Average Faulting(in)
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
151.34 - 151.44
151.44 - 151.54
151.54 - 151.64
151.64 - 151.74
151.74 - 151.84
151.84 - 151.94
151.94 - 152.04
152.04 - 152.14
152.14 - 152.15
Bridge -
152.35 - 152.45
152.45 - 152.55
152.55 - 152.65
152.65 - 152.75
152.75 - 152.85
152.85 - 152.95
152.95 - 153.05
153.05 - 153.15
153.15 - 153.24
153.24 - 153.34
153.34 - 153.44
153.44 - 153.54
153.54 - 153.64
153.64 - 153.74
153.74 - 153.84
153.84 - 153.94
153.94 - 154.04
154.04 - 154.06
Diamond Grond -
158.5 - 158.6
158.6 - 158.7
158.7 - 158.8
158.8 - 158.9
158.9 - 159
159 - 159.1
159.1 - 159.17
159.17 - 159.27
159.27 - 159.37
159.37 - 159.47
159.47 - 159.57
Mile Post


Southbound Lane 4 Faulting MP 159.71 to MP 165.68
Average Faulting(in)
Mile Post

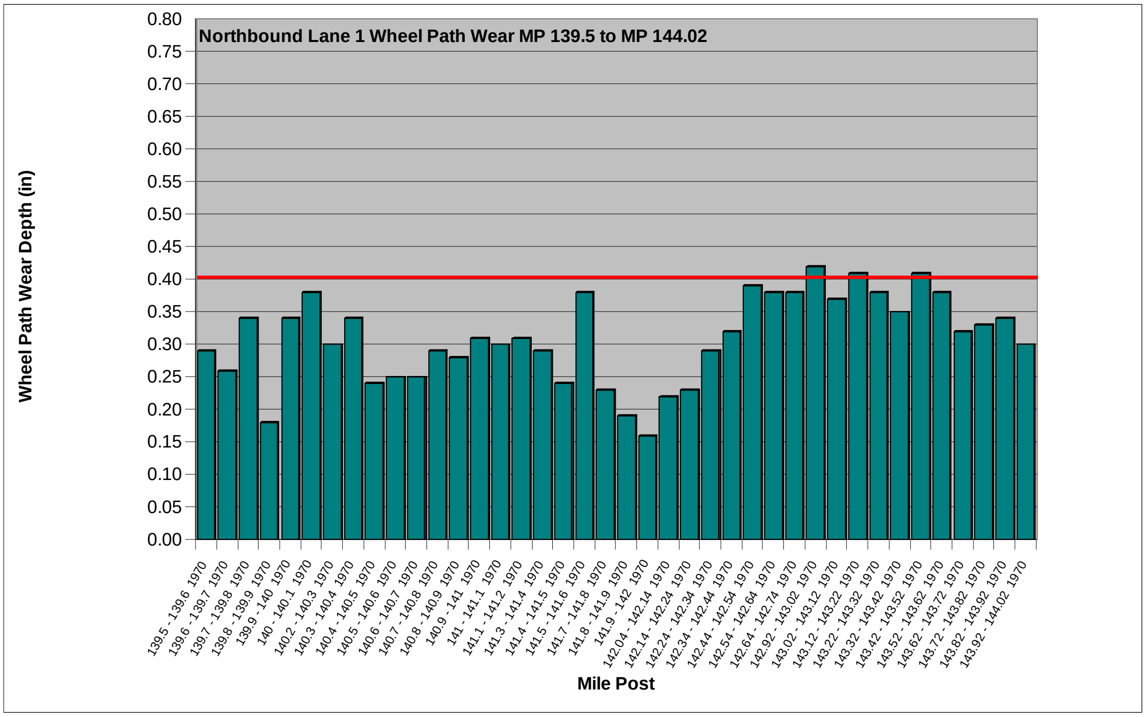

Southbound Lane 4 Faulting MP 165.68 to MP 171.92
Average Faulting(in)
Mile Post

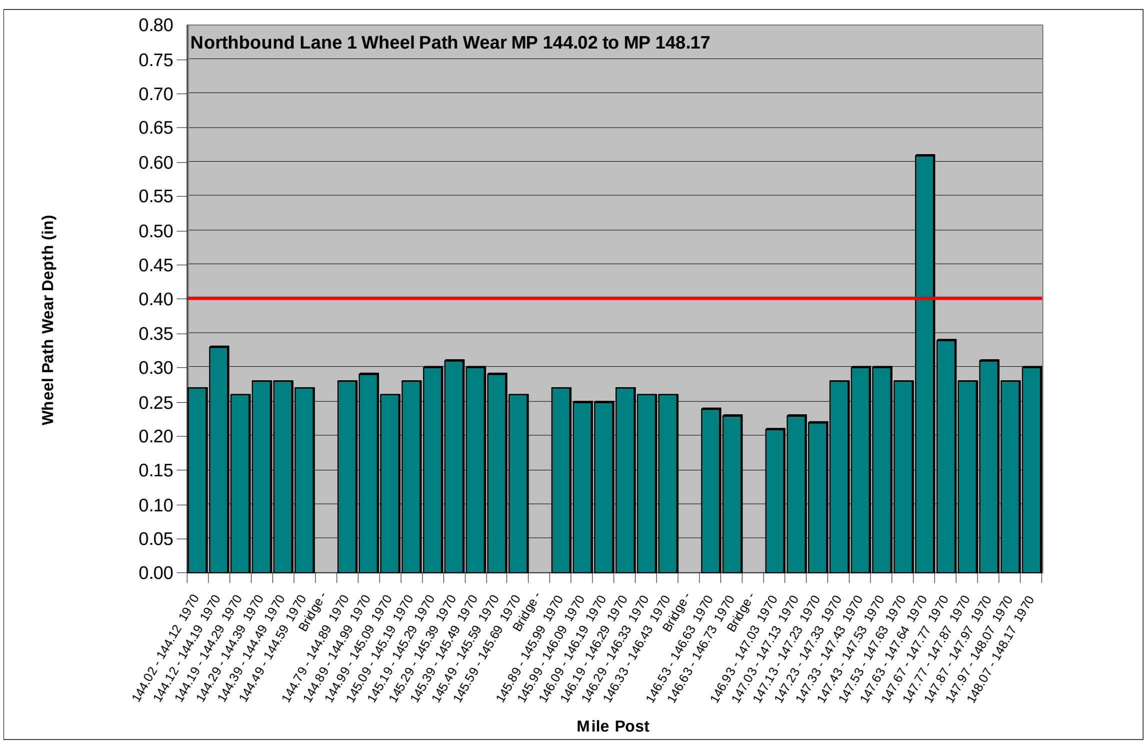

Southbound Lane 4 Faulting MP 171.92 to MP 175.93
Average Faulting(in)
Mile Post
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
171.92 - 172.02
172.02 - 172.12
172.12 - 172.22
172.22 - 172.32
172.32 - 172.42
172.42 - 172.52
172.52 - 172.54
172.54 - 172.64
172.64 - 172.74
Bridge -
172.84 - 172.94
172.94 - 173.04
173.04 - 173.14
173.14 - 173.24
173.24 - 173.34
173.34 - 173.44
173.44 - 173.54
173.54 - 173.64
173.64 - 173.74
173.74 - 173.84
173.84 - 173.94
173.94 - 174.04
174.04 - 174.14
174.14 - 174.21
174.21 - 174.31
174.31 - 174.41
174.41 - 174.51
174.51 - 174.61
174.61 - 174.71
174.71 - 174.81
174.81 - 174.91
174.91 - 175.01
Bridge -
175.23 - 175.33
175.33 - 175.43
Bridge -
175.53 - 175.63
175.63 - 175.73
175.73 - 175.83
175.83 - 175.93

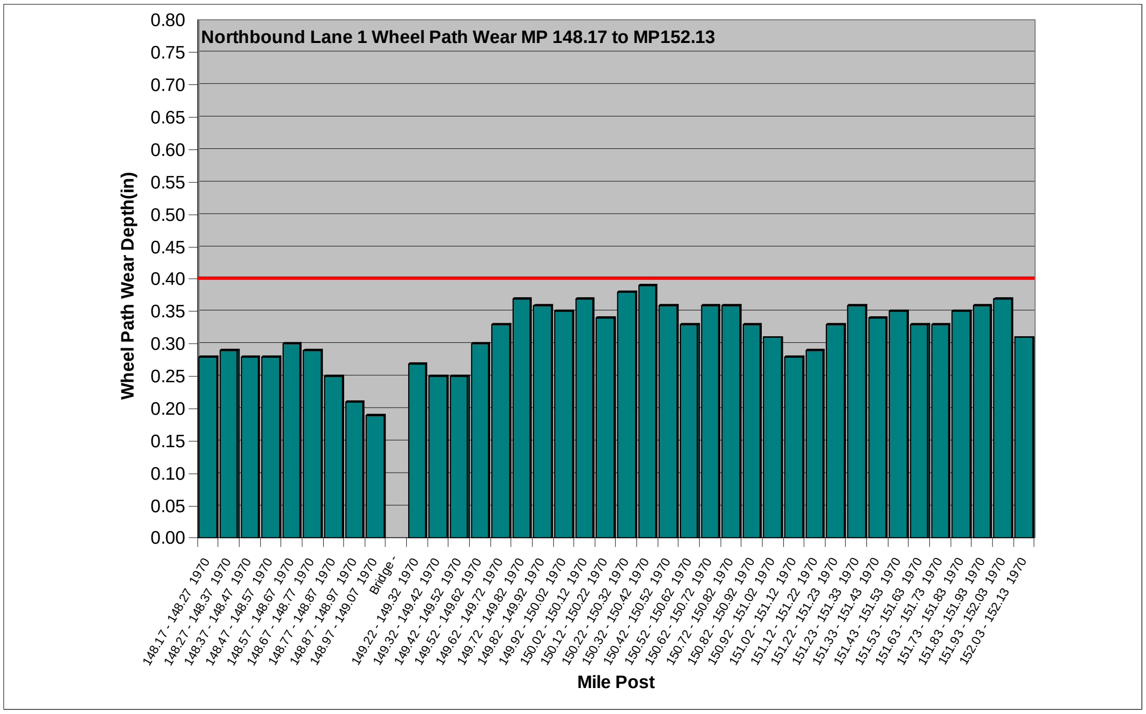

Southbound Lane 4 Faulting MP 175.93 to MP 177.65
Average Faulting(in)
Mile Post
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
175.93 - 176.03
176.03 - 176.13
176.16 - 176.16
Bridge -
176.26 - 176.36
176.36 - 176.46
176.46 - 176.56
176.56 - 176.66
176.66 - 176.76
176.76 - 176.86
176.86 - 176.96
176.96 - 177.05
177.05 - 177.15
177.15 - 177.25
177.25 - 177.35
177.35 - 177.45
177.45 - 177.55
177.55 - 177.65

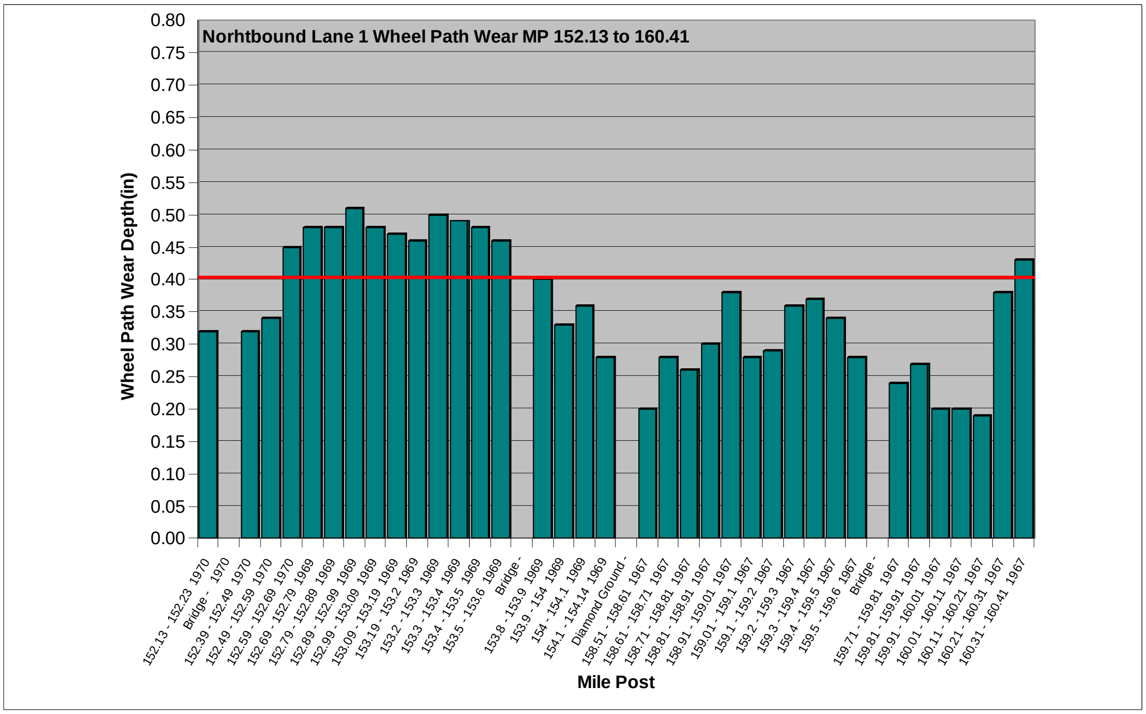
Appendix J –
Wheel Path Wear Distress Plots

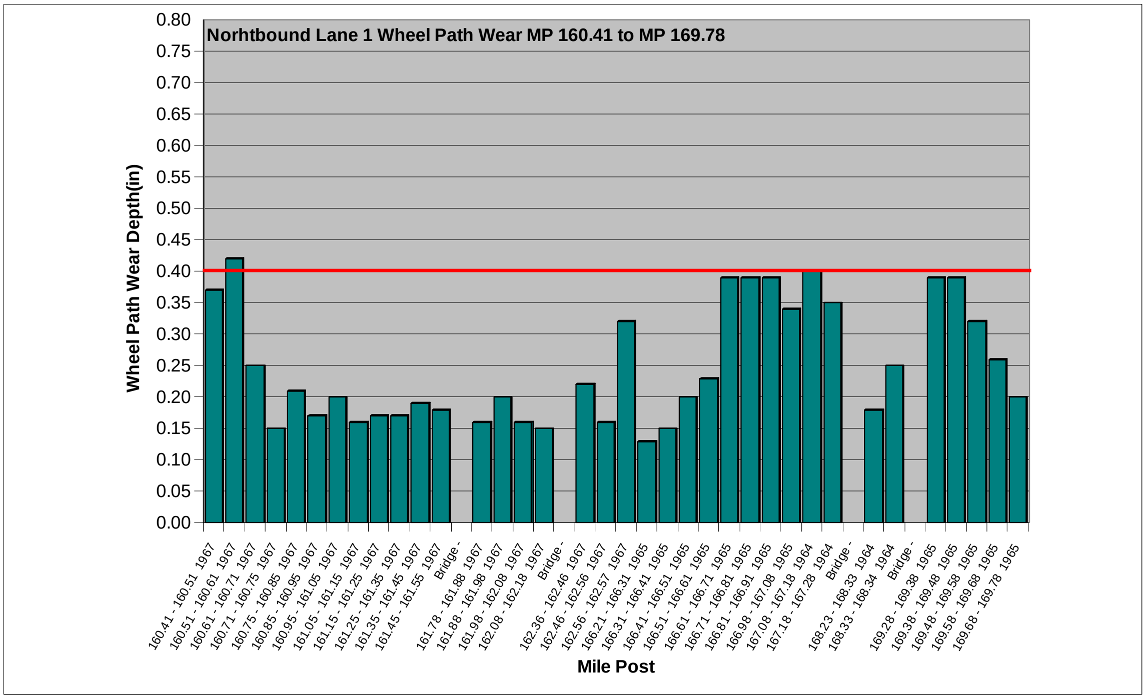
Northbound Lane 1 Wheel Path Wear Plots



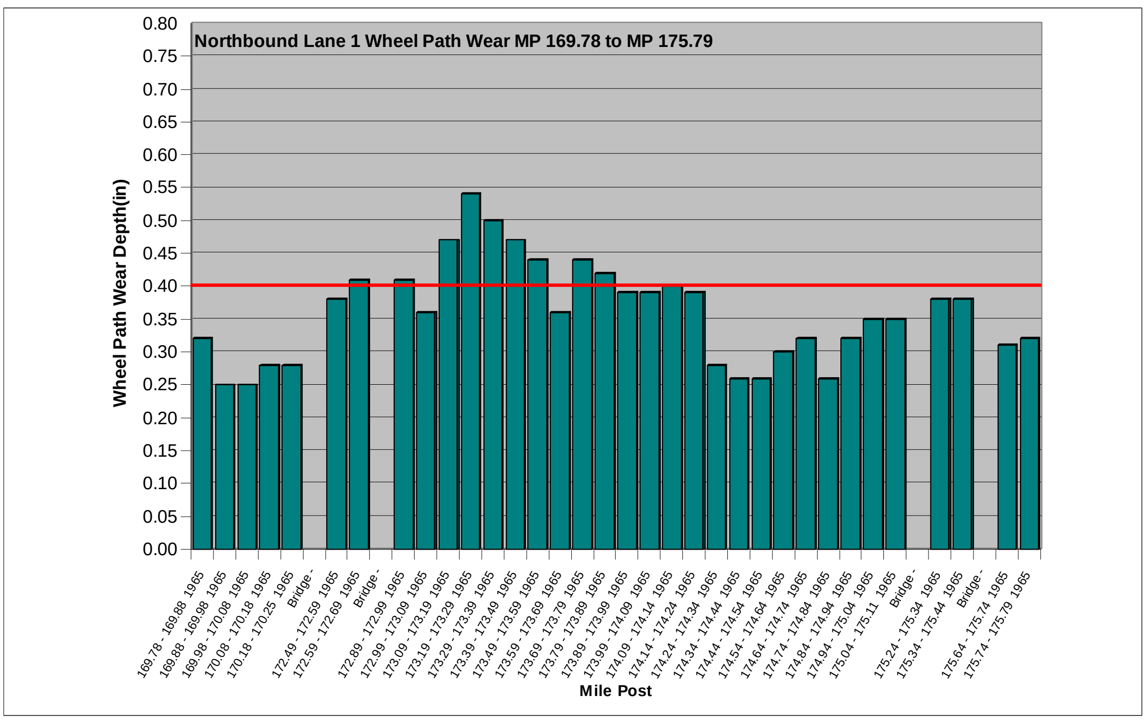



Northbound Lane 1 Wheel Path Wear MP 148.17 to MP152.13
Wheel Path Wear Depth(in)
Mile Post
148.17 - 148.27 1970
148.27 - 148.37 1970
148.37 - 148.47 1970
148.47 - 148.57 1970
148.57 - 148.67 1970
148.67 - 148.77 1970
148.77 - 148.87 1970
148.87 - 148.97 1970
148.97 - 149.07 1970
Bridge -
149.22 - 149.32 1970
149.32 - 149.42 1970
149.42 - 149.52 1970
149.52 - 149.62 1970
149.62 - 149.72 1970
149.72 - 149.82 1970
149.82 - 149.92 1970
149.92 - 150.02 1970
150.02 - 150.12 1970
150.12 - 150.22 1970
150.22 - 150.32 1970
150.32 - 150.42 1970
150.42 - 150.52 1970
150.52 - 150.62 1970
150.62 - 150.72 1970
150.72 - 150.82 1970
150.82 - 150.92 1970
150.92 - 151.02 1970
151.02 - 151.12 1970
151.12 - 151.22 1970
151.22 - 151.23 1970
151.23 - 151.33 1970
151.33 - 151.43 1970
151.43 - 151.53 1970
151.53 - 151.63 1970
151.63 - 151.73 1970
151.73 - 151.83 1970
151.83 - 151.93 1970
151.93 - 152.03 1970
152.03 - 152.13 1970


Norhtbound Lane 1 Wheel Path Wear MP 152.13 to 160.41
Wheel Path Wear Depth(in)
Mile Post
152.13 - 152.23 1970
Bridge - 1970
152.39 - 152.49 1970
152.49 - 152.59 1970
152.59 - 152.69 1970
152.69 - 152.79 1969
152.79 - 152.89 1969
152.89 - 152.99 1969
152.99 - 153.09 1969
153.09 - 153.19 1969
153.19 - 153.2 1969
153.2 - 153.3 1969
153.3 - 153.4 1969
153.4 - 153.5 1969
153.5 - 153.6 1969
Bridge -
153.8 - 153.9 1969
153.9 - 154 1969
154 - 154.1 1969
154.1 - 154.14 1969
Diamond Ground -
158.51 - 158.61 1967
158.61 - 158.71 1967
158.71 - 158.81 1967
158.81 - 158.91 1967
158.91 - 159.01 1967
159.01 - 159.1 1967
159.1 - 159.2 1967
159.2 - 159.3 1967
159.3 - 159.4 1967
159.4 - 159.5 1967
159.5 - 159.6 1967
Bridge -
159.71 - 159.81 1967
159.81 - 159.91 1967
159.91 - 160.01 1967
160.01 - 160.11 1967
160.11 - 160.21 1967
160.21 - 160.31 1967
160.31 - 160.41 1967

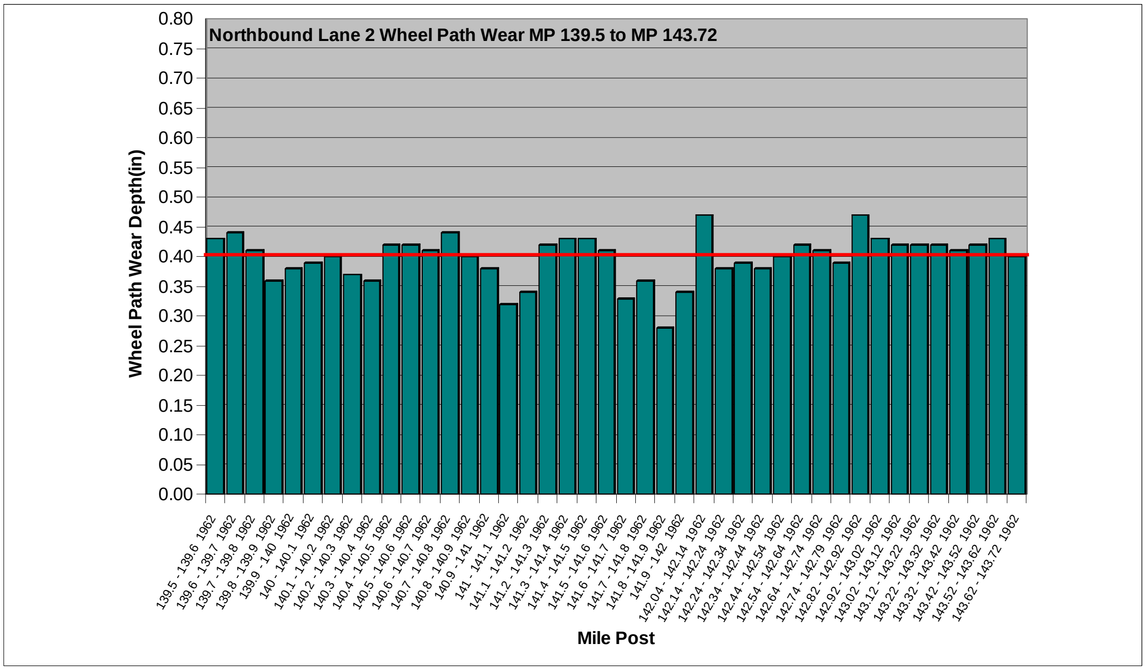


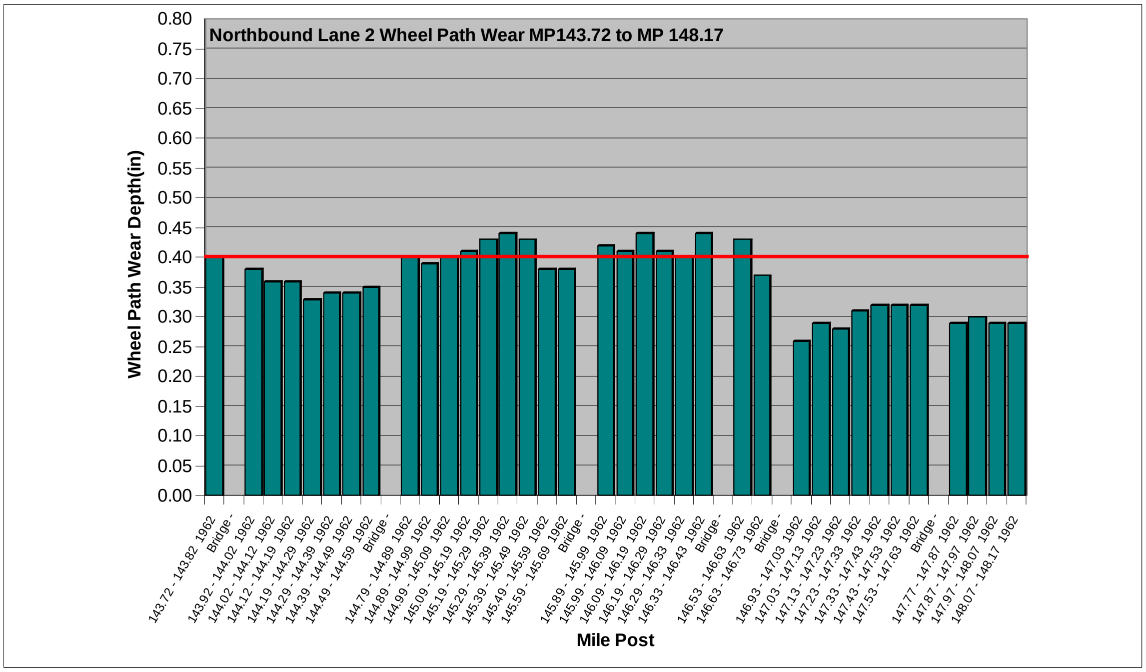
Norhtbound Lane 1 Wheel Path Wear MP 160.41 to MP 169.78
Wheel Path Wear Depth(in)
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
160.41 - 160.51 1967
160.51 - 160.61 1967
160.61 - 160.71 1967
160.71 - 160.75 1967
160.75 - 160.85 1967
160.85 - 160.95 1967
160.95 - 161.05 1967
161.05 - 161.15 1967
161.15 - 161.25 1967
161.25 - 161.35 1967
161.35 - 161.45 1967
161.45 - 161.55 1967
Bridge -
161.78 - 161.88 1967
161.88 - 161.98 1967
161.98 - 162.08 1967
162.08 - 162.18 1967
Bridge -
162.36 - 162.46 1967
162.46 - 162.56 1967
162.56 - 162.57 1967
166.21 - 166.31 1965
166.31 - 166.41 1965
166.41 - 166.51 1965
166.51 - 166.61 1965
166.61 - 166.71 1965
166.71 - 166.81 1965
166.81 - 166.91 1965
166.98 - 167.08 1965
167.08 - 167.18 1964
167.18 - 167.28 1964
Bridge -
168.23 - 168.33 1964
168.33 - 168.34 1964
Bridge -
169.28 - 169.38 1965
169.38 - 169.48 1965
169.48 - 169.58 1965
169.58 - 169.68 1965
169.68 - 169.78 1965
Mile Post

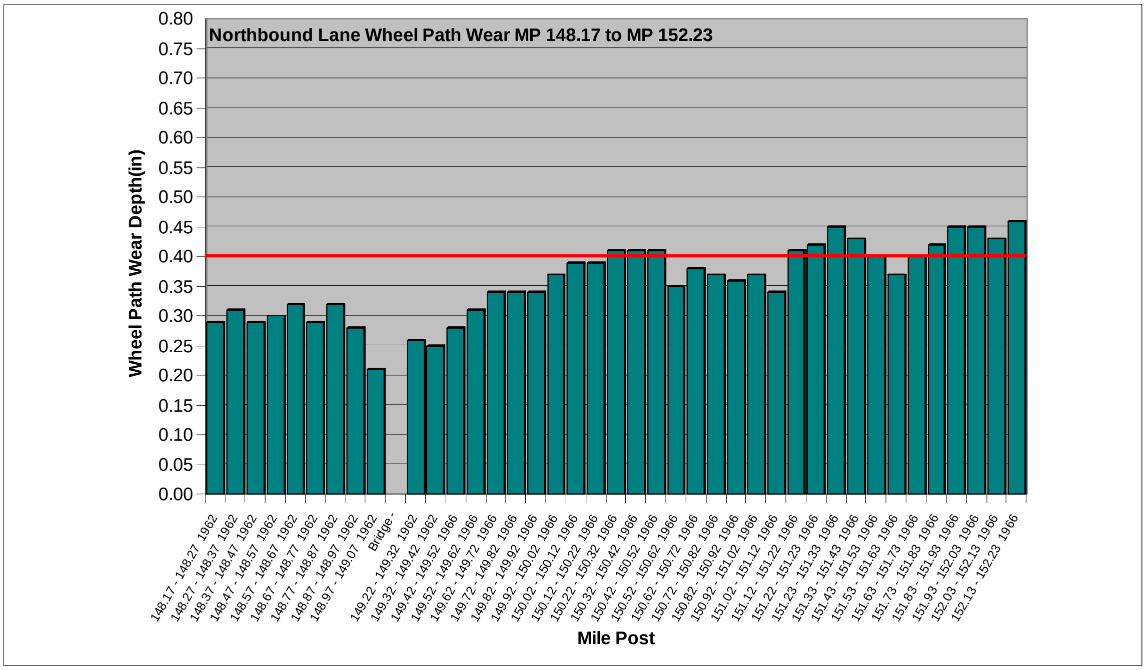


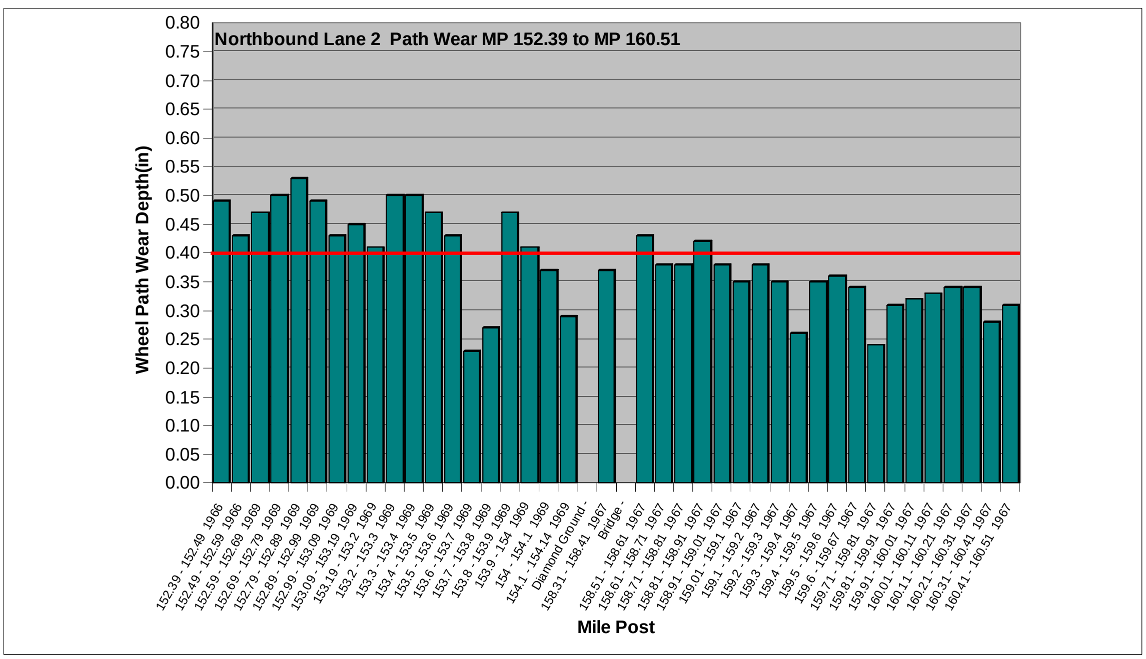
Northbound Lane 1 Wheel Path Wear MP 169.78 to MP 175.79
Wheel Path Wear Depth(in)
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
169.78 - 169.88 1965
169.88 - 169.98 1965
169.98 - 170.08 1965
170.08 - 170.18 1965
170.18 - 170.25 1965
Bridge -
172.49 - 172.59 1965
172.59 - 172.69 1965
Bridge -
172.89 - 172.99 1965
172.99 - 173.09 1965
173.09 - 173.19 1965
173.19 - 173.29 1965
173.29 - 173.39 1965
173.39 - 173.49 1965
173.49 - 173.59 1965
173.59 - 173.69 1965
173.69 - 173.79 1965
173.79 - 173.89 1965
173.89 - 173.99 1965
173.99 - 174.09 1965
174.09 - 174.14 1965
174.14 - 174.24 1965
174.24 - 174.34 1965
174.34 - 174.44 1965
174.44 - 174.54 1965
174.54 - 174.64 1965
174.64 - 174.74 1965
174.74 - 174.84 1965
174.84 - 174.94 1965
174.94 - 175.04 1965
175.04 - 175.11 1965
Bridge -
175.24 - 175.34 1965
175.34 - 175.44 1965
Bridge -
175.64 - 175.74 1965
175.74 - 175.79 1965
Mile Post

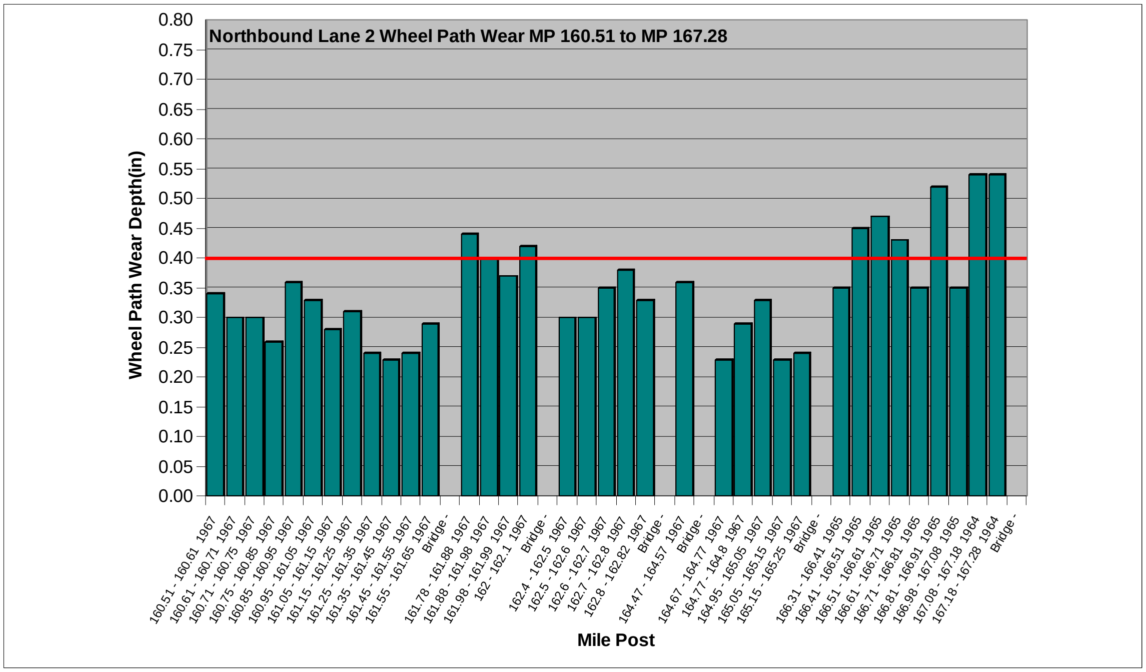
Northbound Lane 2 Wheel Path Wear Plots

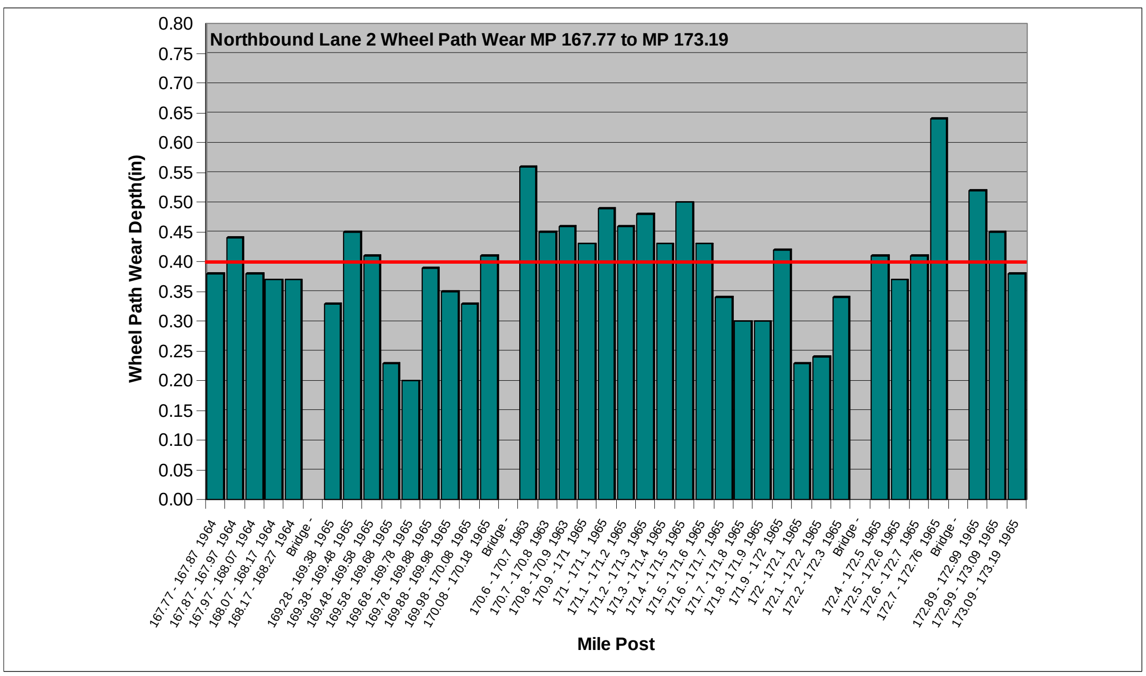


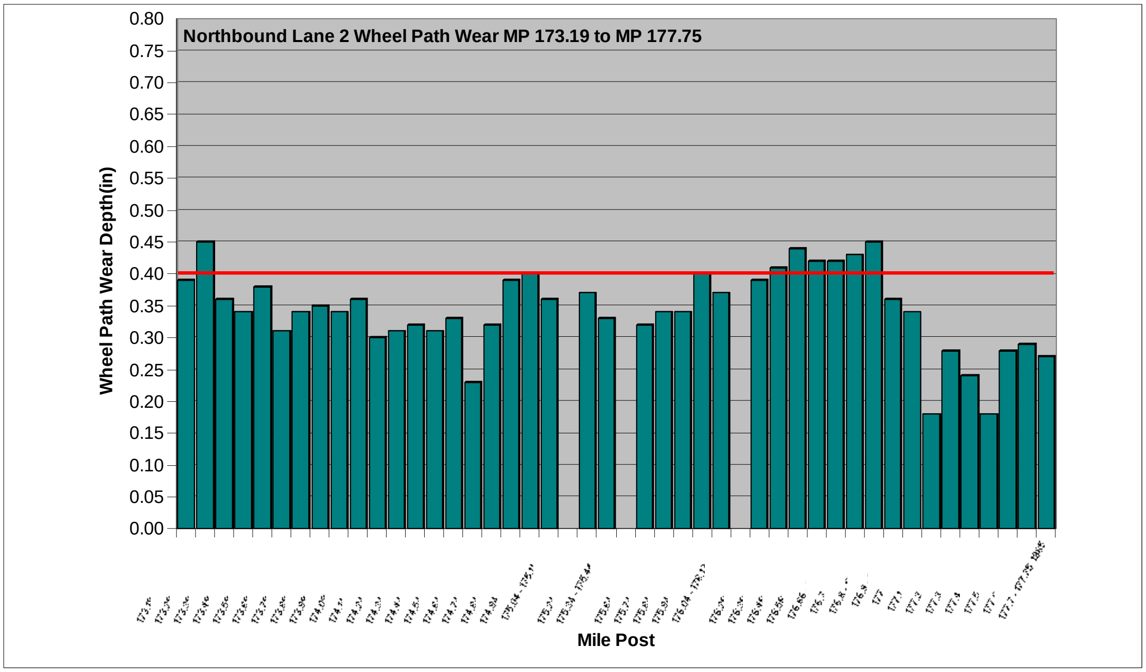



Northbound Lane Wheel Path Wear MP 148.17 to MP 152.23
Wheel Path Wear Depth(in)
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
148.17 - 148.27 1962
148.27 - 148.37 1962
148.37 - 148.47 1962
148.47 - 148.57 1962
148.57 - 148.67 1962
148.67 - 148.77 1962
148.77 - 148.87 1962
148.87 - 148.97 1962
148.97 - 149.07 1962
Bridge -
149.22 - 149.32 1962
149.32 - 149.42 1962
149.42 - 149.52 1966
149.52 - 149.62 1966
149.62 - 149.72 1966
149.72 - 149.82 1966
149.82 - 149.92 1966
149.92 - 150.02 1966
150.02 - 150.12 1966
150.12 - 150.22 1966
150.22 - 150.32 1966
150.32 - 150.42 1966
150.42 - 150.52 1966
150.52 - 150.62 1966
150.62 - 150.72 1966
150.72 - 150.82 1966
150.82 - 150.92 1966
150.92 - 151.02 1966
151.02 - 151.12 1966
151.12 - 151.22 1966
151.22 - 151.23 1966
151.23 - 151.33 1966
151.33 - 151.43 1966
151.43 - 151.53 1966
151.53 - 151.63 1966
151.63 - 151.73 1966
151.73 - 151.83 1966
151.83 - 151.93 1966
151.93 - 152.03 1966
152.03 - 152.13 1966
152.13 - 152.23 1966
Mile Post

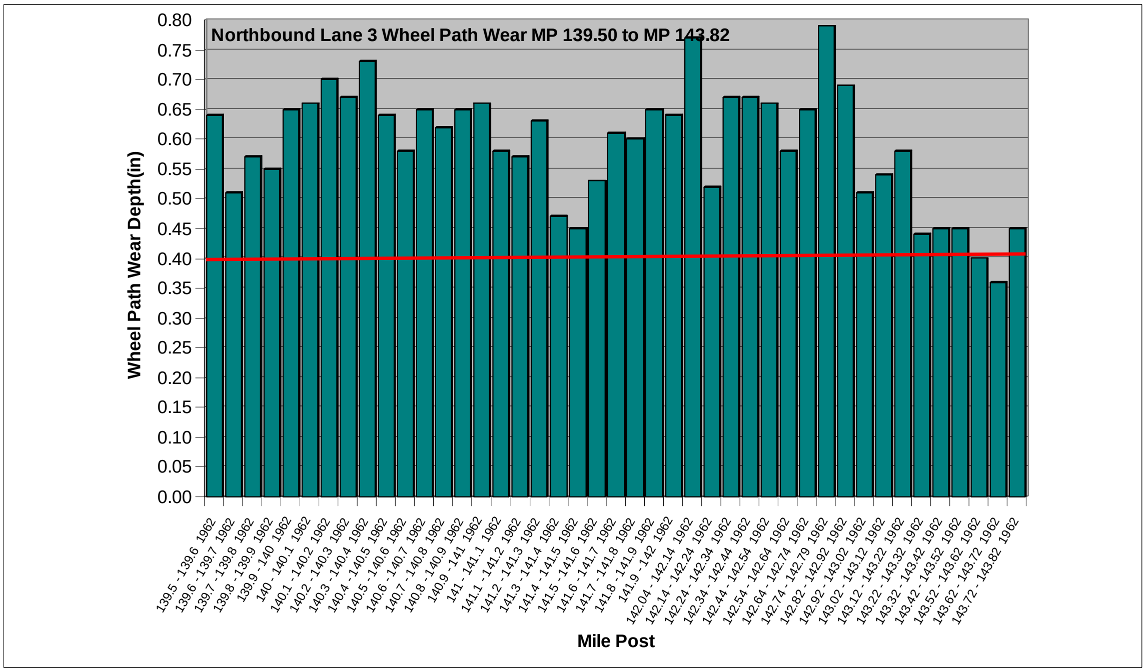

Northbound Lane 2 Path Wear MP 152.39 to MP 160.51
Wheel Path Wear Depth(in)
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
Mile Post

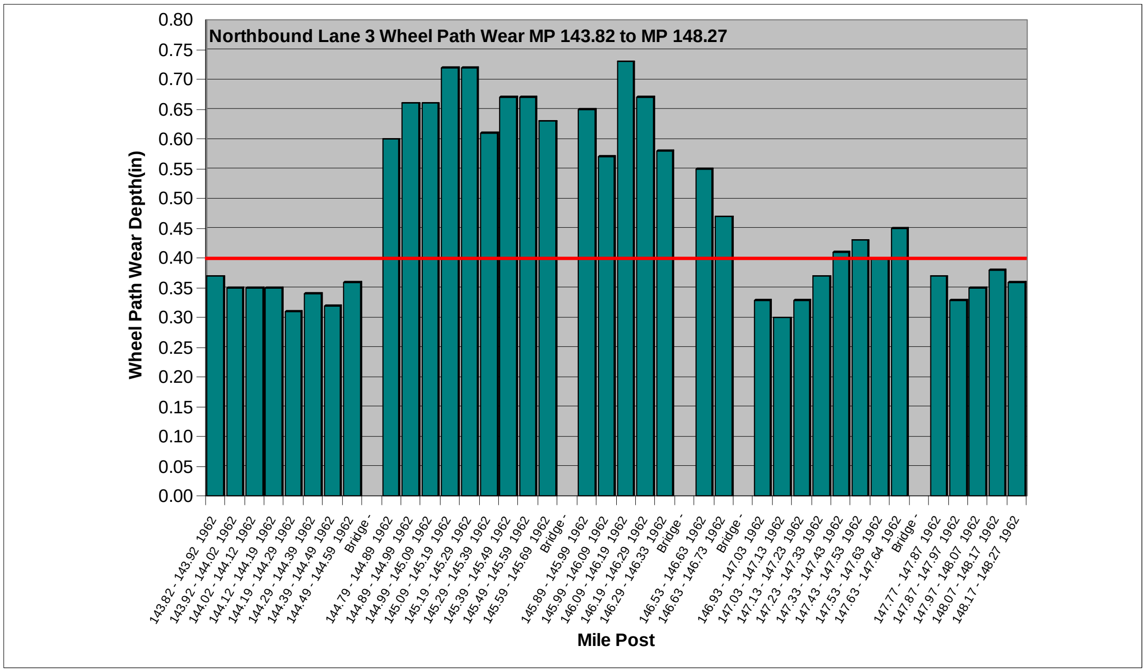

Northbound Lane 2 Wheel Path Wear MP 160.51 to MP 167.28
Wheel Path Wear Depth(in)
Mile Post
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
0.55
0.60
0.65
0.70
0.75
0.80


Northbound Lane 2 Wheel Path Wear MP 167.77 to MP 173.19
Wheel Path Wear Depth(in)
Mile Post
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
0.55
0.60
0.65
0.70
0.75
0.80

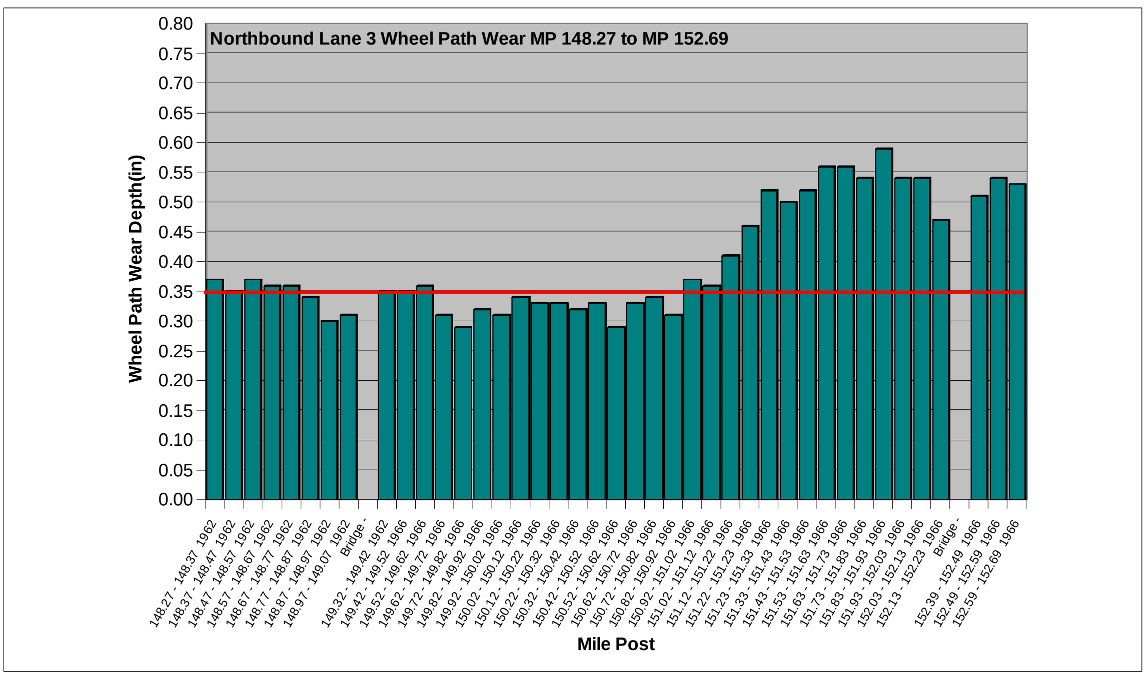


Northbound Lane 3 Wheel Path Wear Plots

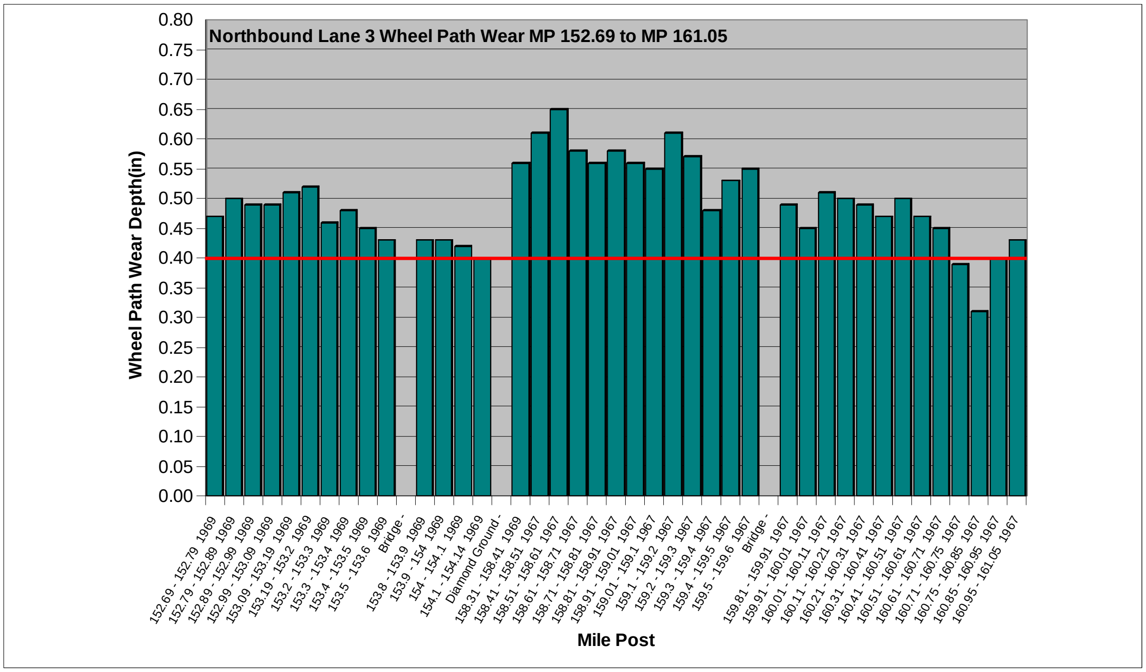


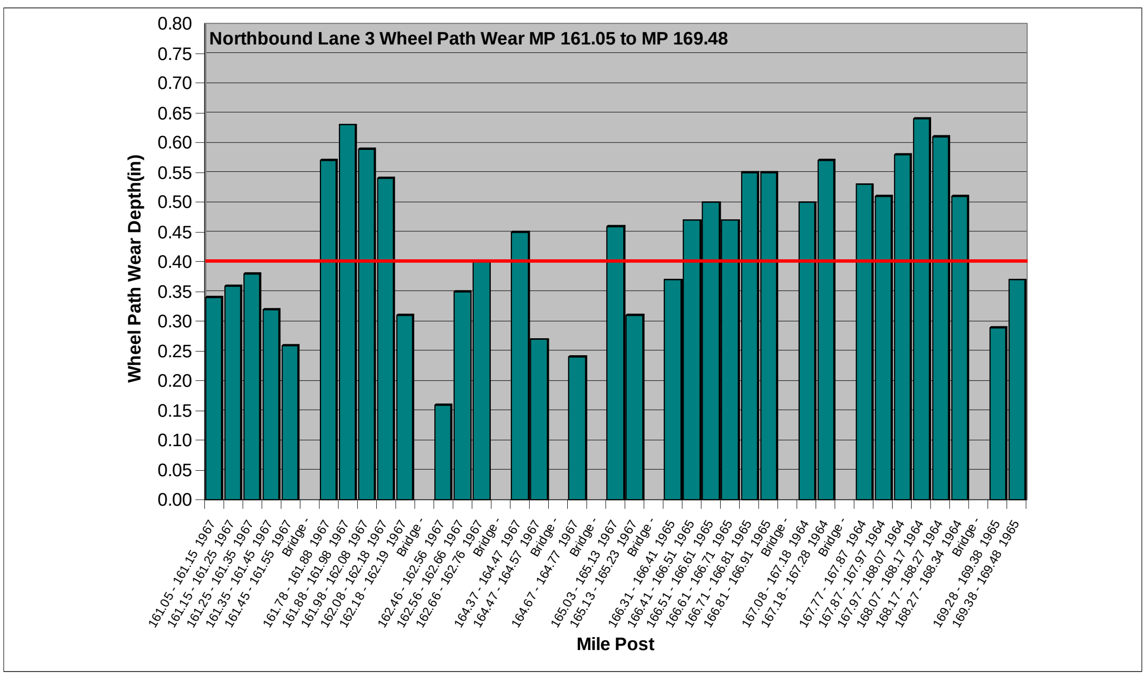


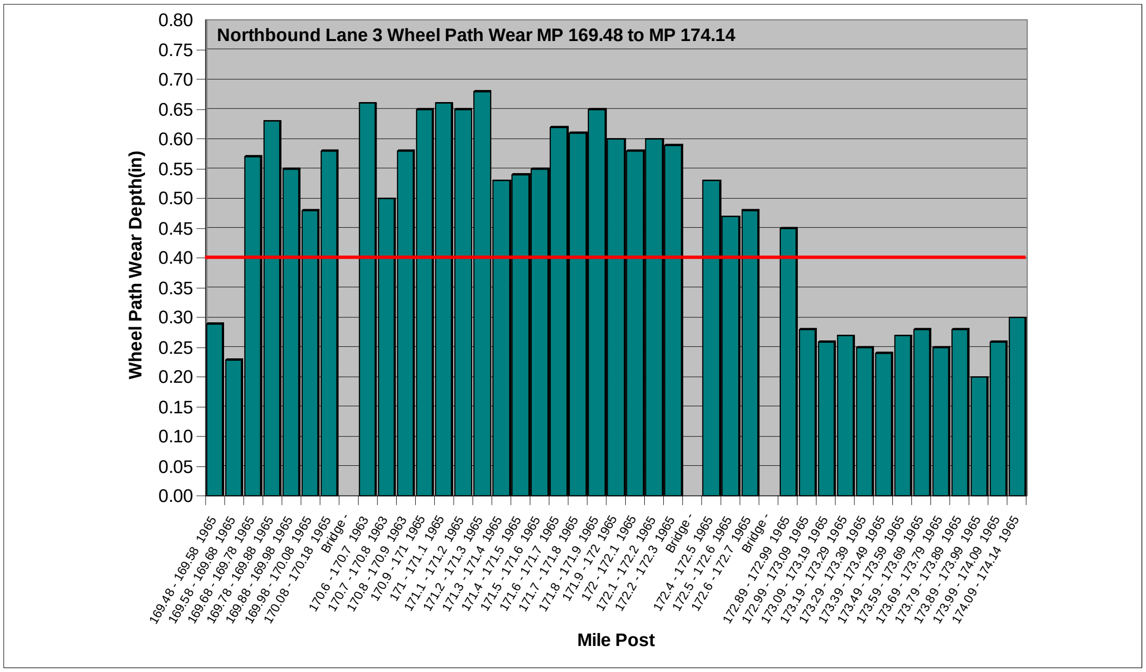
Northbound Lane 3 Wheel Path Wear MP 143.82 to MP 148.27
Wheel Path Wear Depth(in)
Mile Post
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
0.55
0.60
0.65
0.70
0.75
0.80



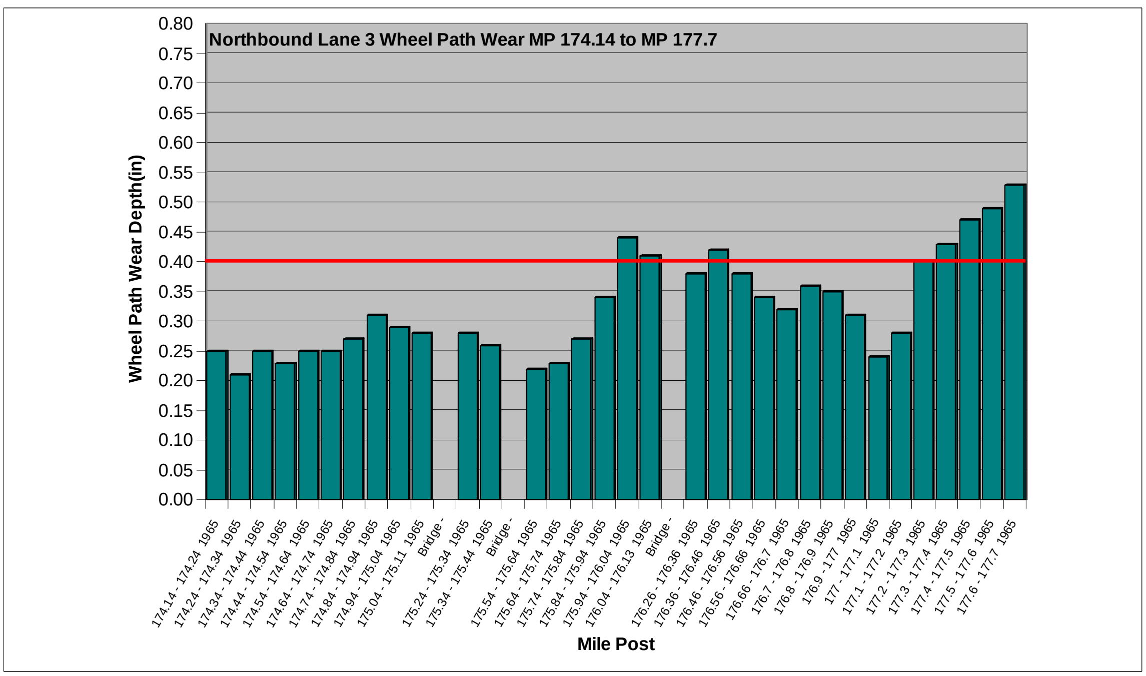
Northbound Lane 3 Wheel Path Wear MP 148.27 to MP 152.69
Wheel Path Wear Depth(in)
Mile Post
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
0.55
0.60
0.65
0.70
0.75
0.80


Northbound Lane 3 Wheel Path Wear MP 152.69 to MP 161.05
Wheel Path Wear Depth(in)
Mile Post


Northbound Lane 3 Wheel Path Wear MP 161.05 to MP 169.48
Wheel Path Wear Depth(in)
Mile Post

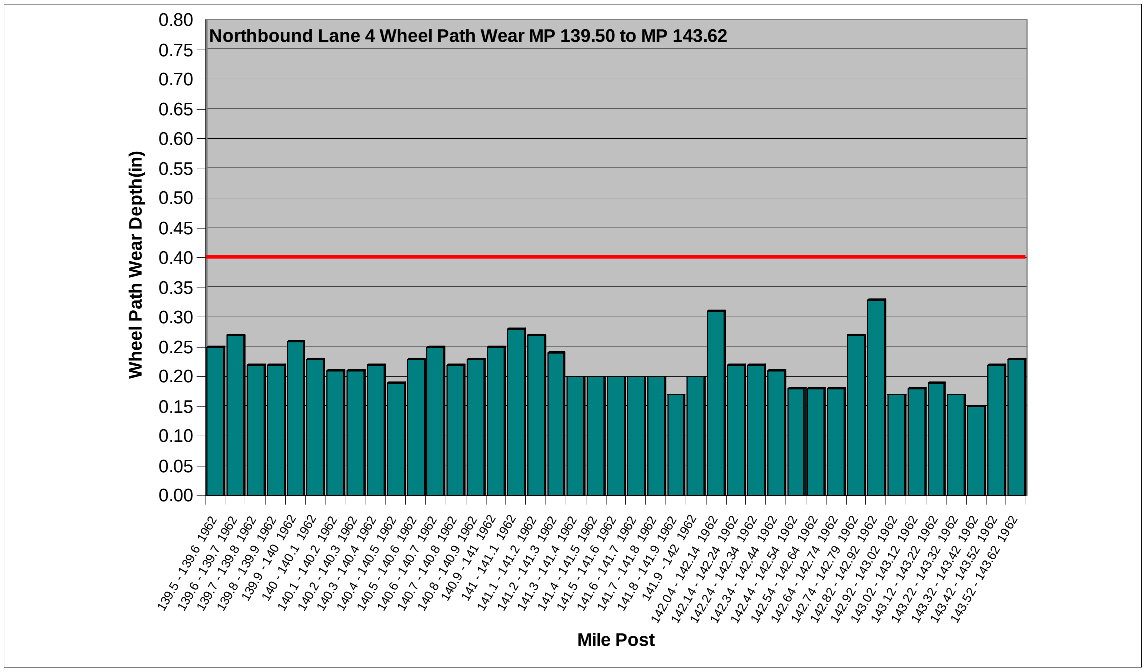


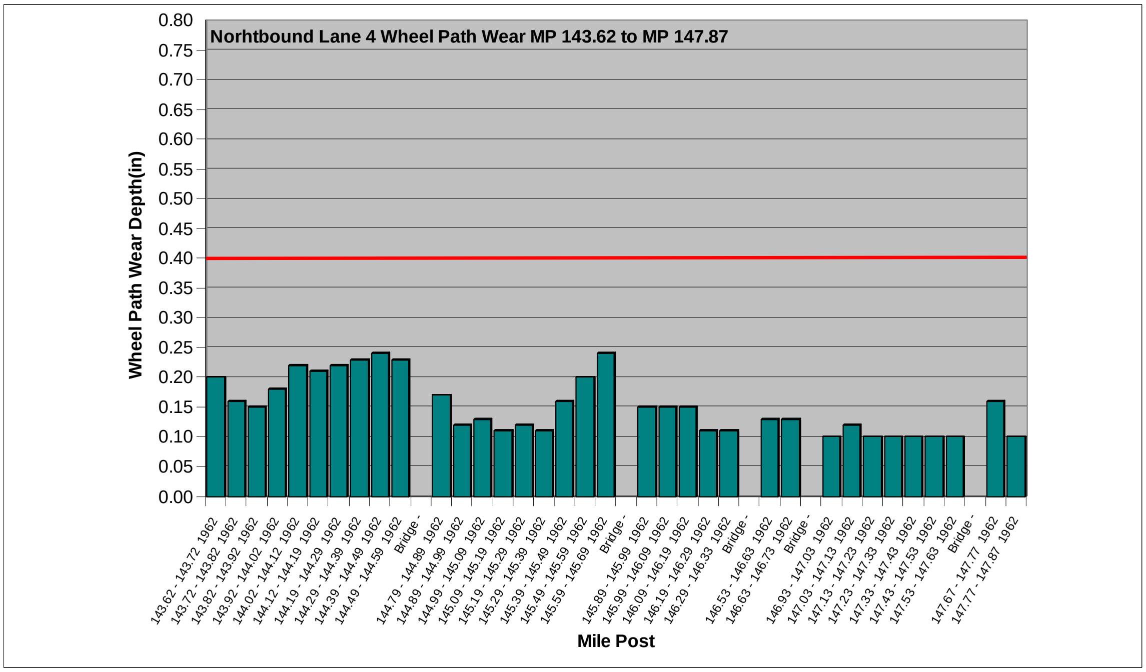
Northbound Lane 3 Wheel Path Wear MP 169.48 to MP 174.14
Wheel Path Wear Depth(in)
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
169.48 - 169.58 1965
169.58 - 169.68 1965
169.68 - 169.78 1965
169.78 - 169.88 1965
169.88 - 169.98 1965
169.98 - 170.08 1965
170.08 - 170.18 1965
Bridge -
170.6 - 170.7 1963
170.7 - 170.8 1963
170.8 - 170.9 1963
170.9 - 171 1965
171 - 171.1 1965
171.1 - 171.2 1965
171.2 - 171.3 1965
171.3 - 171.4 1965
171.4 - 171.5 1965
171.5 - 171.6 1965
171.6 - 171.7 1965
171.7 - 171.8 1965
171.8 - 171.9 1965
171.9 - 172 1965
172 - 172.1 1965
172.1 - 172.2 1965
172.2 - 172.3 1965
Bridge -
172.4 - 172.5 1965
172.5 - 172.6 1965
172.6 - 172.7 1965
Bridge -
172.89 - 172.99 1965
172.99 - 173.09 1965
173.09 - 173.19 1965
173.19 - 173.29 1965
173.29 - 173.39 1965
173.39 - 173.49 1965
173.49 - 173.59 1965
173.59 - 173.69 1965
173.69 - 173.79 1965
173.79 - 173.89 1965
173.89 - 173.99 1965
173.99 - 174.09 1965
174.09 - 174.14 1965
Mile Post

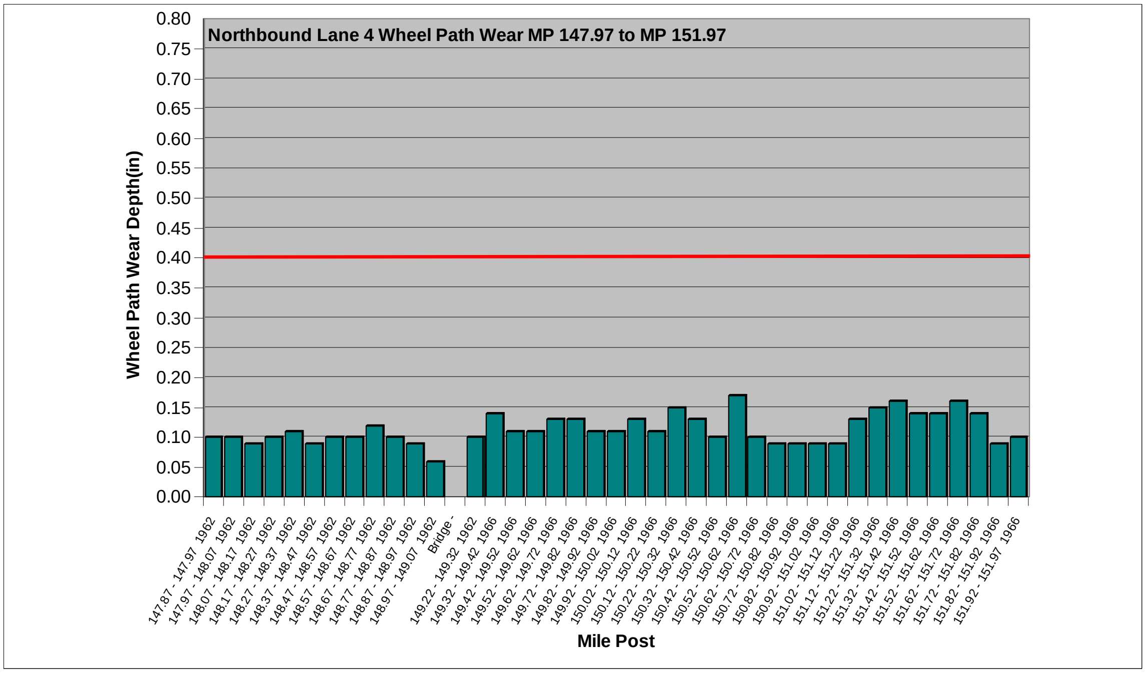


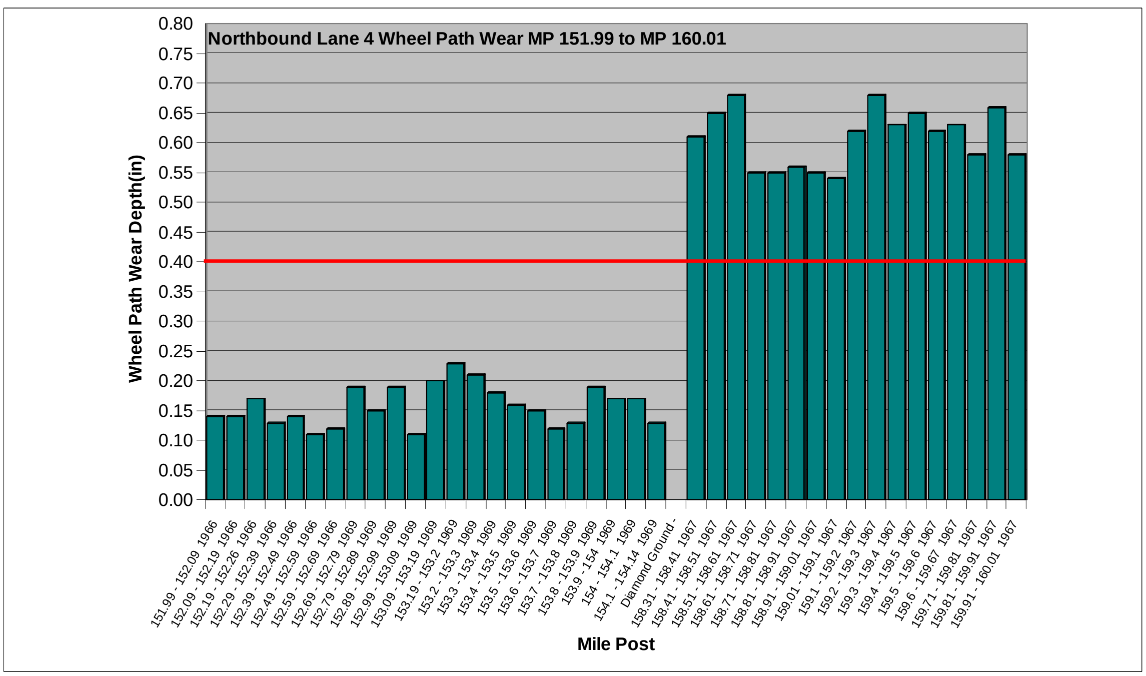
Northbound Lane 3 Wheel Path Wear MP 174.14 to MP 177.7
Wheel Path Wear Depth(in)
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
174.14 - 174.24 1965
174.24 - 174.34 1965
174.34 - 174.44 1965
174.44 - 174.54 1965
174.54 - 174.64 1965
174.64 - 174.74 1965
174.74 - 174.84 1965
174.84 - 174.94 1965
174.94 - 175.04 1965
175.04 - 175.11 1965
Bridge -
175.24 - 175.34 1965
175.34 - 175.44 1965
Bridge -
175.54 - 175.64 1965
175.64 - 175.74 1965
175.74 - 175.84 1965
175.84 - 175.94 1965
175.94 - 176.04 1965
176.04 - 176.13 1965
Bridge -
176.26 - 176.36 1965
176.36 - 176.46 1965
176.46 - 176.56 1965
176.56 - 176.66 1965
176.66 - 176.7 1965
176.7 - 176.8 1965
176.8 - 176.9 1965
176.9 - 177 1965
177 - 177.1 1965
177.1 - 177.2 1965
177.2 - 177.3 1965
177.3 - 177.4 1965
177.4 - 177.5 1965
177.5 - 177.6 1965
177.6 - 177.7 1965
Mile Post

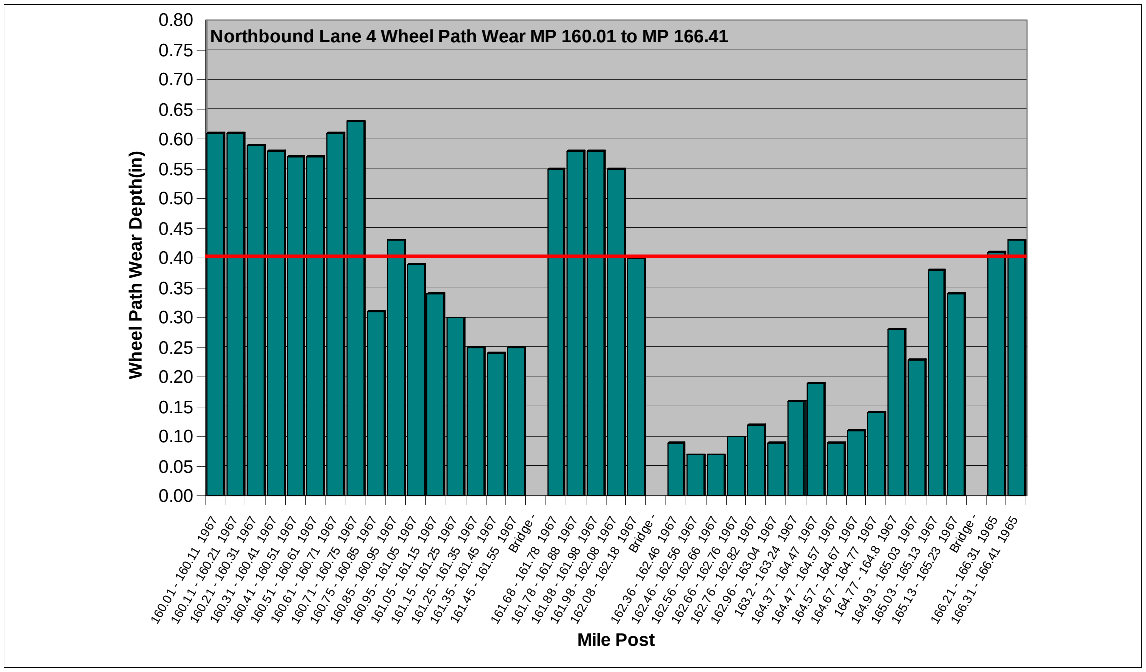
Northbound Lane 4 Wheel Path Wear Plots

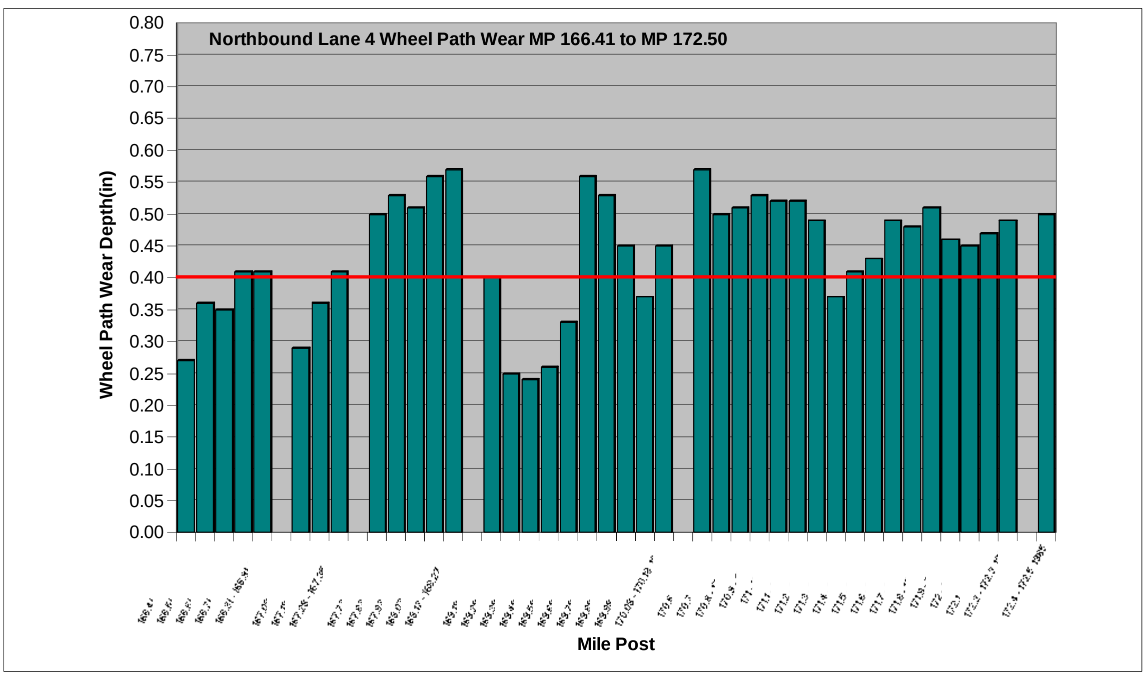


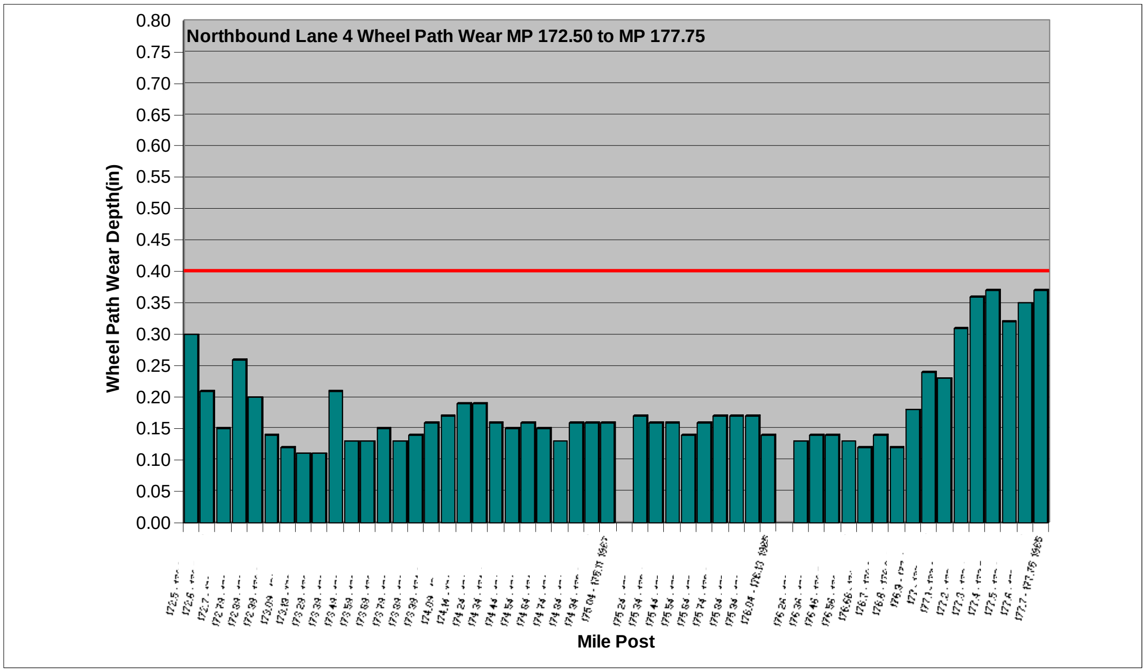



Northbound Lane 4 Wheel Path Wear MP 147.97 to MP 151.97
Wheel Path Wear Depth(in)
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
147.87 - 147.97 1962
147.97 - 148.07 1962
148.07 - 148.17 1962
148.17 - 148.27 1962
148.27 - 148.37 1962
148.37 - 148.47 1962
148.47 - 148.57 1962
148.57 - 148.67 1962
148.67 - 148.77 1962
148.77 - 148.87 1962
148.87 - 148.97 1962
148.97 - 149.07 1962
Bridge -
149.22 - 149.32 1962
149.32 - 149.42 1966
149.42 - 149.52 1966
149.52 - 149.62 1966
149.62 - 149.72 1966
149.72 - 149.82 1966
149.82 - 149.92 1966
149.92 - 150.02 1966
150.02 - 150.12 1966
150.12 - 150.22 1966
150.22 - 150.32 1966
150.32 - 150.42 1966
150.42 - 150.52 1966
150.52 - 150.62 1966
150.62 - 150.72 1966
150.72 - 150.82 1966
150.82 - 150.92 1966
150.92 - 151.02 1966
151.02 - 151.12 1966
151.12 - 151.22 1966
151.22 - 151.32 1966
151.32 - 151.42 1966
151.42 - 151.52 1966
151.52 - 151.62 1966
151.62 - 151.72 1966
151.72 - 151.82 1966
151.82 - 151.92 1966
151.92 - 151.97 1966
Mile Post

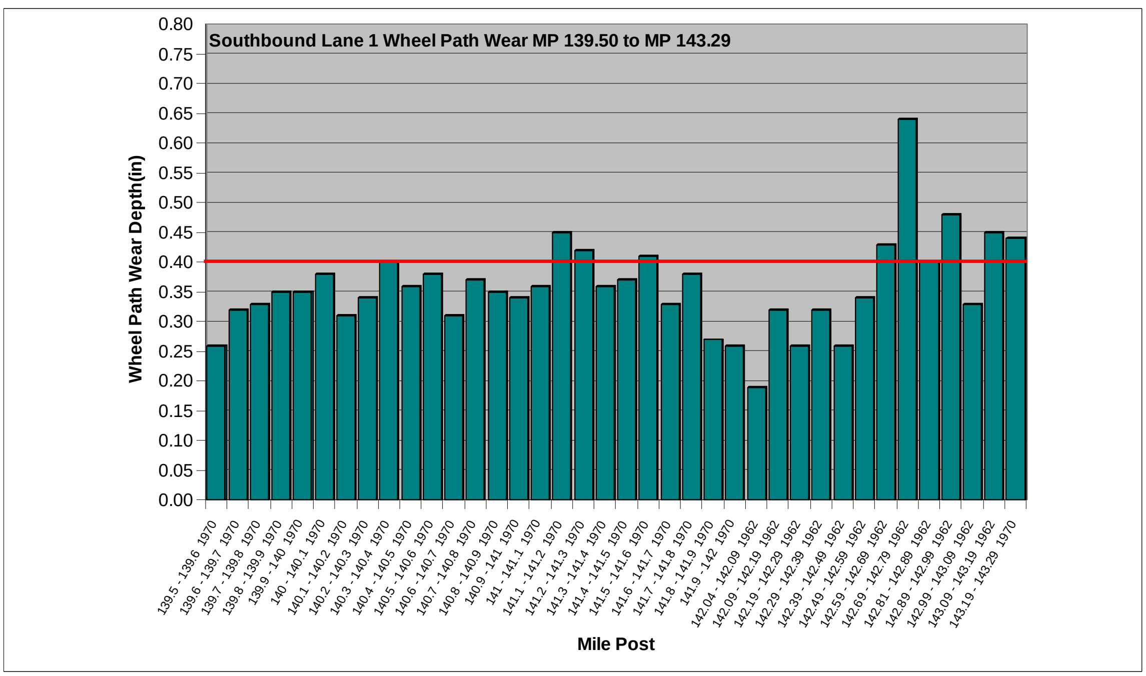

Northbound Lane 4 Wheel Path Wear MP 151.99 to MP 160.01
Wheel Path Wear Depth(in)
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
151.99 - 152.09 1966
152.09 - 152.19 1966
152.19 - 152.26 1966
152.29 - 152.39 1966
152.39 - 152.49 1966
152.49 - 152.59 1966
152.59 - 152.69 1966
152.69 - 152.79 1969
152.79 - 152.89 1969
152.89 - 152.99 1969
152.99 - 153.09 1969
153.09 - 153.19 1969
153.19 - 153.2 1969
153.2 - 153.3 1969
153.3 - 153.4 1969
153.4 - 153.5 1969
153.5 - 153.6 1969
153.6 - 153.7 1969
153.7 - 153.8 1969
153.8 - 153.9 1969
153.9 - 154 1969
154 - 154.1 1969
154.1 - 154.14 1969
Diamond Ground -
158.31 - 158.41 1967
158.41 - 158.51 1967
158.51 - 158.61 1967
158.61 - 158.71 1967
158.71 - 158.81 1967
158.81 - 158.91 1967
158.91 - 159.01 1967
159.01 - 159.1 1967
159.1 - 159.2 1967
159.2 - 159.3 1967
159.3 - 159.4 1967
159.4 - 159.5 1967
159.5 - 159.6 1967
159.6 - 159.67 1967
159.71 - 159.81 1967
159.81 - 159.91 1967
159.91 - 160.01 1967
Mile Post

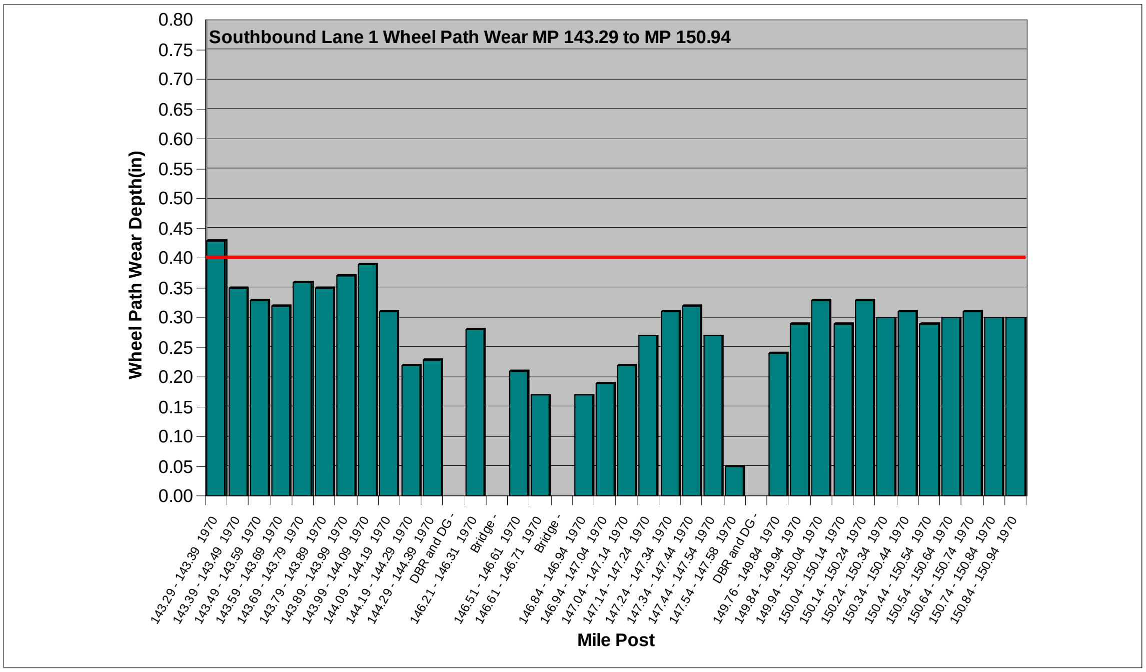

Northbound Lane 4 Wheel Path Wear MP 160.01 to MP 166.41
Wheel Path Wear Depth(in)
Mile Post
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
0.55
0.60
0.65
0.70
0.75
0.80
160.01 - 160.11 1967
160.11 - 160.21 1967
160.21 - 160.31 1967
160.31 - 160.41 1967
160.41 - 160.51 1967
160.51 - 160.61 1967
160.61 - 160.71 1967
160.71 - 160.75 1967
160.75 - 160.85 1967
160.85 - 160.95 1967
160.95 - 161.05 1967
161.05 - 161.15 1967
161.15 - 161.25 1967
161.25 - 161.35 1967
161.35 - 161.45 1967
161.45 - 161.55 1967
Bridge -
161.68 - 161.78 1967
161.78 - 161.88 1967
161.88 - 161.98 1967
161.98 - 162.08 1967
162.08 - 162.18 1967
Bridge -
162.36 - 162.46 1967
162.46 - 162.56 1967
162.56 - 162.66 1967
162.66 - 162.76 1967
162.76 - 162.82 1967
162.96 - 163.04 1967
163.2 - 163.24 1967
164.37 - 164.47 1967
164.47 - 164.57 1967
164.57 - 164.67 1967
164.67 - 164.77 1967
164.77 - 164.8 1967
164.93 - 165.03 1967
165.03 - 165.13 1967
165.13 - 165.23 1967
Bridge -
166.21 - 166.31 1965
166.31 - 166.41 1965

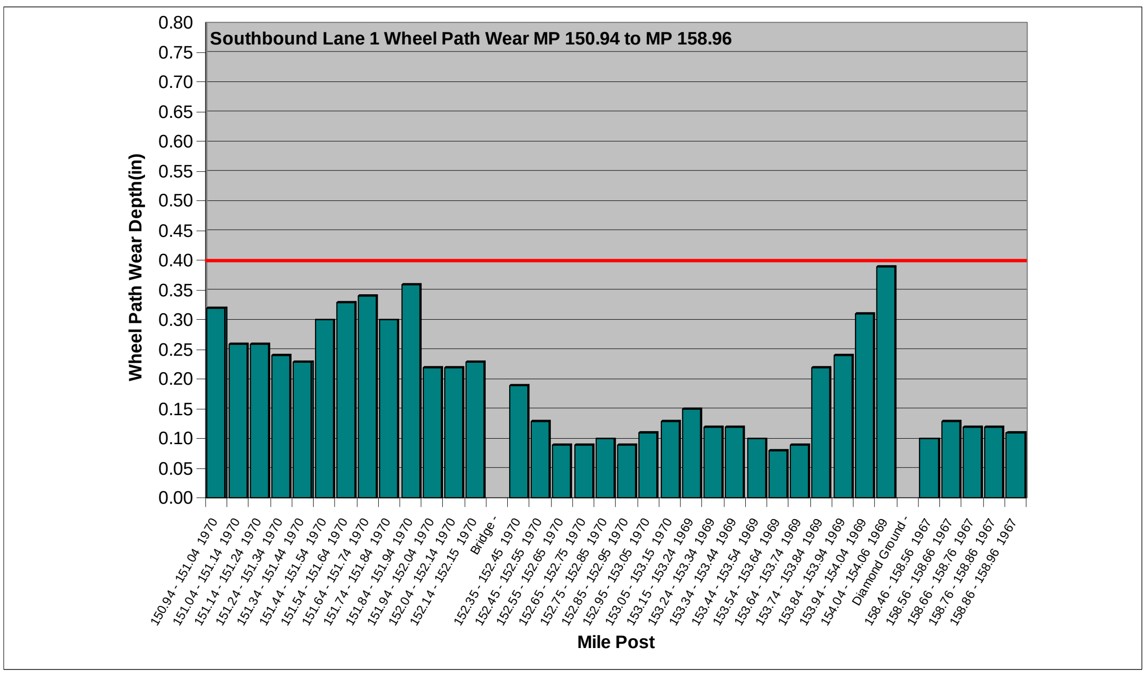

Northbound Lane 4 Wheel Path Wear MP 166.41 to MP 172.50
Wheel Path Wear Depth(in)
Mile Post
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
0.55
0.60
0.65
0.70
0.75
0.80

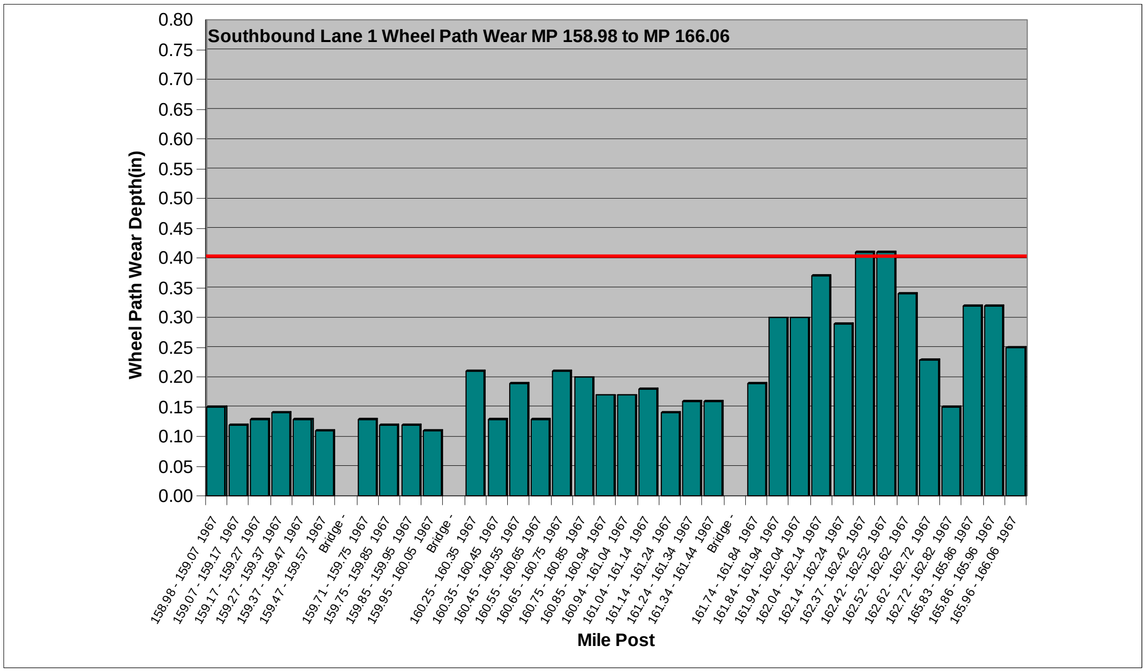


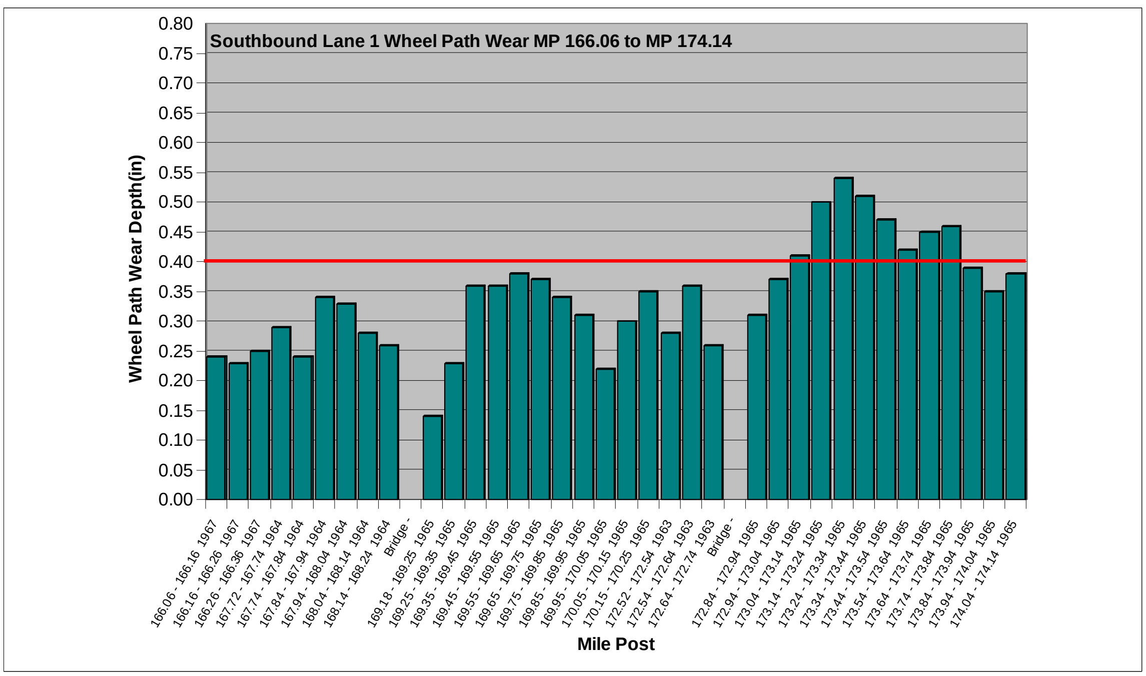
Southbound Lane 1 Wheel Path Wear Plots



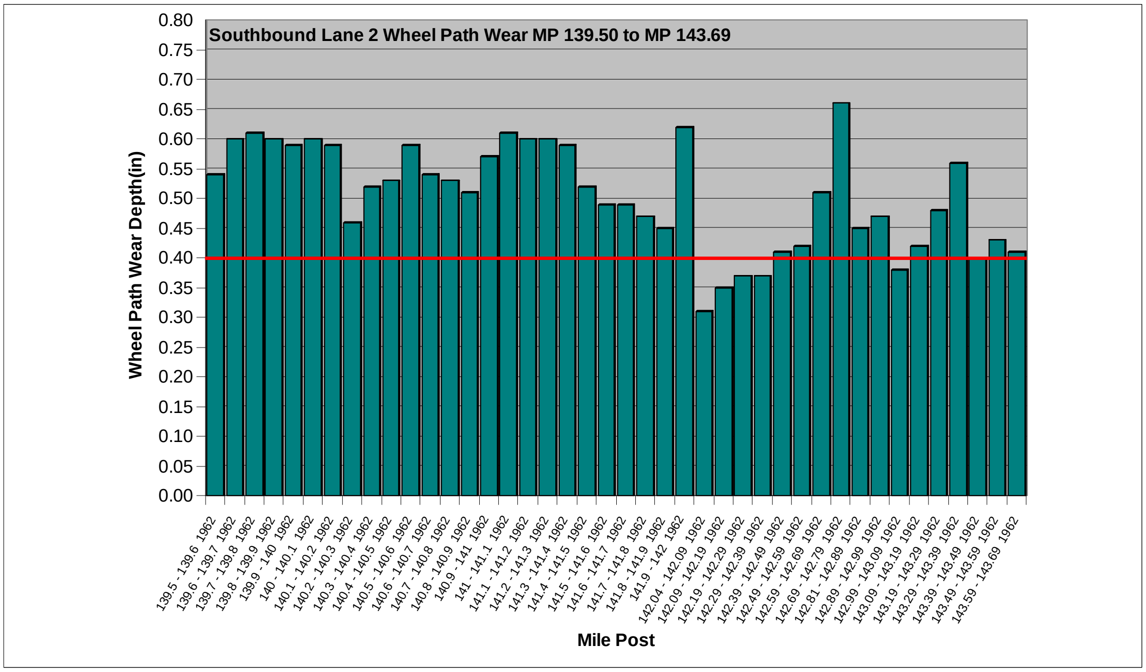

Southbound Lane 1 Wheel Path Wear MP 143.29 to MP 150.94
Wheel Path Wear Depth(in)
Mile Post

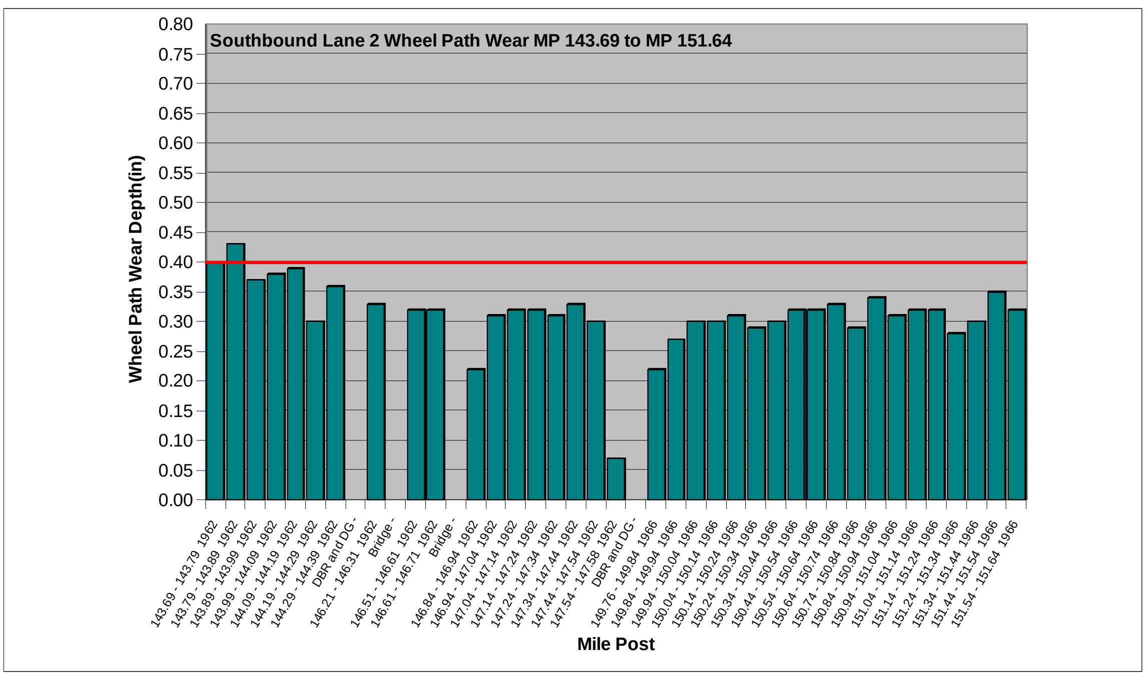

Southbound Lane 1 Wheel Path Wear MP 150.94 to MP 158.96
Wheel Path Wear Depth(in)
Mile Post

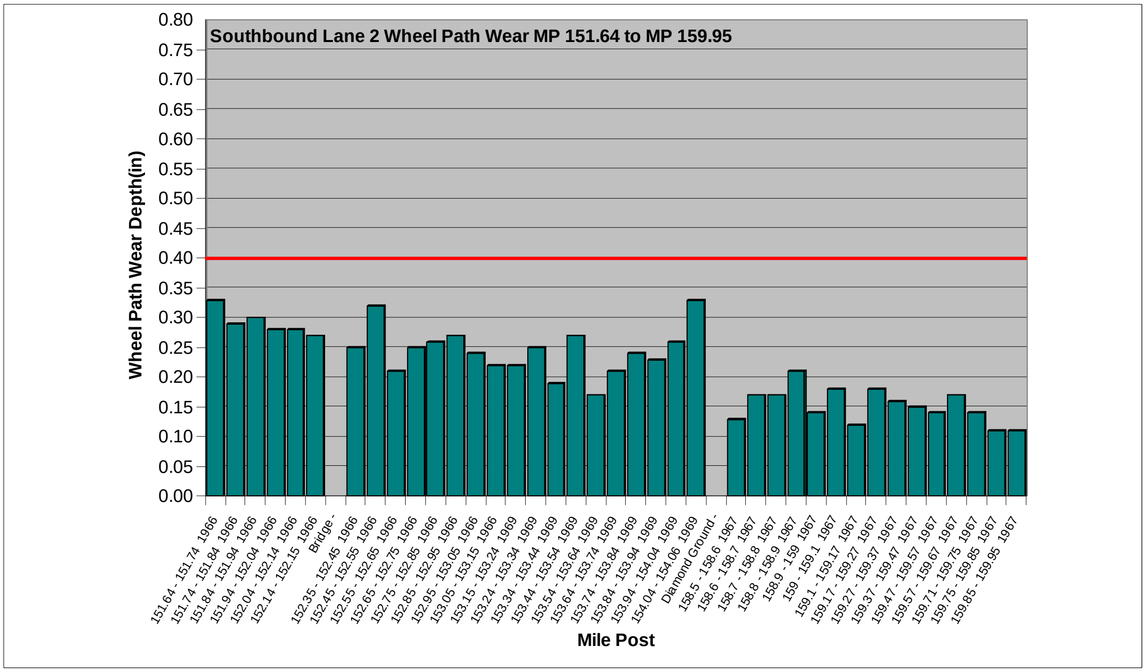

Southbound Lane 1 Wheel Path Wear MP 158.98 to MP 166.06
Wheel Path Wear Depth(in)
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
158.98 - 159.07 1967
159.07 - 159.17 1967
159.17 - 159.27 1967
159.27 - 159.37 1967
159.37 - 159.47 1967
159.47 - 159.57 1967
Bridge -
159.71 - 159.75 1967
159.75 - 159.85 1967
159.85 - 159.95 1967
159.95 - 160.05 1967
Bridge -
160.25 - 160.35 1967
160.35 - 160.45 1967
160.45 - 160.55 1967
160.55 - 160.65 1967
160.65 - 160.75 1967
160.75 - 160.85 1967
160.85 - 160.94 1967
160.94 - 161.04 1967
161.04 - 161.14 1967
161.14 - 161.24 1967
161.24 - 161.34 1967
161.34 - 161.44 1967
Bridge -
161.74 - 161.84 1967
161.84 - 161.94 1967
161.94 - 162.04 1967
162.04 - 162.14 1967
162.14 - 162.24 1967
162.37 - 162.42 1967
162.42 - 162.52 1967
162.52 - 162.62 1967
162.62 - 162.72 1967
162.72 - 162.82 1967
165.83 - 165.86 1967
165.86 - 165.96 1967
165.96 - 166.06 1967
Mile Post

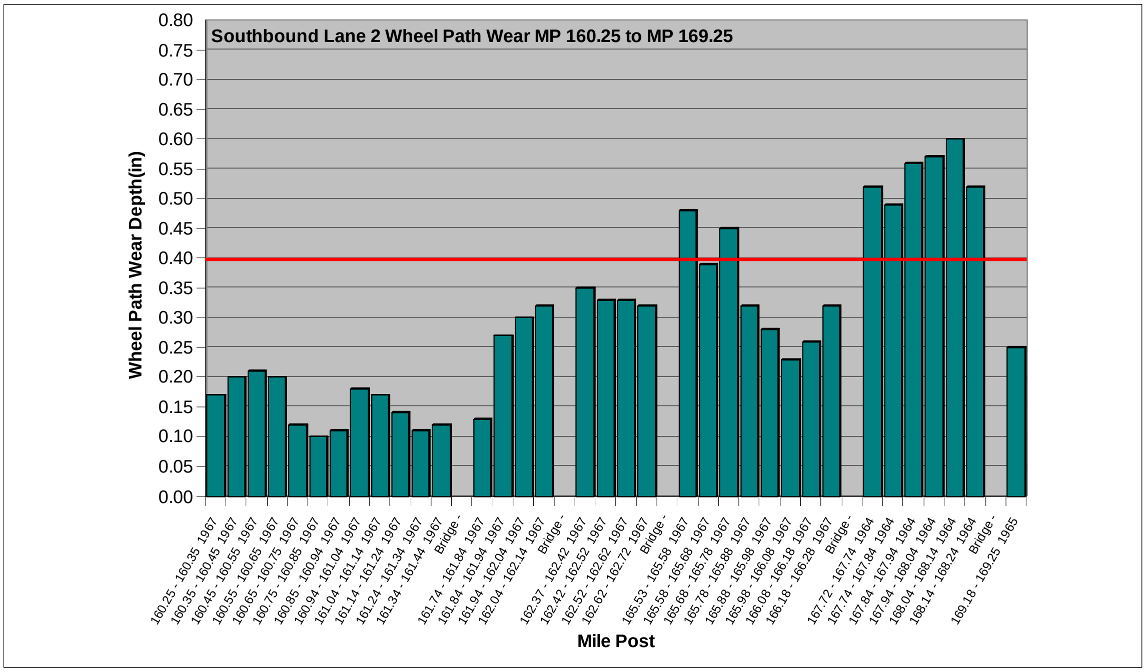

Southbound Lane 1 Wheel Path Wear MP 166.06 to MP 174.14
Wheel Path Wear Depth(in)
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
166.06 - 166.16 1967
166.16 - 166.26 1967
166.26 - 166.36 1967
167.72 - 167.74 1964
167.74 - 167.84 1964
167.84 - 167.94 1964
167.94 - 168.04 1964
168.04 - 168.14 1964
168.14 - 168.24 1964
Bridge -
169.18 - 169.25 1965
169.25 - 169.35 1965
169.35 - 169.45 1965
169.45 - 169.55 1965
169.55 - 169.65 1965
169.65 - 169.75 1965
169.75 - 169.85 1965
169.85 - 169.95 1965
169.95 - 170.05 1965
170.05 - 170.15 1965
170.15 - 170.25 1965
172.52 - 172.54 1963
172.54 - 172.64 1963
172.64 - 172.74 1963
Bridge -
172.84 - 172.94 1965
172.94 - 173.04 1965
173.04 - 173.14 1965
173.14 - 173.24 1965
173.24 - 173.34 1965
173.34 - 173.44 1965
173.44 - 173.54 1965
173.54 - 173.64 1965
173.64 - 173.74 1965
173.74 - 173.84 1965
173.84 - 173.94 1965
173.94 - 174.04 1965
174.04 - 174.14 1965
Mile Post

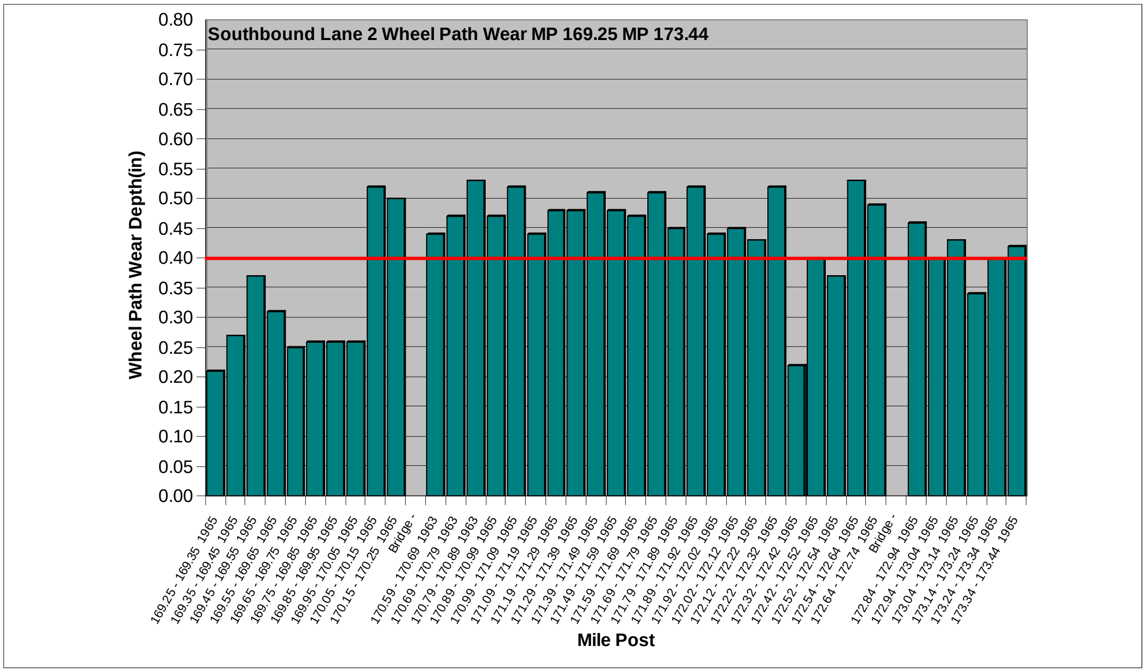
Southbound Lane 2 Wheel Path Wear Plots

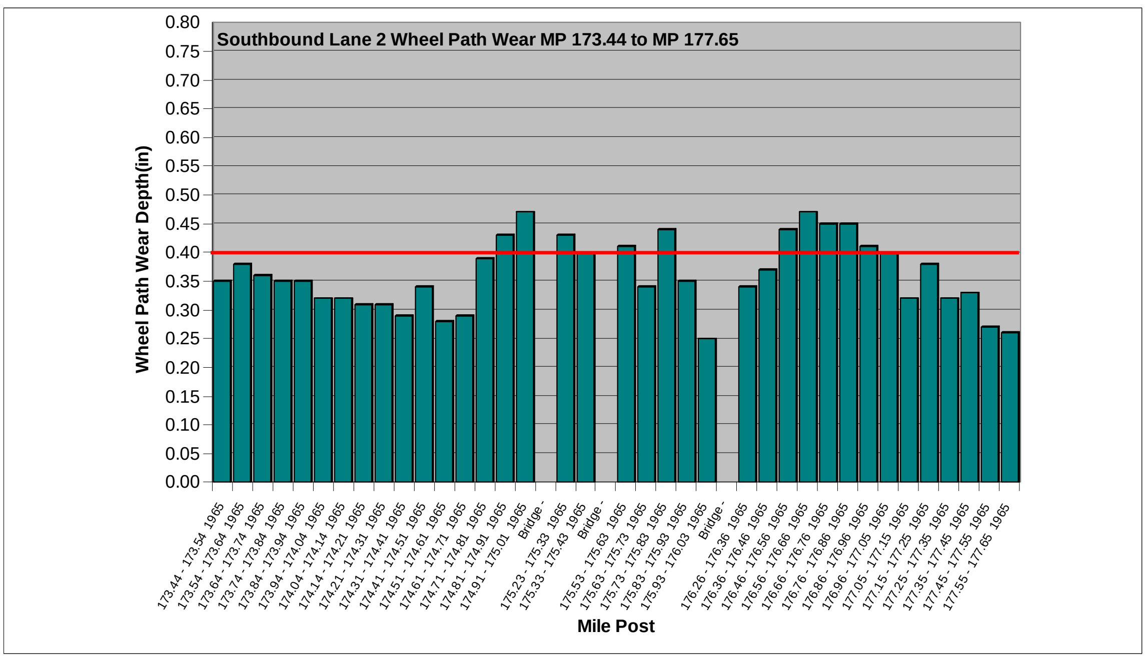




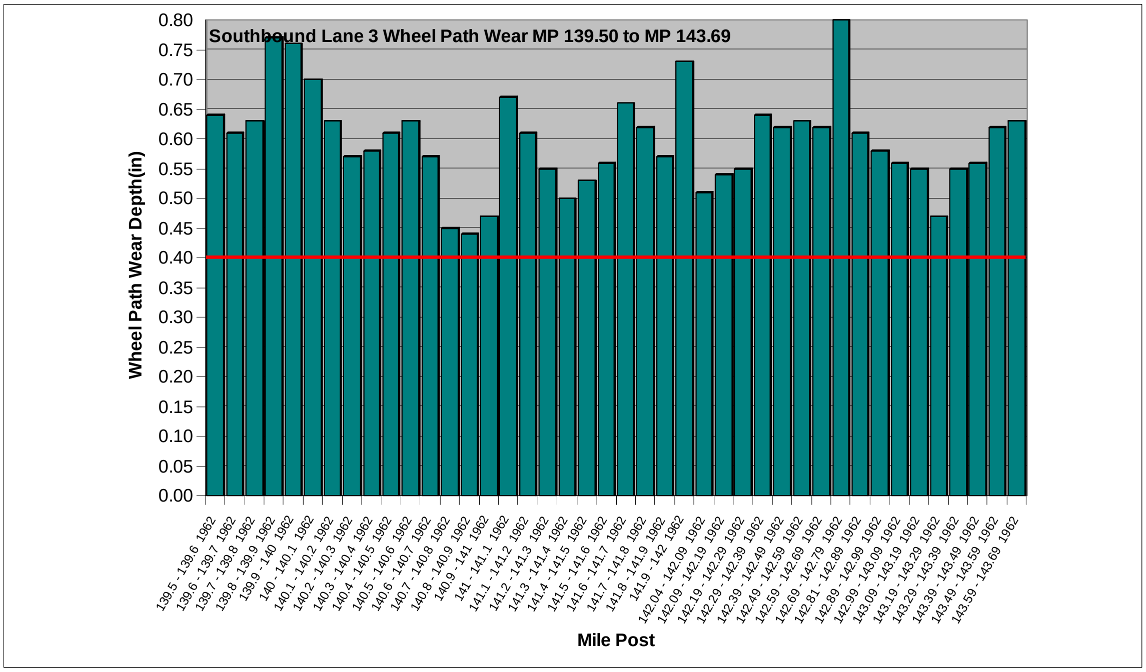

Southbound Lane 2 Wheel Path Wear MP 151.64 to MP 159.95
Wheel Path Wear Depth(in)
Mile Post

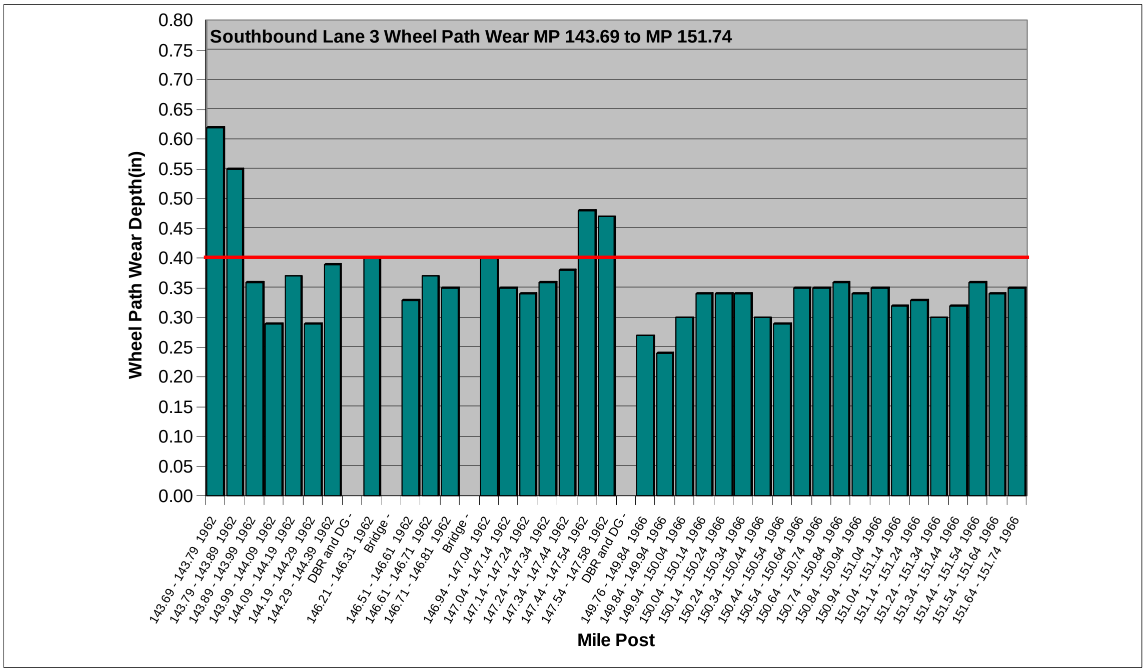

Southbound Lane 2 Wheel Path Wear MP 160.25 to MP 169.25
Wheel Path Wear Depth(in)
Mile Post

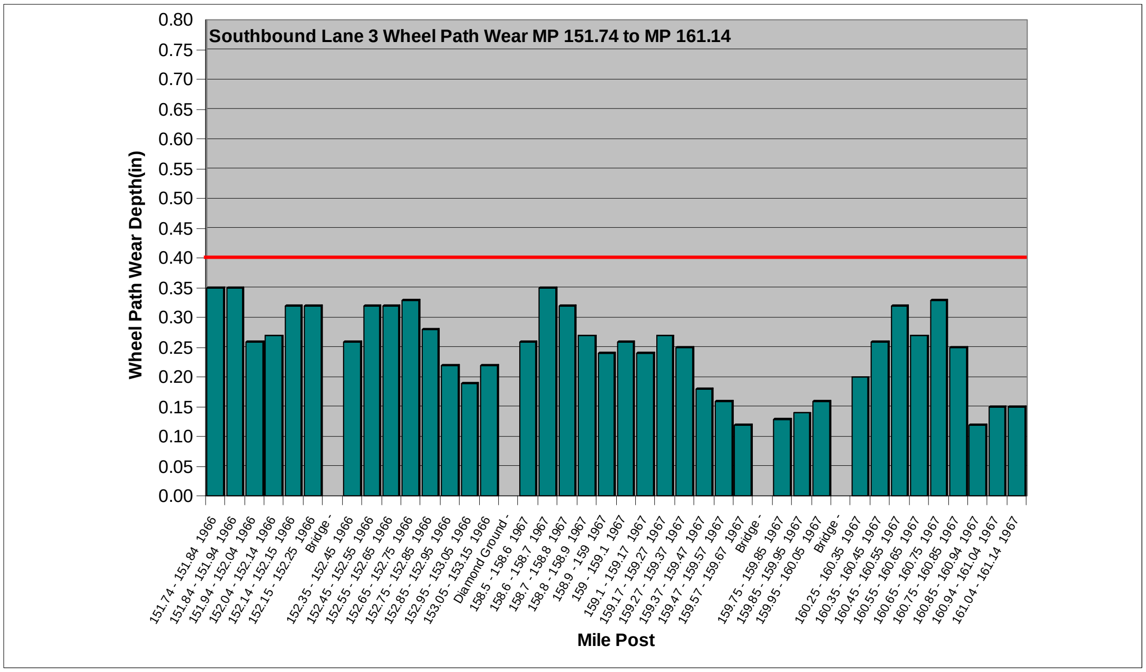

Southbound Lane 2 Wheel Path Wear MP 169.25 MP 173.44
Wheel Path Wear Depth(in)
Mile Post

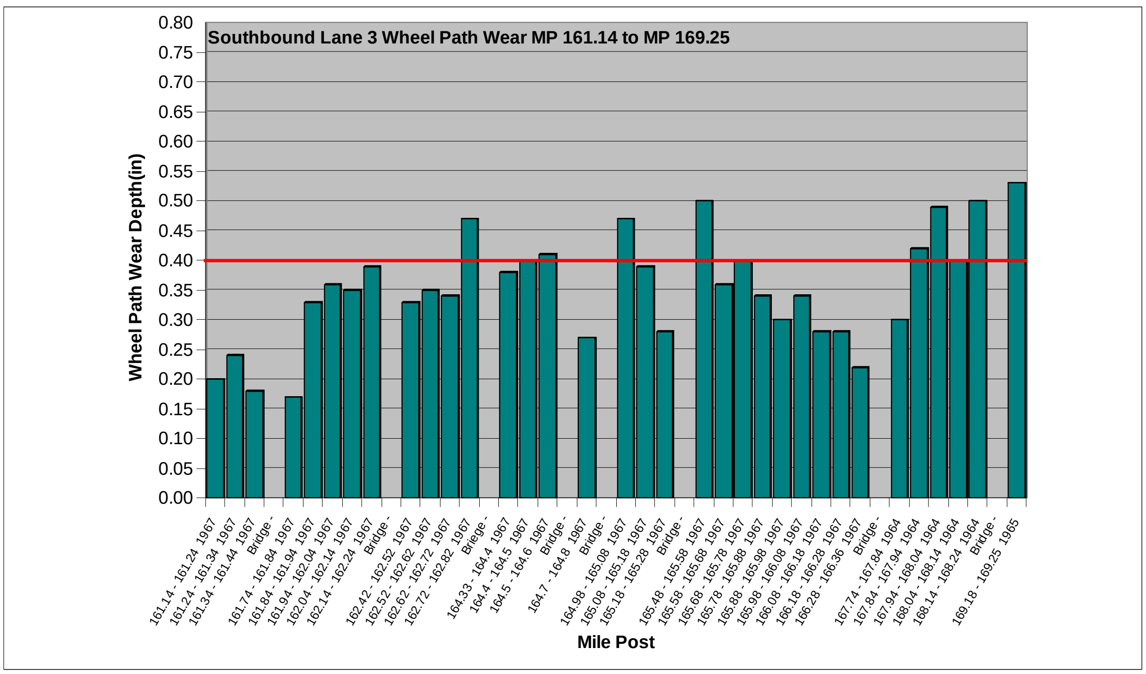

Southbound Lane 2 Wheel Path Wear MP 173.44 to MP 177.65
Wheel Path Wear Depth(in)
Mile Post

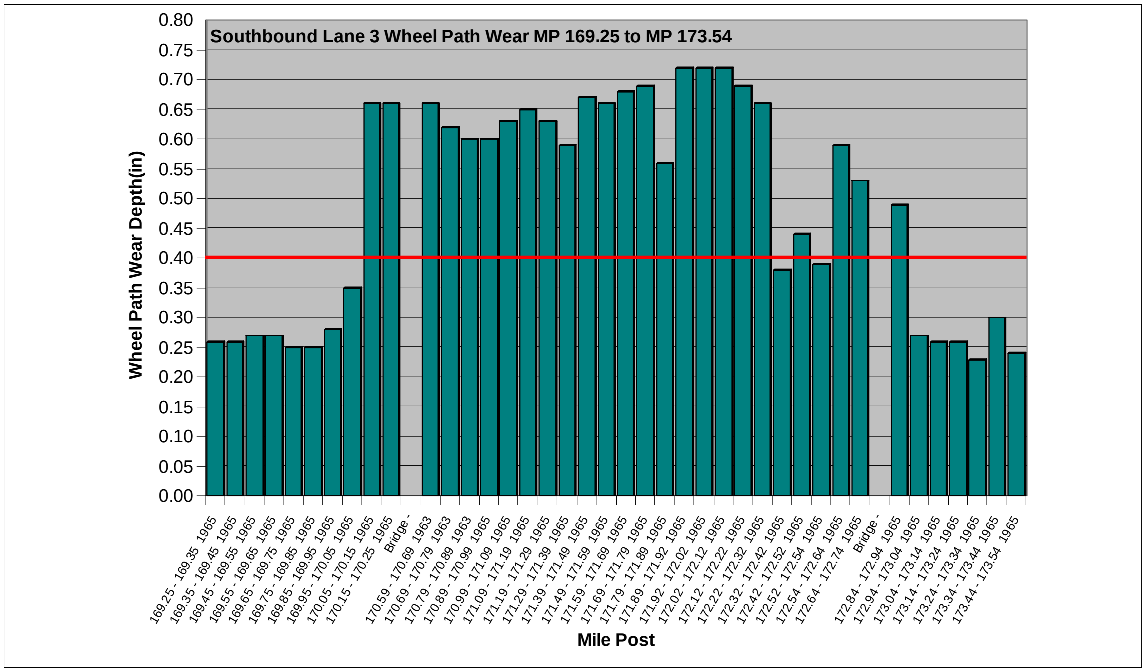
Southbound Lane 3 Wheel Path Wear Plots



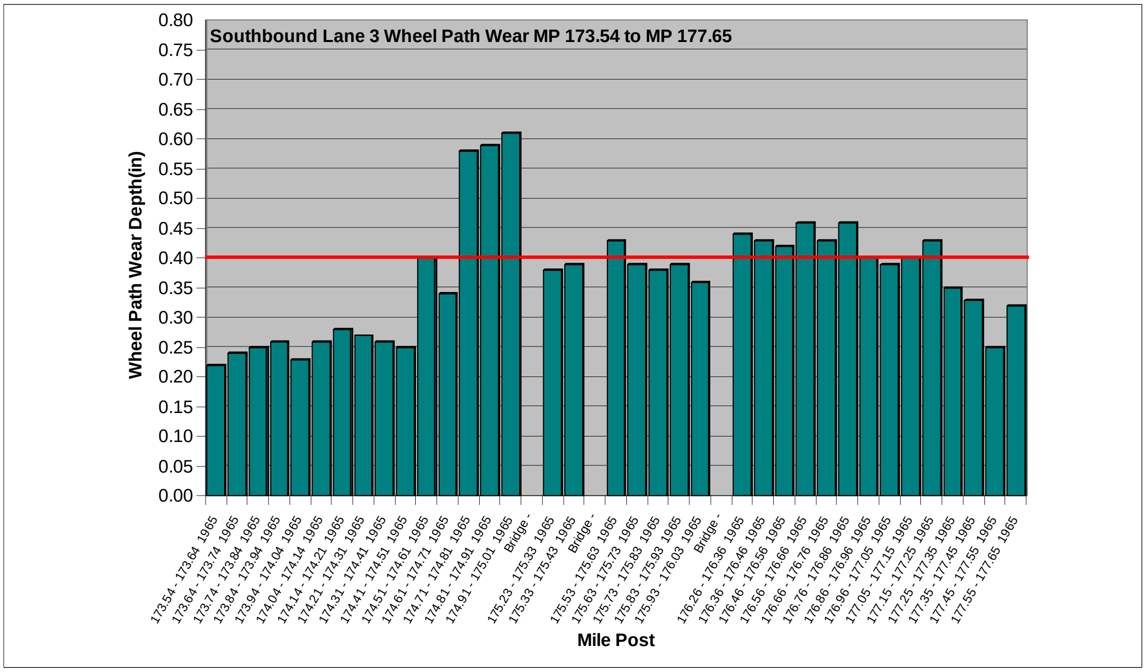



Southbound Lane 3 Wheel Path Wear MP 151.74 to MP 161.14
Wheel Path Wear Depth(in)
Mile Post


Southbound Lane 3 Wheel Path Wear MP 161.14 to MP 169.25
Wheel Path Wear Depth(in)
Mile Post

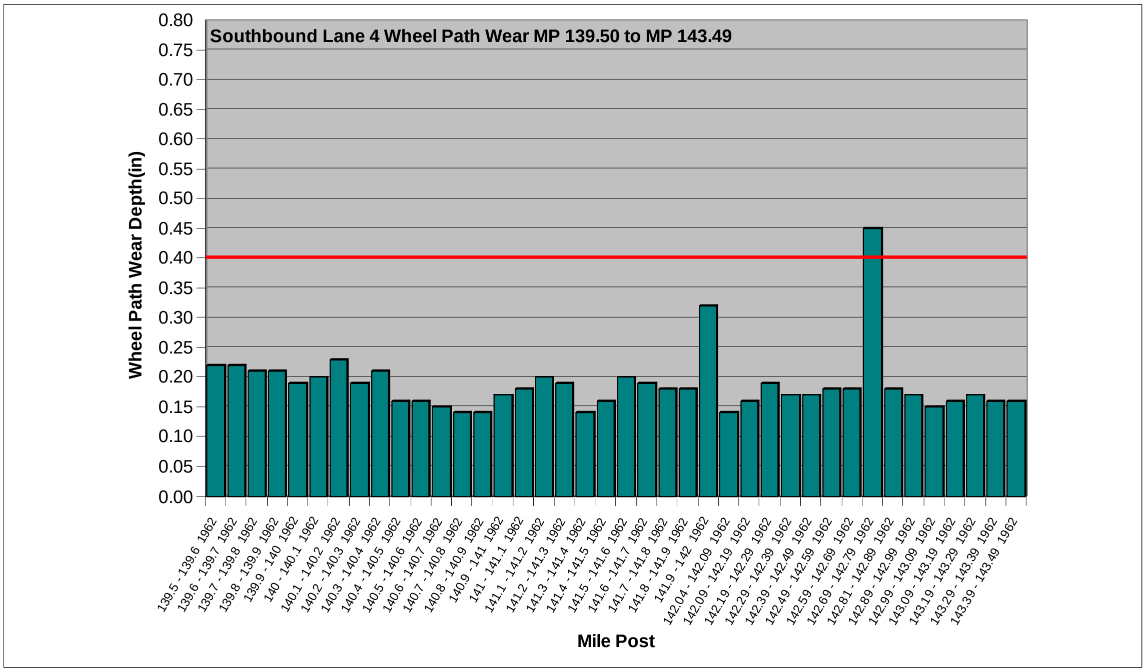


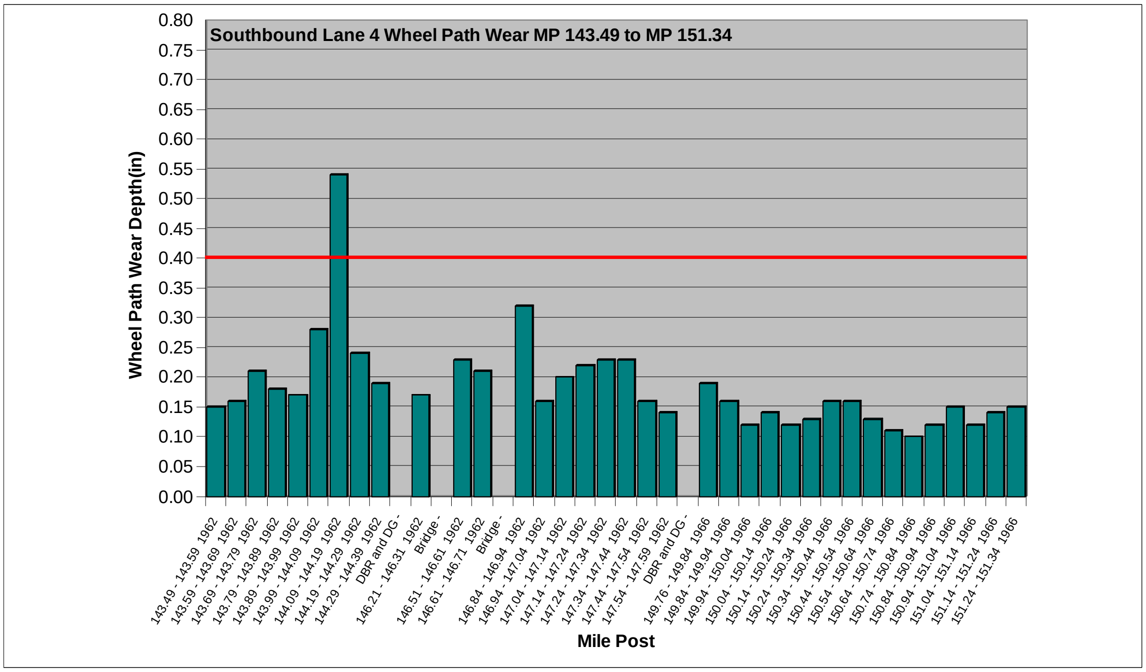
Southbound Lane 3 Wheel Path Wear MP 169.25 to MP 173.54
Wheel Path Wear Depth(in)
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
169.25 - 169.35 1965
169.35 - 169.45 1965
169.45 - 169.55 1965
169.55 - 169.65 1965
169.65 - 169.75 1965
169.75 - 169.85 1965
169.85 - 169.95 1965
169.95 - 170.05 1965
170.05 - 170.15 1965
170.15 - 170.25 1965
Bridge -
170.59 - 170.69 1963
170.69 - 170.79 1963
170.79 - 170.89 1963
170.89 - 170.99 1965
170.99 - 171.09 1965
171.09 - 171.19 1965
171.19 - 171.29 1965
171.29 - 171.39 1965
171.39 - 171.49 1965
171.49 - 171.59 1965
171.59 - 171.69 1965
171.69 - 171.79 1965
171.79 - 171.89 1965
171.89 - 171.92 1965
171.92 - 172.02 1965
172.02 - 172.12 1965
172.12 - 172.22 1965
172.22 - 172.32 1965
172.32 - 172.42 1965
172.42 - 172.52 1965
172.52 - 172.54 1965
172.54 - 172.64 1965
172.64 - 172.74 1965
Bridge -
172.84 - 172.94 1965
172.94 - 173.04 1965
173.04 - 173.14 1965
173.14 - 173.24 1965
173.24 - 173.34 1965
173.34 - 173.44 1965
173.44 - 173.54 1965
Mile Post

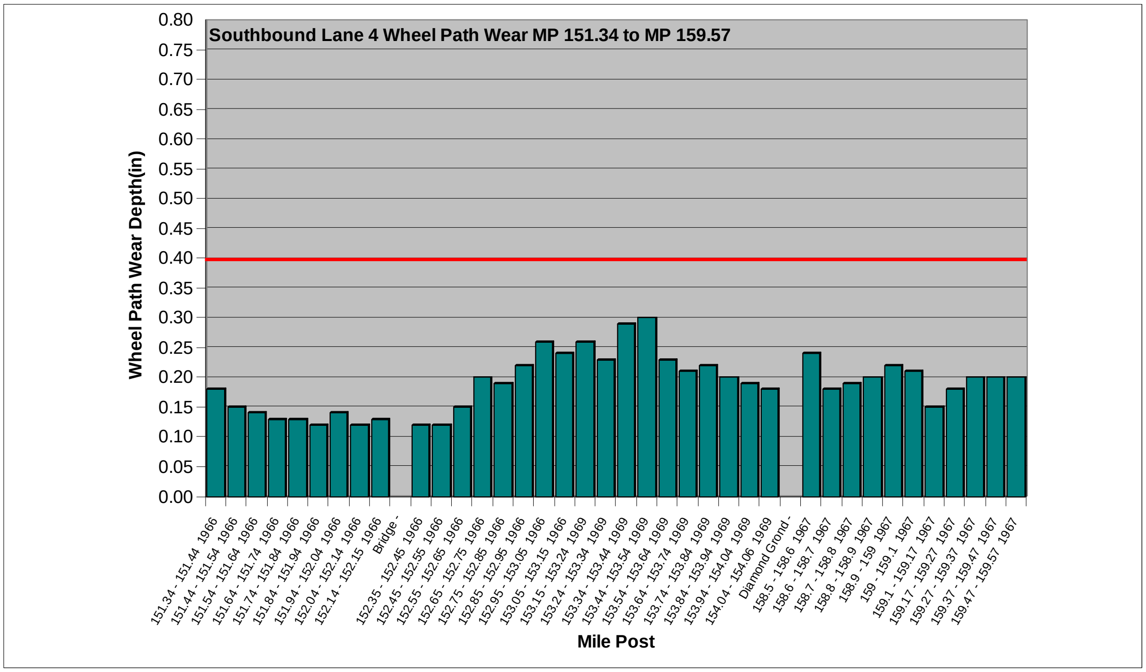


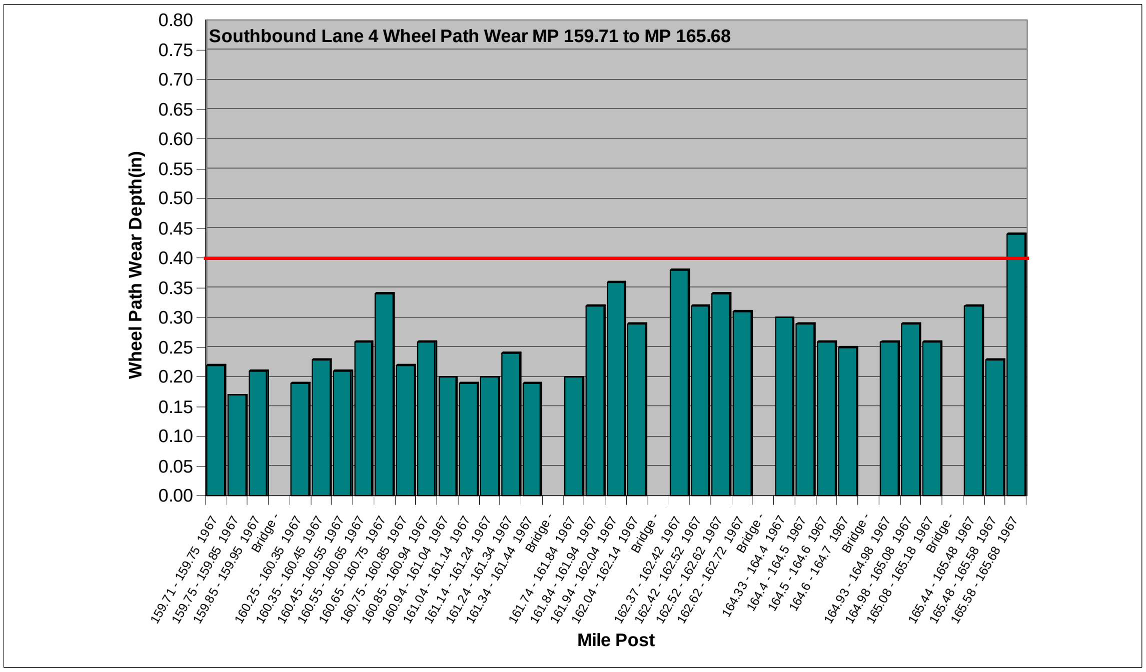
Southbound Lane 3 Wheel Path Wear MP 173.54 to MP 177.65
Wheel Path Wear Depth(in)
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
173.54 - 173.64 1965
173.64 - 173.74 1965
173.74 - 173.84 1965
173.84 - 173.94 1965
173.94 - 174.04 1965
174.04 - 174.14 1965
174.14 - 174.21 1965
174.21 - 174.31 1965
174.31 - 174.41 1965
174.41 - 174.51 1965
174.51 - 174.61 1965
174.61 - 174.71 1965
174.71 - 174.81 1965
174.81 - 174.91 1965
174.91 - 175.01 1965
Bridge -
175.23 - 175.33 1965
175.33 - 175.43 1965
Bridge -
175.53 - 175.63 1965
175.63 - 175.73 1965
175.73 - 175.83 1965
175.83 - 175.93 1965
175.93 - 176.03 1965
Bridge -
176.26 - 176.36 1965
176.36 - 176.46 1965
176.46 - 176.56 1965
176.56 - 176.66 1965
176.66 - 176.76 1965
176.76 - 176.86 1965
176.86 - 176.96 1965
176.96 - 177.05 1965
177.05 - 177.15 1965
177.15 - 177.25 1965
177.25 - 177.35 1965
177.35 - 177.45 1965
177.45 - 177.55 1965
177.55 - 177.65 1965
Mile Post

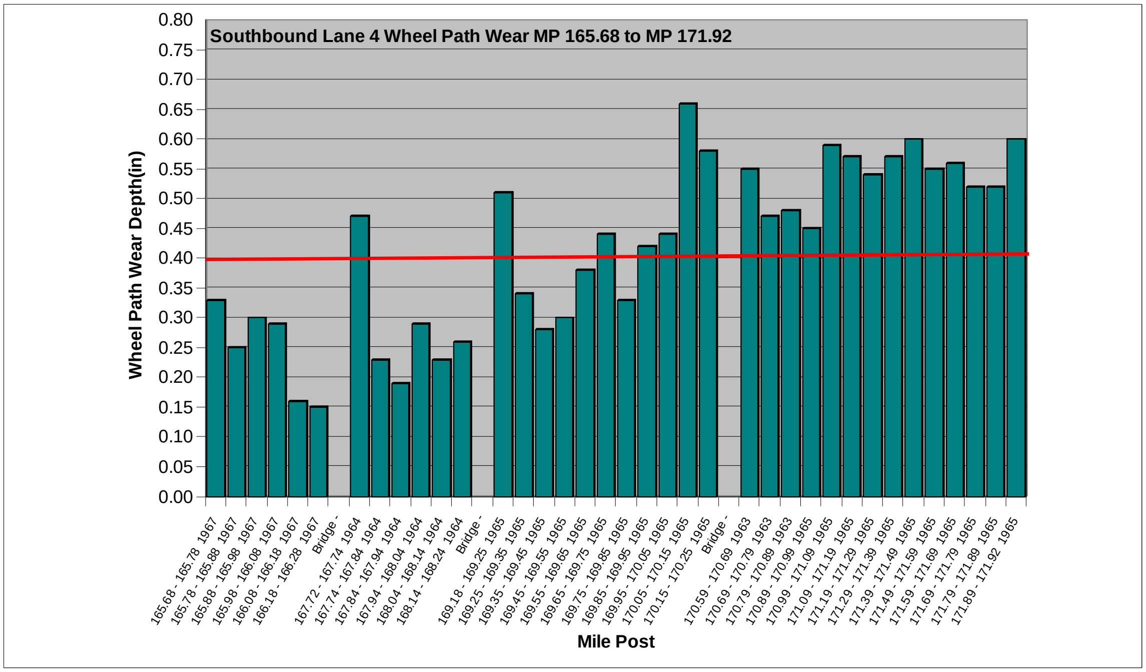
Southbound Lane 4 Wheel Path Wear Plots

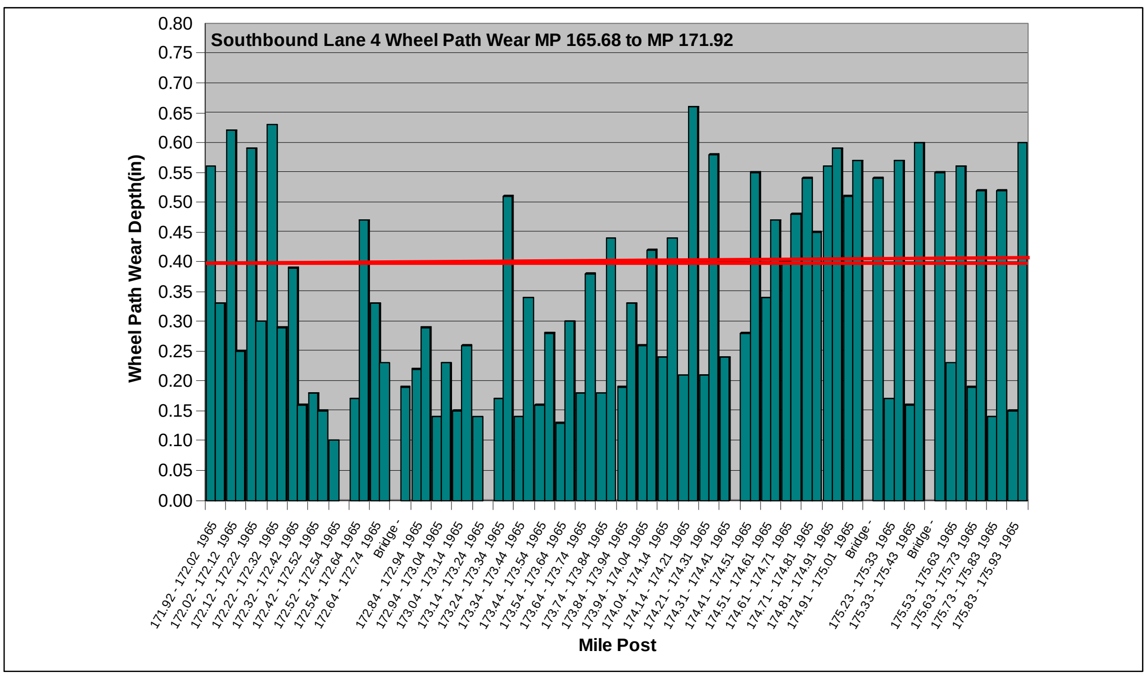


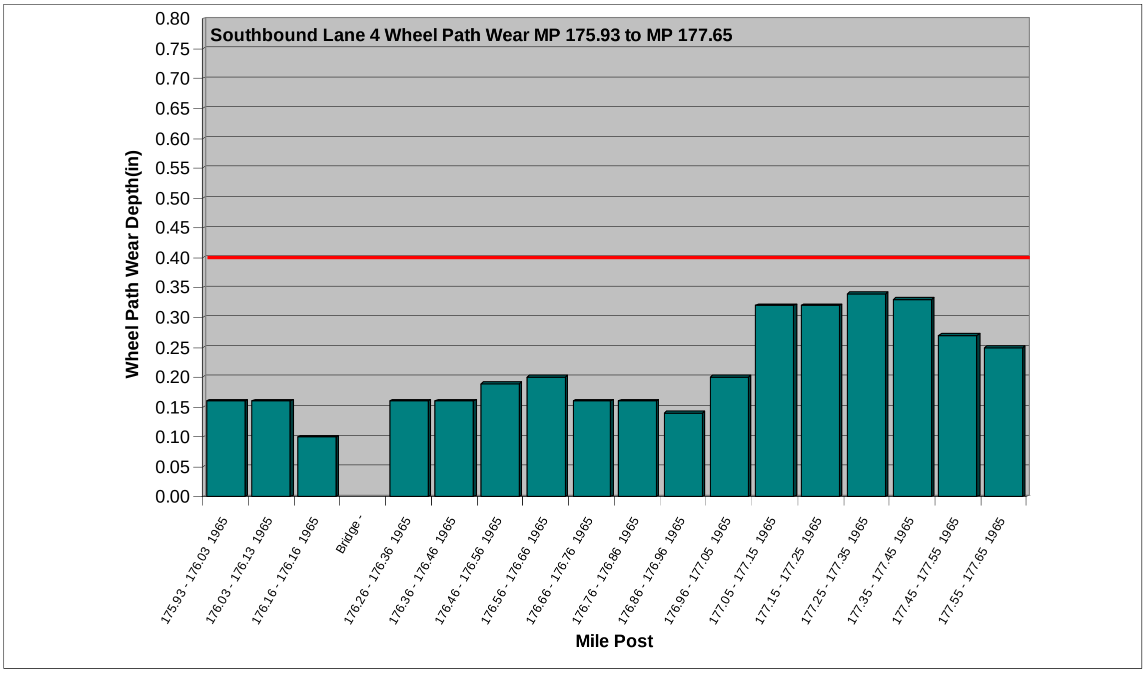



Southbound Lane 4 Wheel Path Wear MP 151.34 to MP 159.57
Wheel Path Wear Depth(in)
Mile Post


Southbound Lane 4 Wheel Path Wear MP 159.71 to MP 165.68
Wheel Path Wear Depth(in)
Mile Post

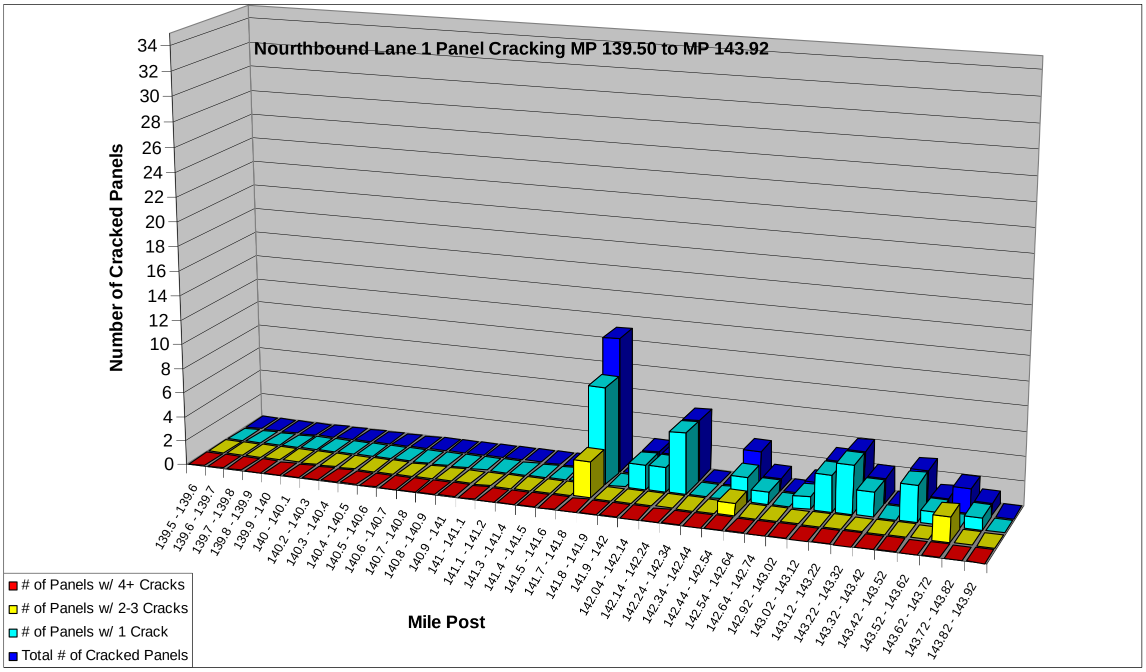

Southbound Lane 4 Wheel Path Wear MP 165.68 to MP 171.92
Wheel Path Wear Depth(in)
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
165.68 - 165.78 1967
165.78 - 165.88 1967
165.88 - 165.98 1967
165.98 - 166.08 1967
166.08 - 166.18 1967
166.18 - 166.28 1967
Bridge -
167.72 - 167.74 1964
167.74 - 167.84 1964
167.84 - 167.94 1964
167.94 - 168.04 1964
168.04 - 168.14 1964
168.14 - 168.24 1964
Bridge -
169.18 - 169.25 1965
169.25 - 169.35 1965
169.35 - 169.45 1965
169.45 - 169.55 1965
169.55 - 169.65 1965
169.65 - 169.75 1965
169.75 - 169.85 1965
169.85 - 169.95 1965
169.95 - 170.05 1965
170.05 - 170.15 1965
170.15 - 170.25 1965
Bridge -
170.59 - 170.69 1963
170.69 - 170.79 1963
170.79 - 170.89 1963
170.89 - 170.99 1965
170.99 - 171.09 1965
171.09 - 171.19 1965
171.19 - 171.29 1965
171.29 - 171.39 1965
171.39 - 171.49 1965
171.49 - 171.59 1965
171.59 - 171.69 1965
171.69 - 171.79 1965
171.79 - 171.89 1965
171.89 - 171.92 1965
Mile Post

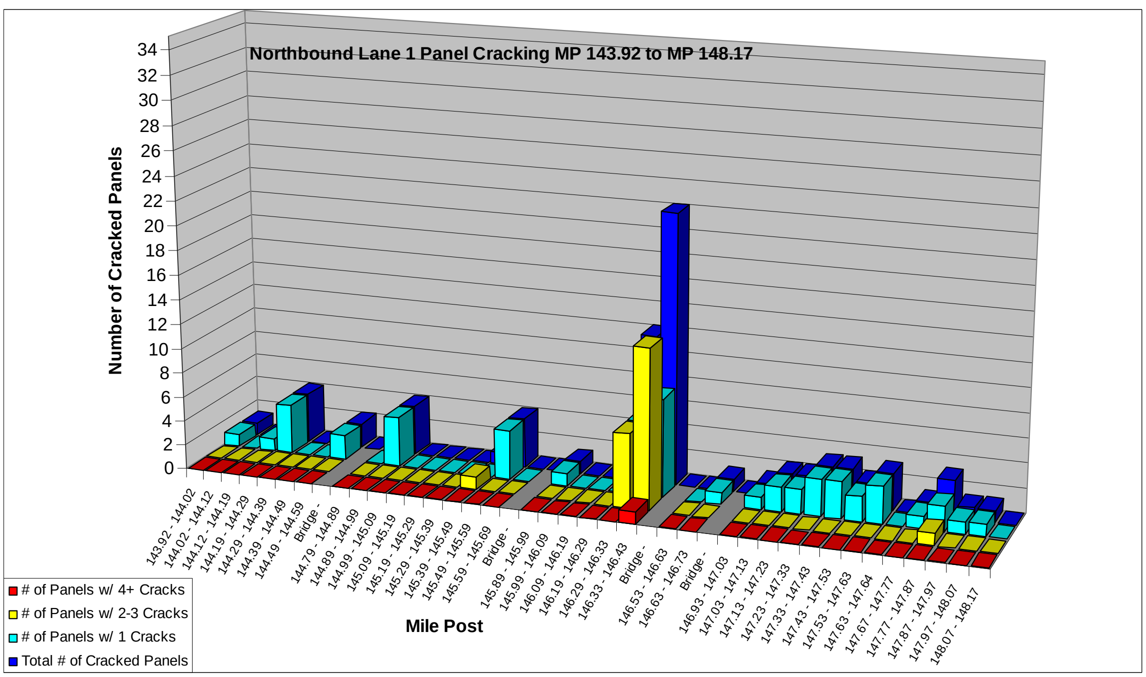

Southbound Lane 4 Wheel Path Wear MP 165.68 to MP 171.92
Wheel Path Wear Depth(in)
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
171.92 - 172.02 1965
172.02 - 172.12 1965
172.12 - 172.22 1965
172.22 - 172.32 1965
172.32 - 172.42 1965
172.42 - 172.52 1965
172.52 - 172.54 1965
172.54 - 172.64 1965
172.64 - 172.74 1965
Bridge -
172.84 - 172.94 1965
172.94 - 173.04 1965
173.04 - 173.14 1965
173.14 - 173.24 1965
173.24 - 173.34 1965
173.34 - 173.44 1965
173.44 - 173.54 1965
173.54 - 173.64 1965
173.64 - 173.74 1965
173.74 - 173.84 1965
173.84 - 173.94 1965
173.94 - 174.04 1965
174.04 - 174.14 1965
174.14 - 174.21 1965
174.21 - 174.31 1965
174.31 - 174.41 1965
174.41 - 174.51 1965
174.51 - 174.61 1965
174.61 - 174.71 1965
174.71 - 174.81 1965
174.81 - 174.91 1965
174.91 - 175.01 1965
Bridge -
175.23 - 175.33 1965
175.33 - 175.43 1965
Bridge -
175.53 - 175.63 1965
175.63 - 175.73 1965
175.73 - 175.83 1965
175.83 - 175.93 1965
Mile Post

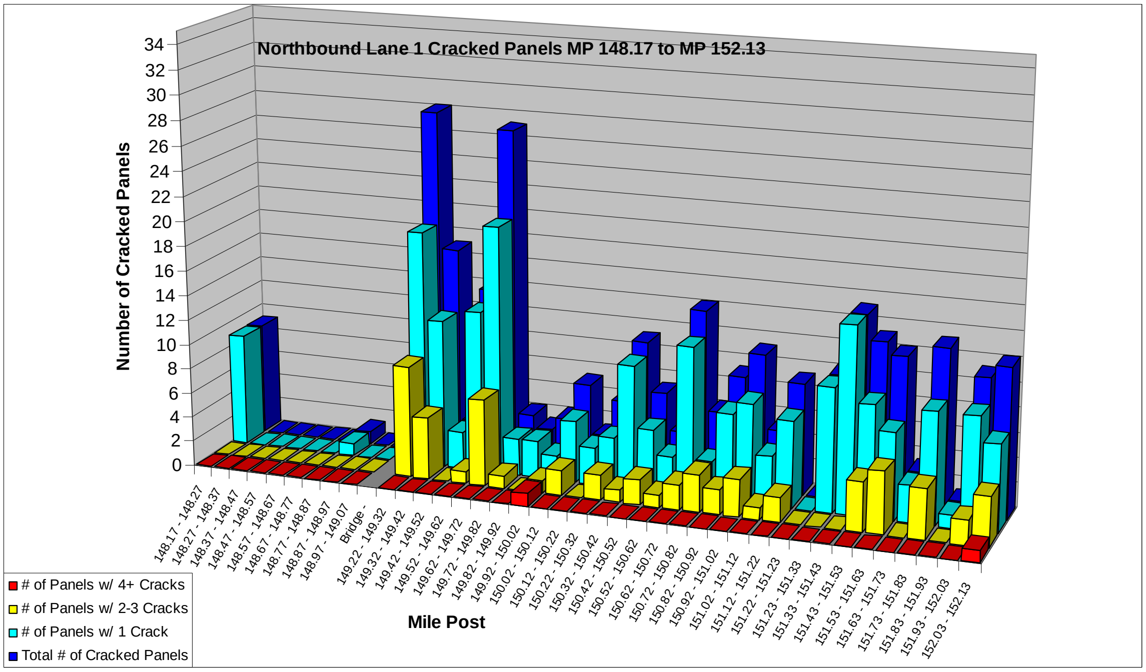

Southbound Lane 4 Wheel Path Wear MP 175.93 to MP 177.65
Wheel Path Wear Depth(in)
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
175.93 - 176.03 1965
176.03 - 176.13 1965
176.16 - 176.16 1965
Bridge -
176.26 - 176.36 1965
176.36 - 176.46 1965
176.46 - 176.56 1965
176.56 - 176.66 1965
176.66 - 176.76 1965
176.76 - 176.86 1965
176.86 - 176.96 1965
176.96 - 177.05 1965
177.05 - 177.15 1965
177.15 - 177.25 1965
177.25 - 177.35 1965
177.35 - 177.45 1965
177.45 - 177.55 1965
177.55 - 177.65 1965
Mile Post

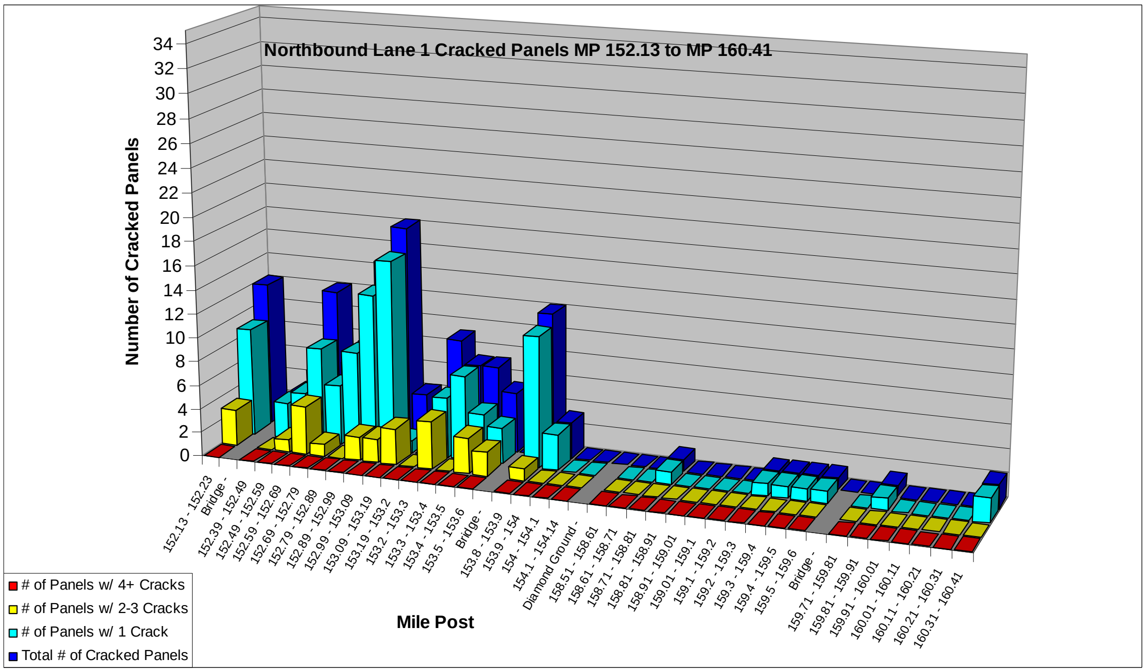
Appendix K-
Number of Cracks per Section Distress Plots

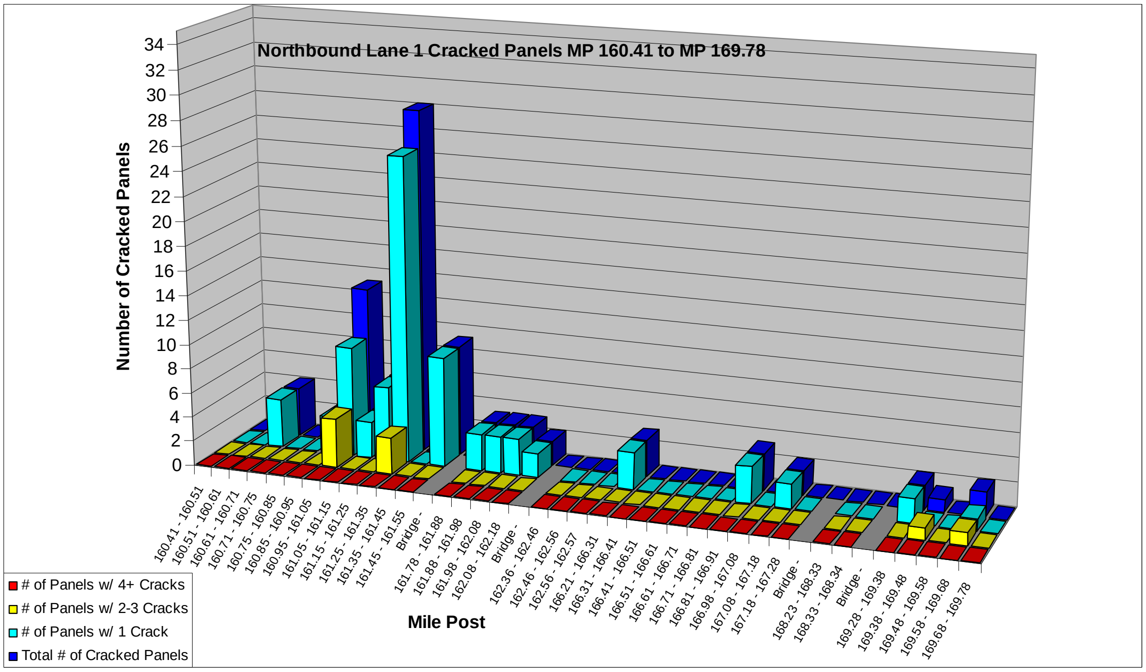
<u>Northbound Lane 1 Cracked Panel Plots</u>

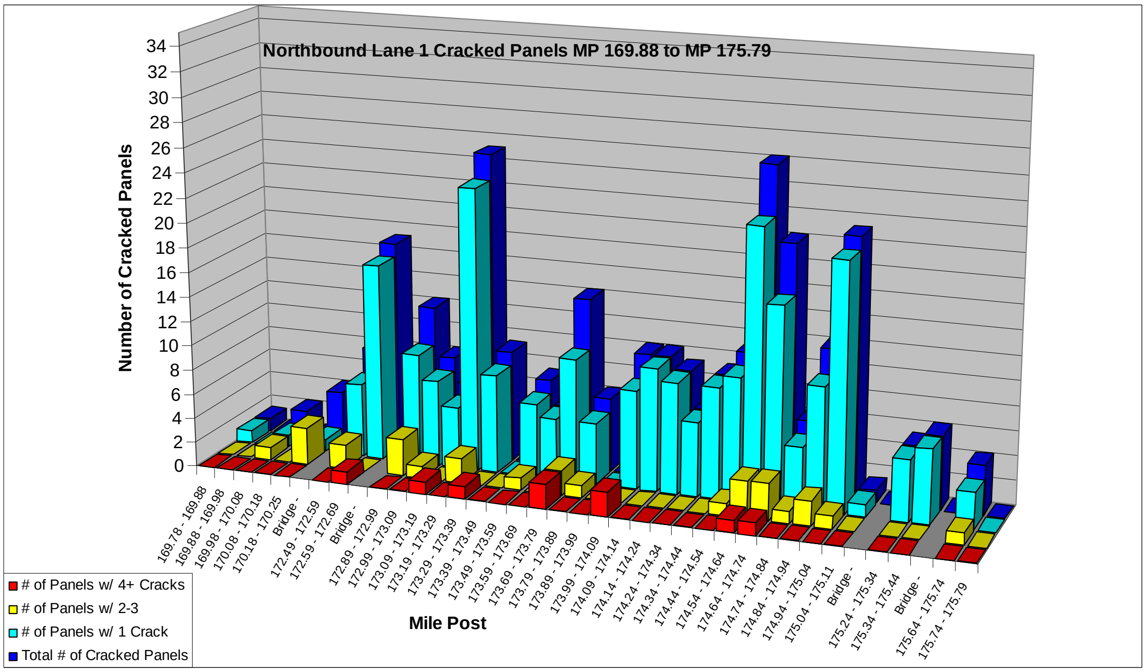




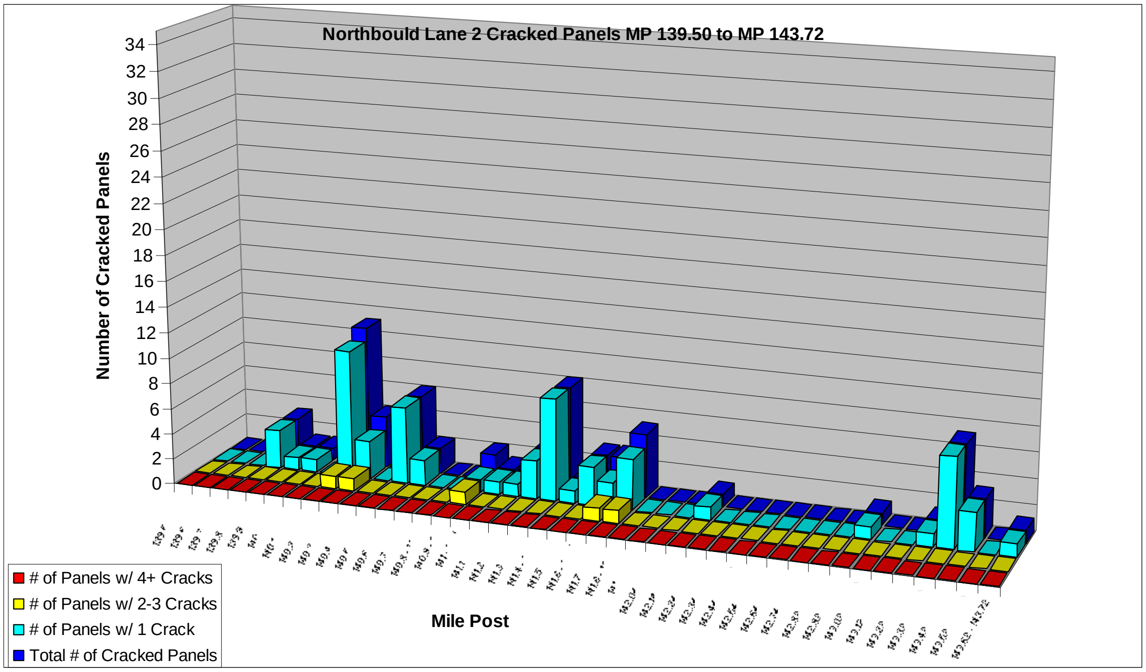

Northbound Lane 1 Cracked Panels MP 148.17 to MP 152.13
Number of Cracked Panels
34
32
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
148.17 - 148.27
148.27 - 148.37
148.37 - 148.47
148.47 - 148.57
148.57 - 148.67
148.67 - 148.77
148.77 - 148.87
148.87 - 148.97
148.97 - 149.07
Bridge -
149.22 - 149.32
149.32 - 149.42
149.42 - 149.52
149.52 - 149.62
149.62 - 149.72
149.72 - 149.82
149.82 - 149.92
149.92 - 150.02
150.02 - 150.12
150.12 - 150.22
150.22 - 150.32
150.32 - 150.42
150.42 - 150.52
150.52 - 150.62
150.62 - 150.72
150.72 - 150.82
150.82 - 150.92
150.92 - 151.02
151.02 - 151.12
151.12 - 151.22
151.22 - 151.23
151.23 - 151.33
151.33 - 151.43
151.43 - 151.53
151.53 - 151.63
151.63 - 151.73
151.73 - 151.83
151.83 - 151.93
151.93 - 152.03
152.03 - 152.13
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels

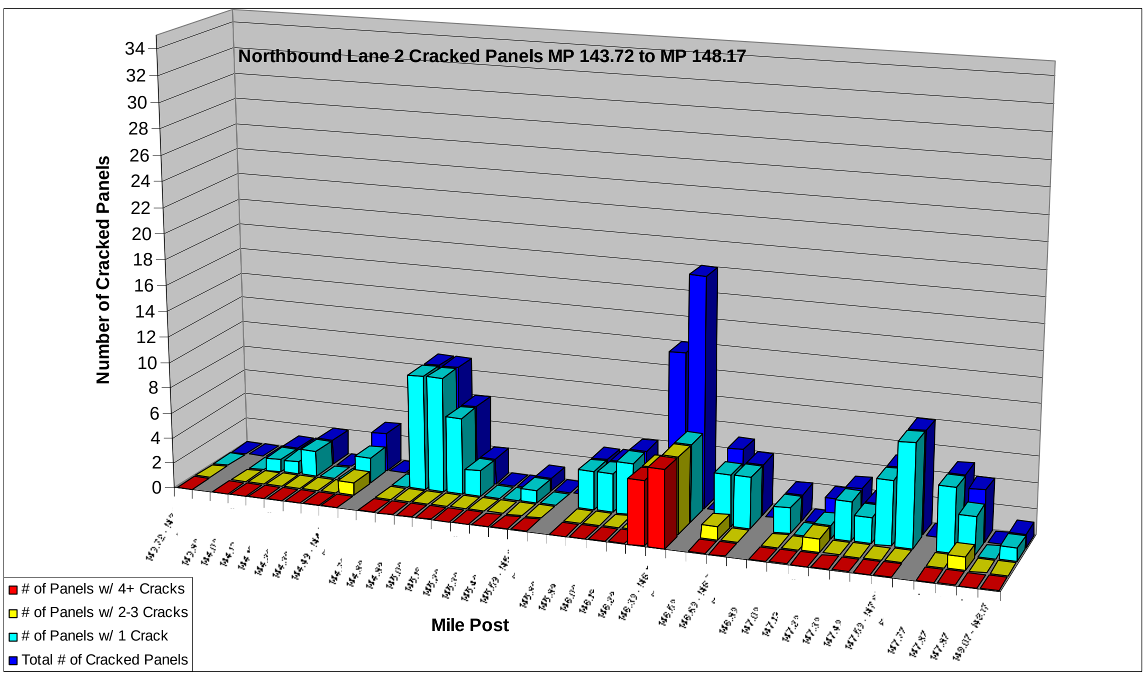

Northbound Lane 1 Cracked Panels MP 152.13 to MP 160.41
Number of Cracked Panels
34
32
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
152.13 - 152.23
Bridge -
152.39 - 152.49
152.49 - 152.59
152.59 - 152.69
152.69 - 152.79
152.79 - 152.89
152.89 - 152.99
152.99 - 153.09
153.09 - 153.19
153.19 - 153.2
153.2 - 153.3
153.3 - 153.4
153.4 - 153.5
153.5 - 153.6
Bridge -
153.8 - 153.9
153.9 - 154
154 - 154.1
154.1 - 154.14
Diamond Ground -
158.51 - 158.61
158.61 - 158.71
158.71 - 158.81
158.81 - 158.91
158.91 - 159.01
159.01 - 159.1
159.1 - 159.2
159.2 - 159.3
159.3 - 159.4
159.4 - 159.5
159.5 - 159.6
Bridge -
159.71 - 159.81
159.81 - 159.91
159.91 - 160.01
160.01 - 160.11
160.11 - 160.21
160.21 - 160.31
160.31 - 160.41
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels

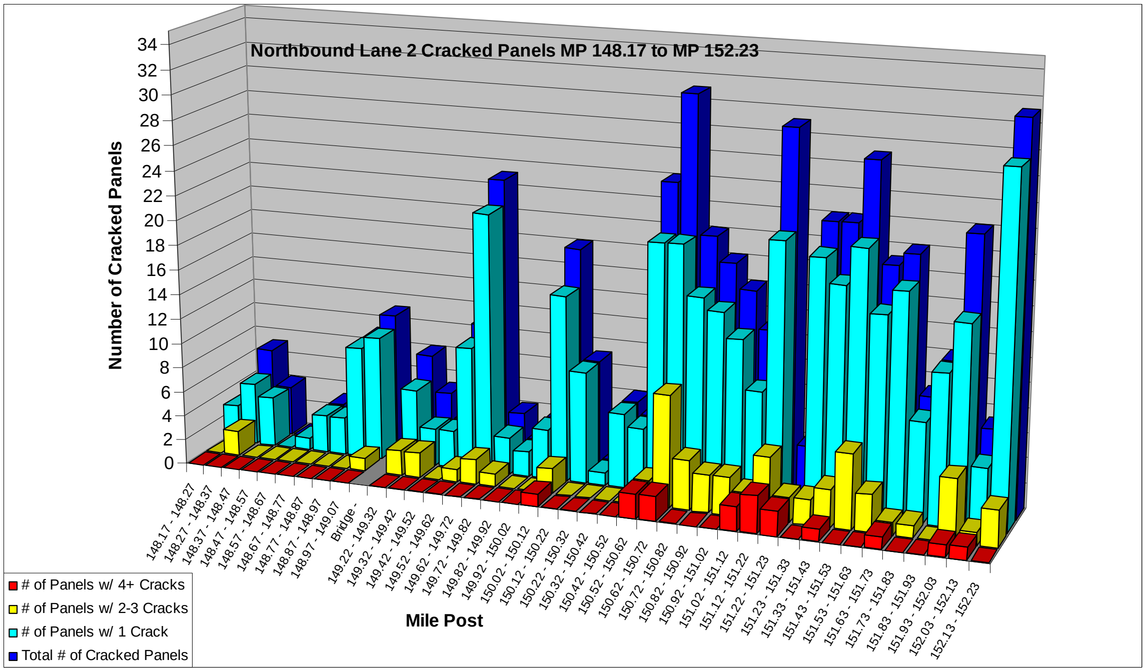

Northbound Lane 1 Cracked Panels MP 160.41 to MP 169.78
Number of Cracked Panels
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels

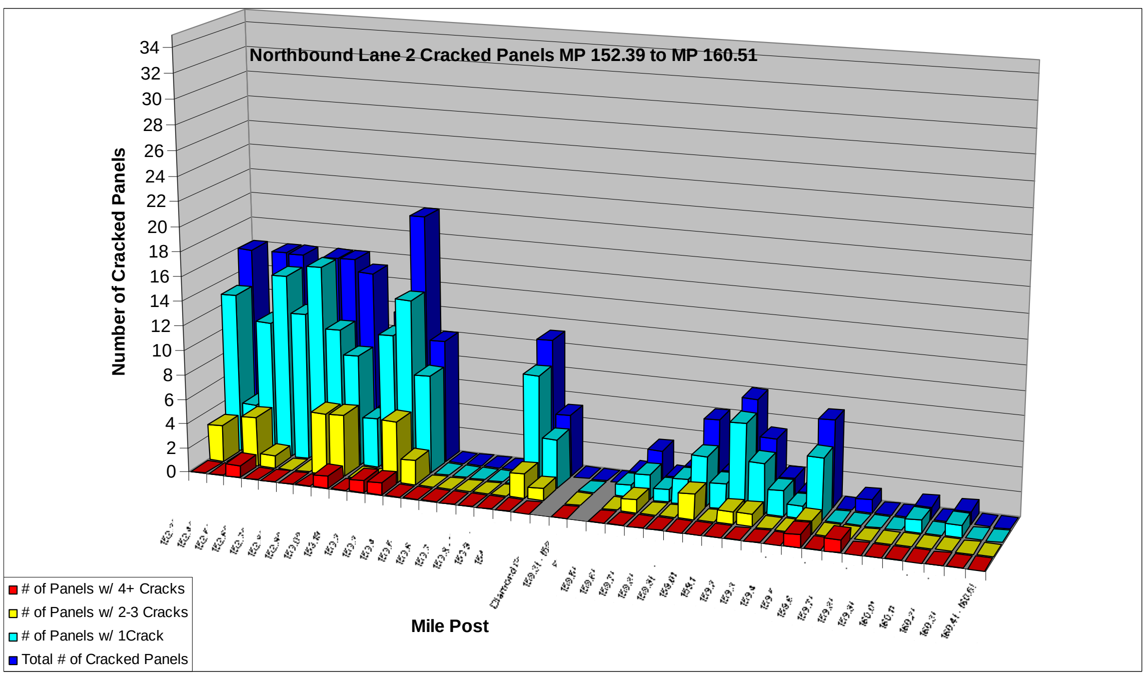

Northbound Lane 1 Cracked Panels MP 169.88 to MP 175.79
Number of Cracked Panels
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3
# of Panels w/ 1 Crack
Total # of Cracked Panels

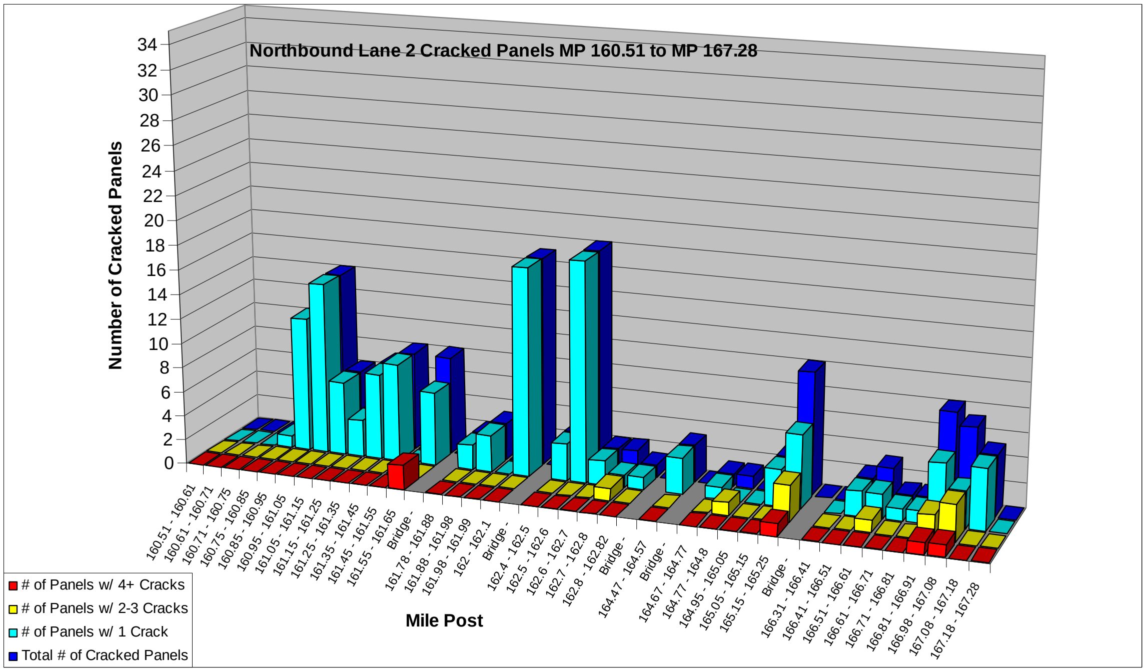
Northbound Lane 2 Cracked Panel Plots

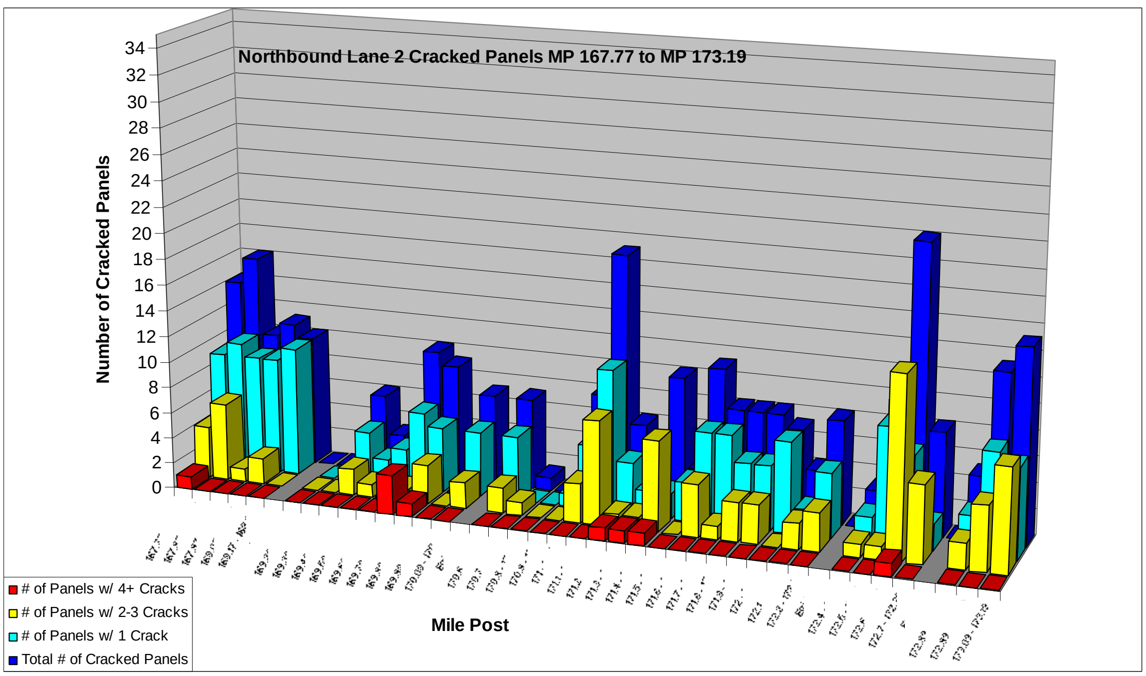


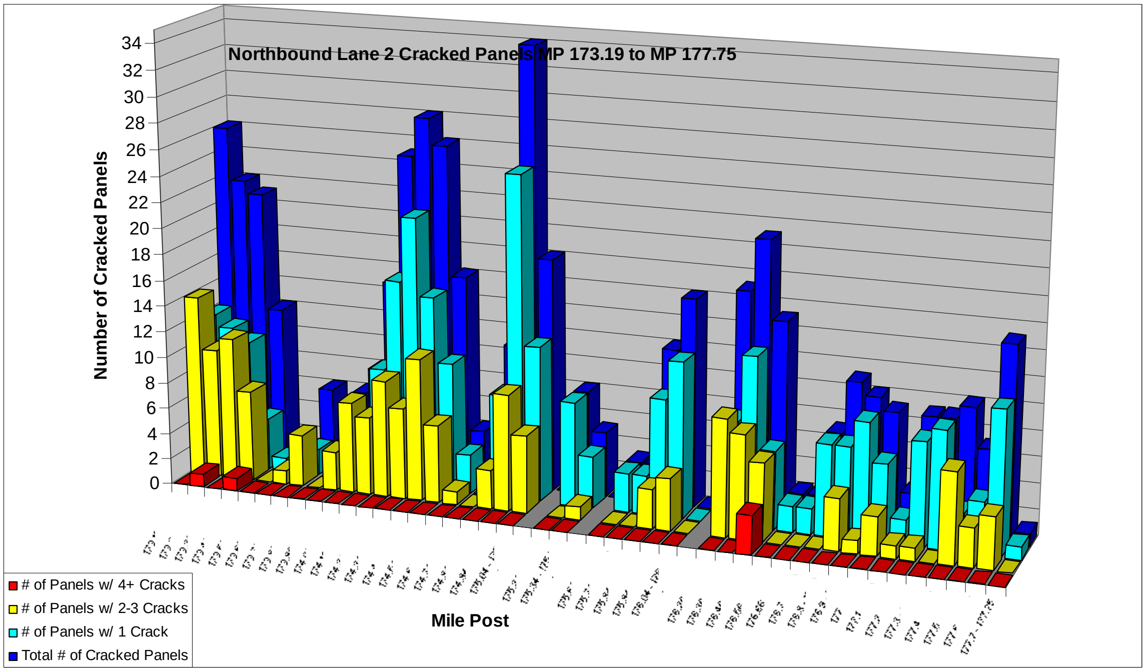



Northbound Lane 2 Cracked Panels MP 148.17 to MP 152.23
Number of Cracked Panels
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
148.17 - 148.27
148.27 - 148.37
148.37 - 148.47
148.47 - 148.57
148.57 - 148.67
148.67 - 148.77
148.77 - 148.87
148.87 - 148.97
148.97 - 149.07
Bridge -
149.22 - 149.32
149.32 - 149.42
149.42 - 149.52
149.52 - 149.62
149.62 - 149.72
149.72 - 149.82
149.82 - 149.92
149.92 - 150.02
150.02 - 150.12
150.12 - 150.22
150.22 - 150.32
150.32 - 150.42
150.42 - 150.52
150.52 - 150.62
150.62 - 150.72
150.72 - 150.82
150.82 - 150.92
150.92 - 151.02
151.02 - 151.12
151.12 - 151.22
151.22 - 151.23
151.23 - 151.33
151.33 - 151.43
151.43 - 151.53
151.53 - 151.63
151.63 - 151.73
151.73 - 151.83
151.83 - 151.93
151.93 - 152.03
152.03 - 152.13
152.13 - 152.23
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels

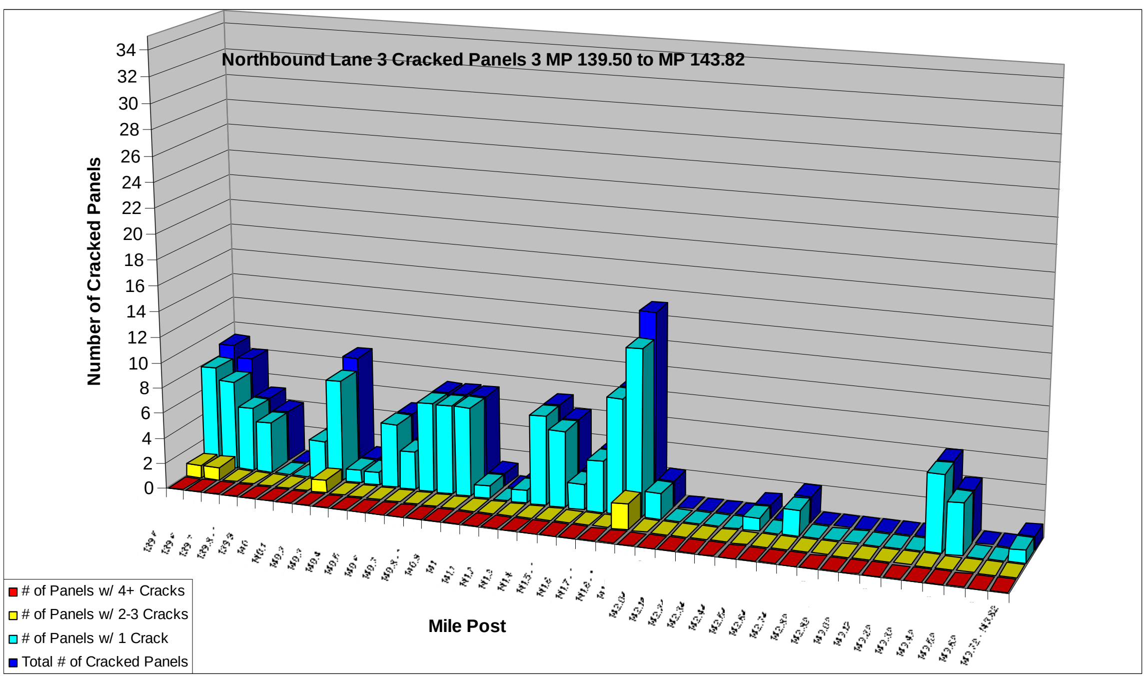

Northbound Lane 2 Cracked Panels MP 152.39 to MP 160.51
Number of Cracked Panels
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1Crack
Total # of Cracked Panels

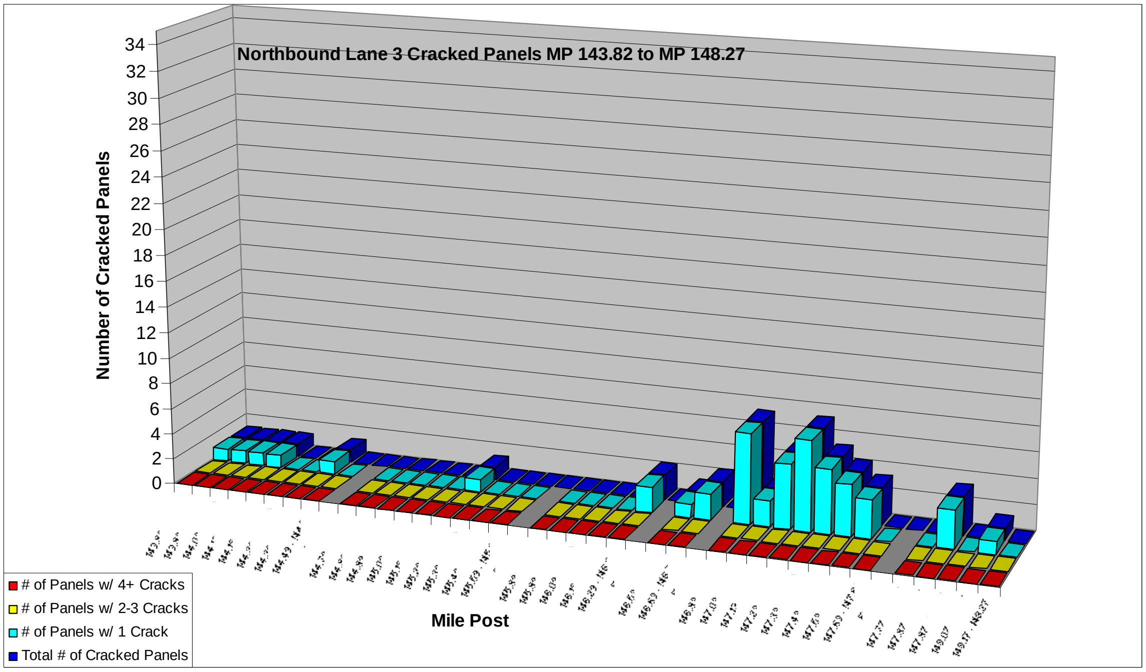

Northbound Lane 2 Cracked Panels MP 160.51 to MP 167.28
Number of Cracked Panels
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
160.51 - 160.61
160.61 - 160.71
160.71 - 160.75
160.75 - 160.85
160.85 - 160.95
160.95 - 161.05
161.05 - 161.15
161.15 - 161.25
161.25 - 161.35
161.35 - 161.45
161.45 - 161.55
161.55 - 161.65
Bridge -
161.78 - 161.88
161.88 - 161.98
161.98 - 161.99
162 - 162.1
Bridge -
162.4 - 162.5
162.5 - 162.6
162.6 - 162.7
162.7 - 162.8
162.8 - 162.82
Bridge -
164.47 - 164.57
Bridge -
164.67 - 164.77
164.77 - 164.8
164.95 - 165.05
165.05 - 165.15
165.15 - 165.25
Bridge -
166.31 - 166.41
166.41 - 166.51
166.51 - 166.61
166.61 - 166.71
166.71 - 166.81
166.81 - 166.91
166.98 - 167.08
167.08 - 167.18
167.18 - 167.28
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels

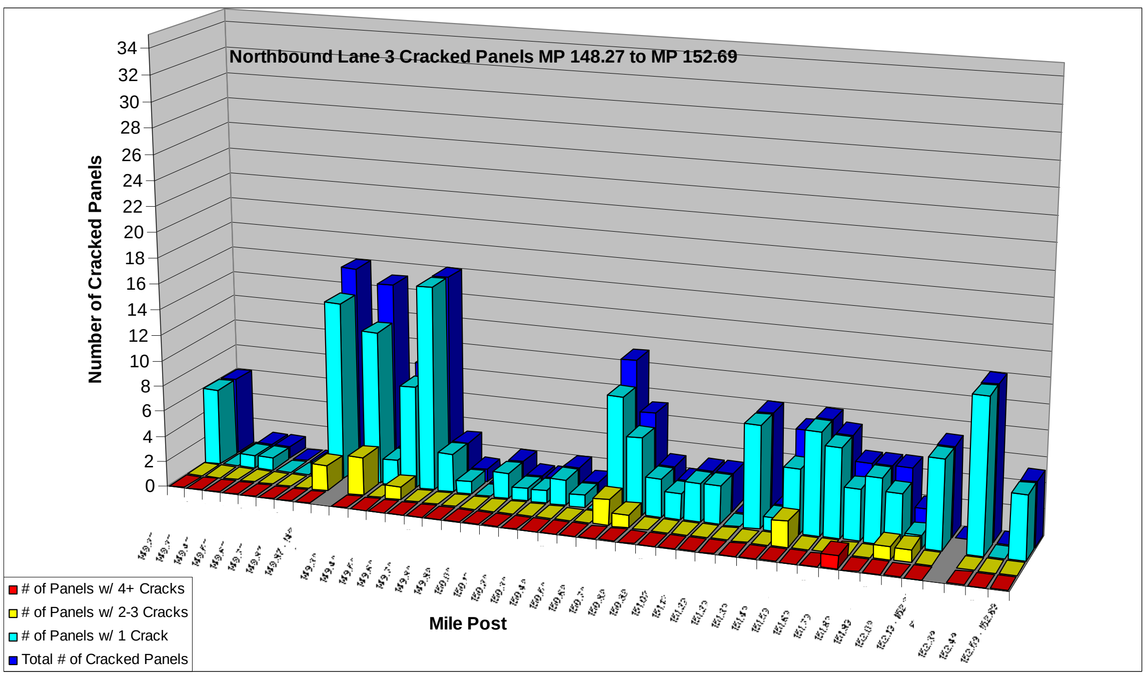

Northbound Lane 2 Cracked Panels MP 167.77 to MP 173.19
Number of Cracked Panels
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels

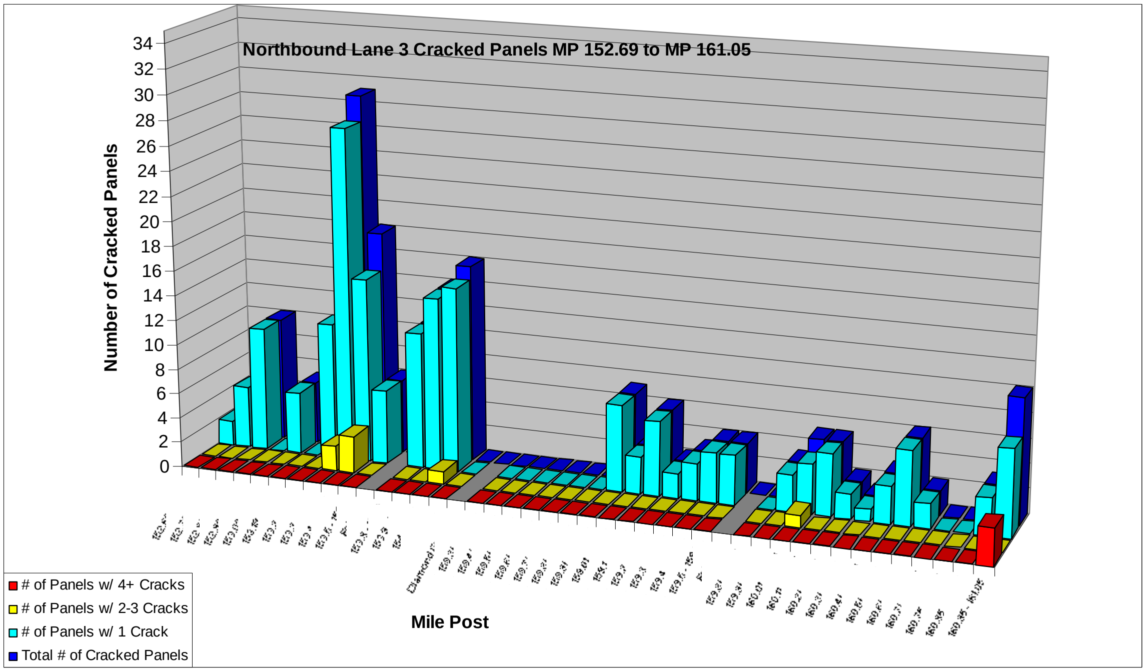


Northbound Lane 3 Cracked Panel Plots

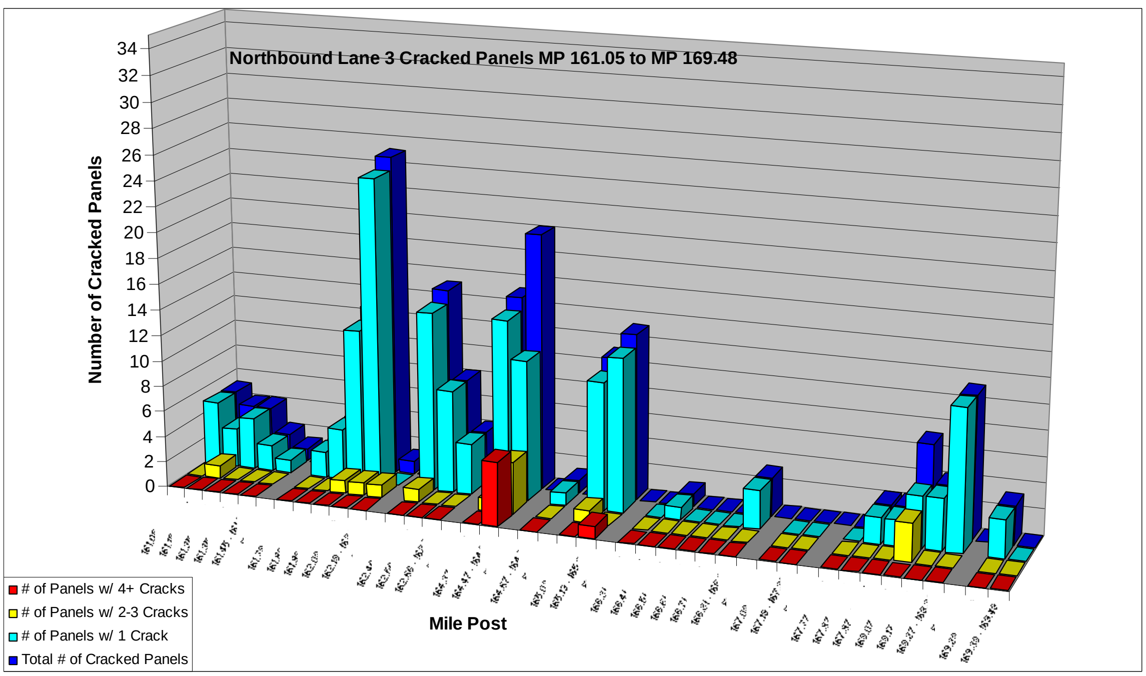



Northbound Lane 3 Cracked Panels MP 143.82 to MP 148.27
Number of Cracked Panels
34
32
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels

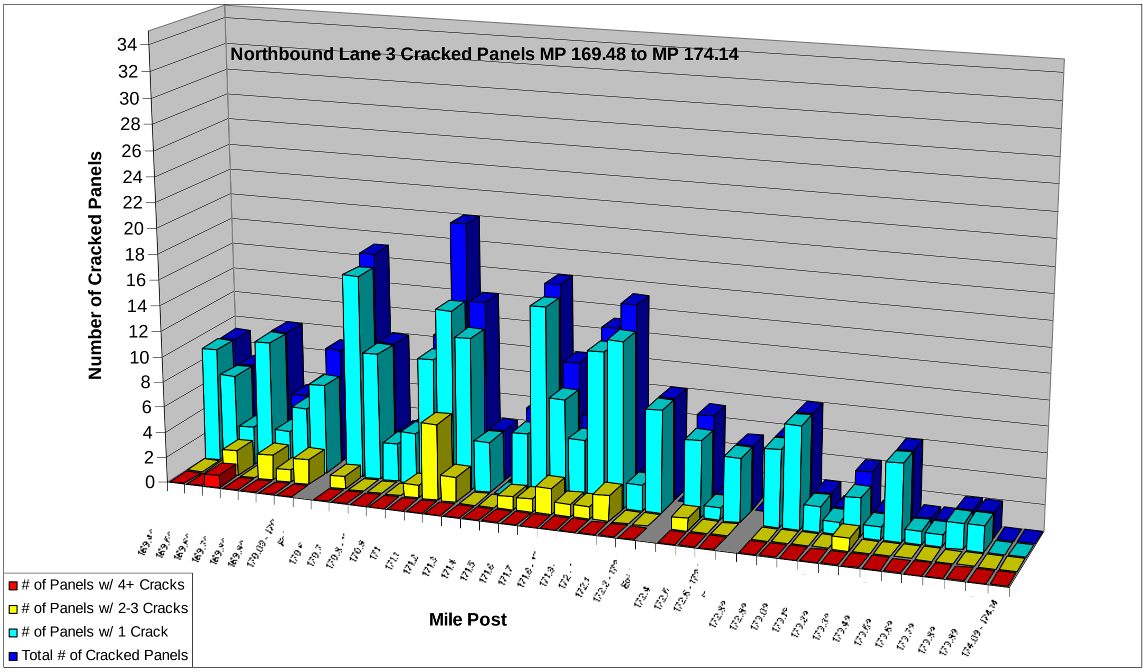

Northbound Lane 3 Cracked Panels MP 148.27 to MP 152.69
Number of Cracked Panels
34
32
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels

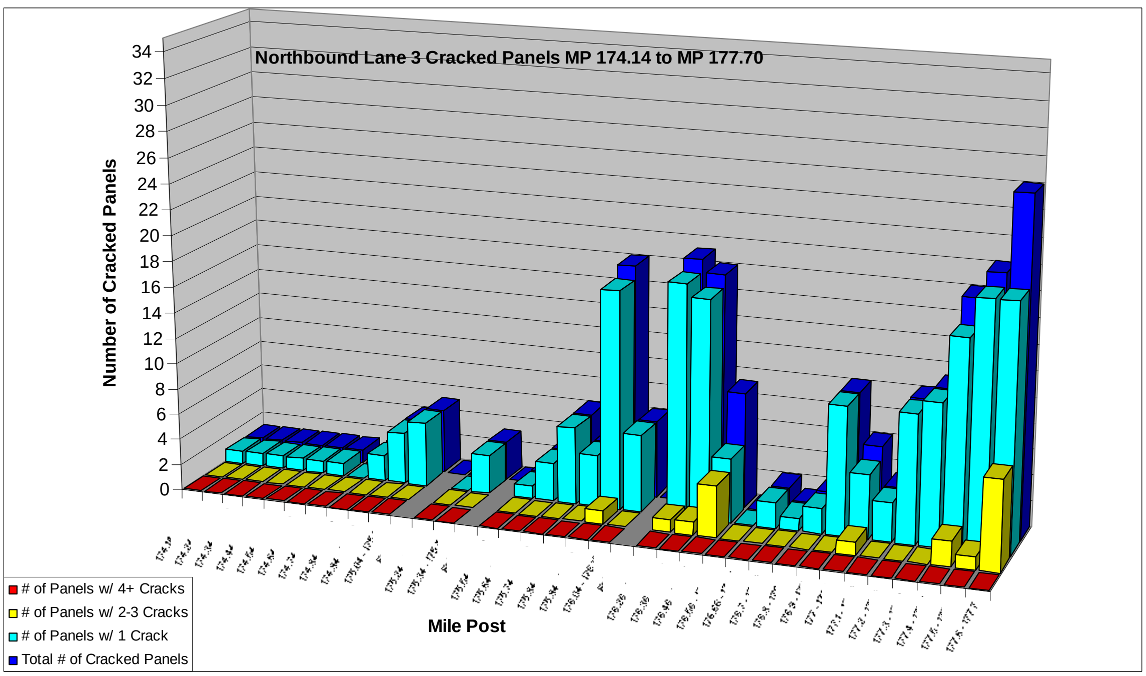


Northbound Lane 3 Cracked Panels MP 152.69 to MP 161.05
Number of Cracked Panels
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels

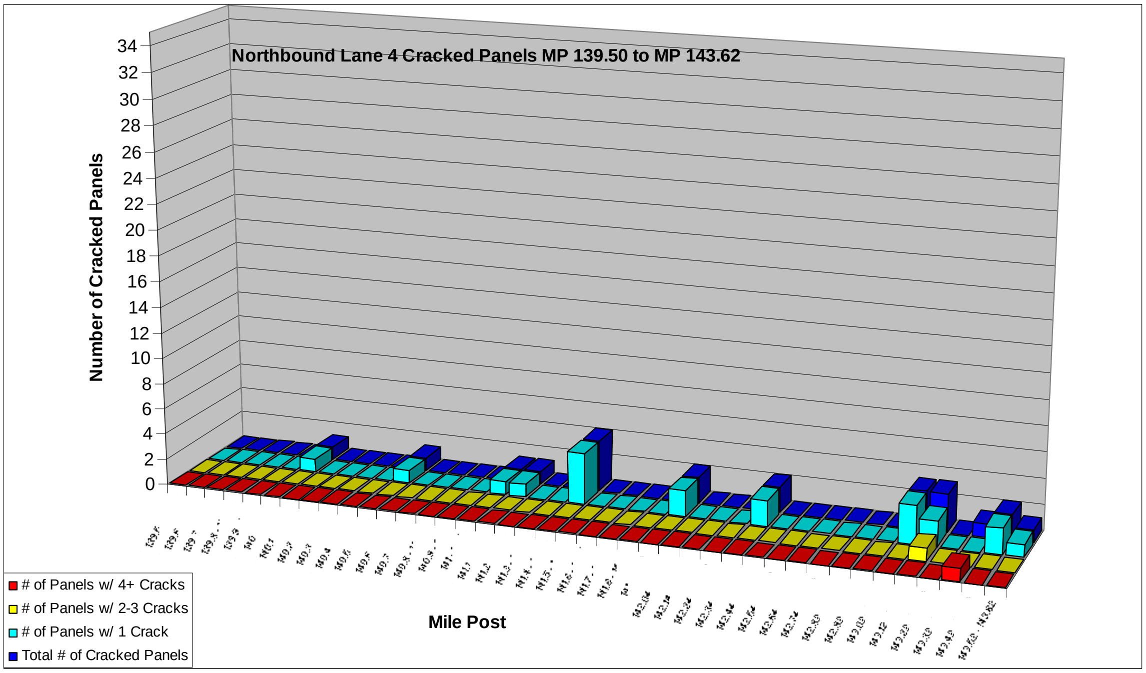


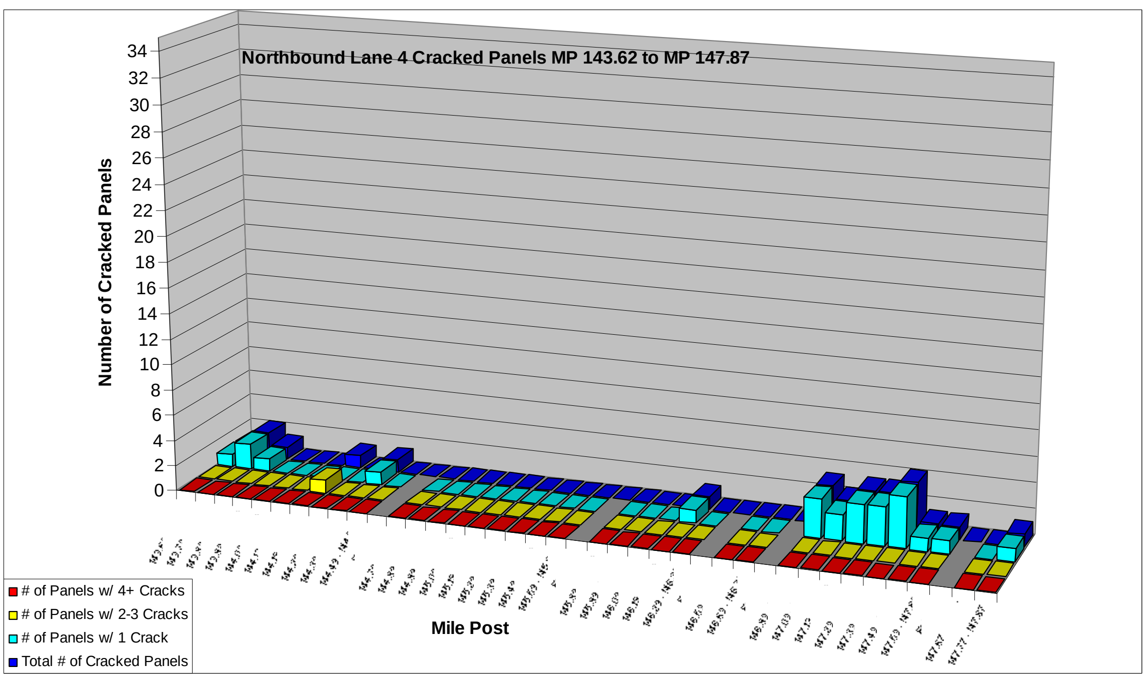
Northbound Lane 3 Cracked Panels MP 161.05 to MP 169.48
Number of Cracked Panels
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels

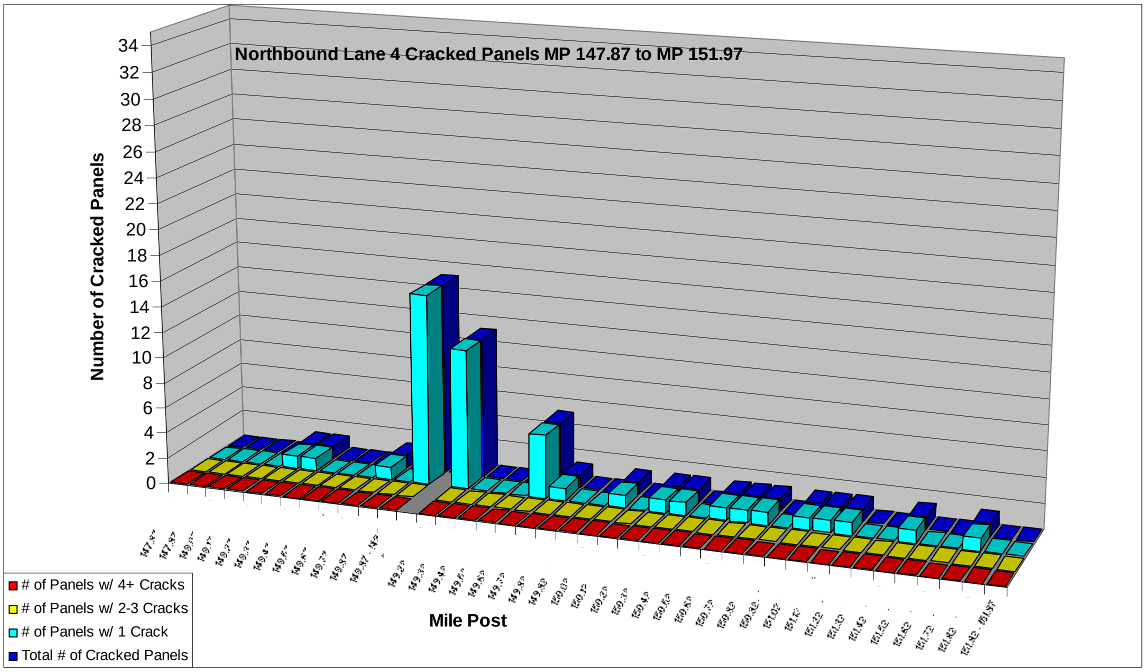

Northbound Lane 3 Cracked Panels MP 169.48 to MP 174.14
Number of Cracked Panels
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels

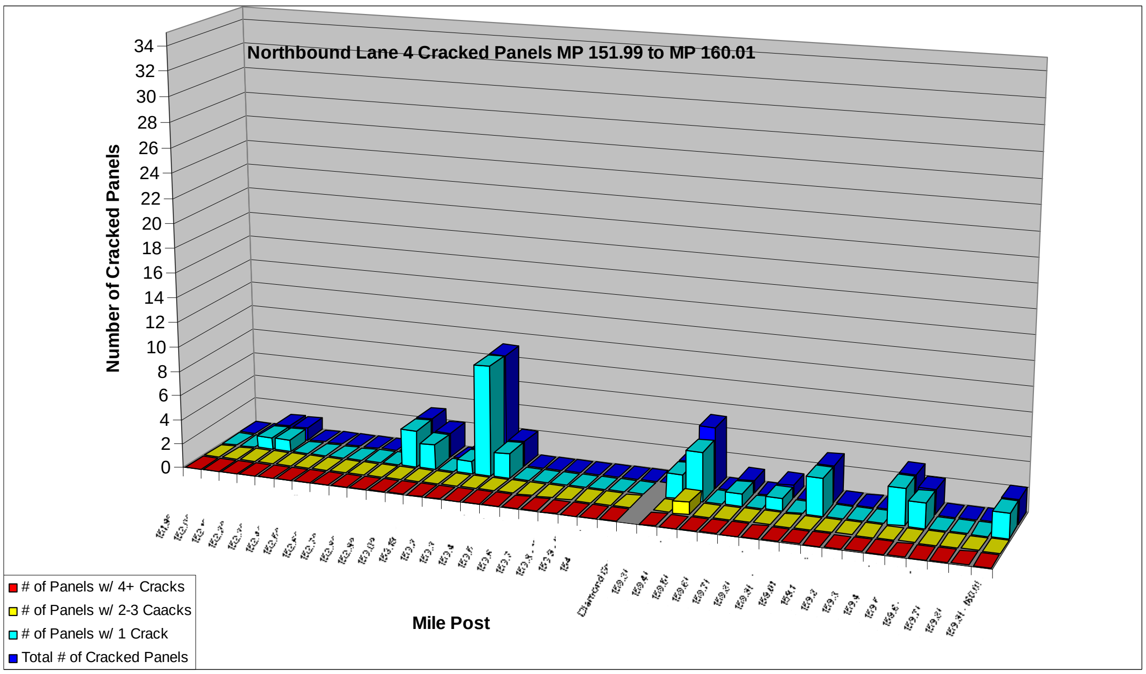

Northbound Lane 3 Cracked Panels MP 174.14 to MP 177.70
Number of Cracked Panels
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels

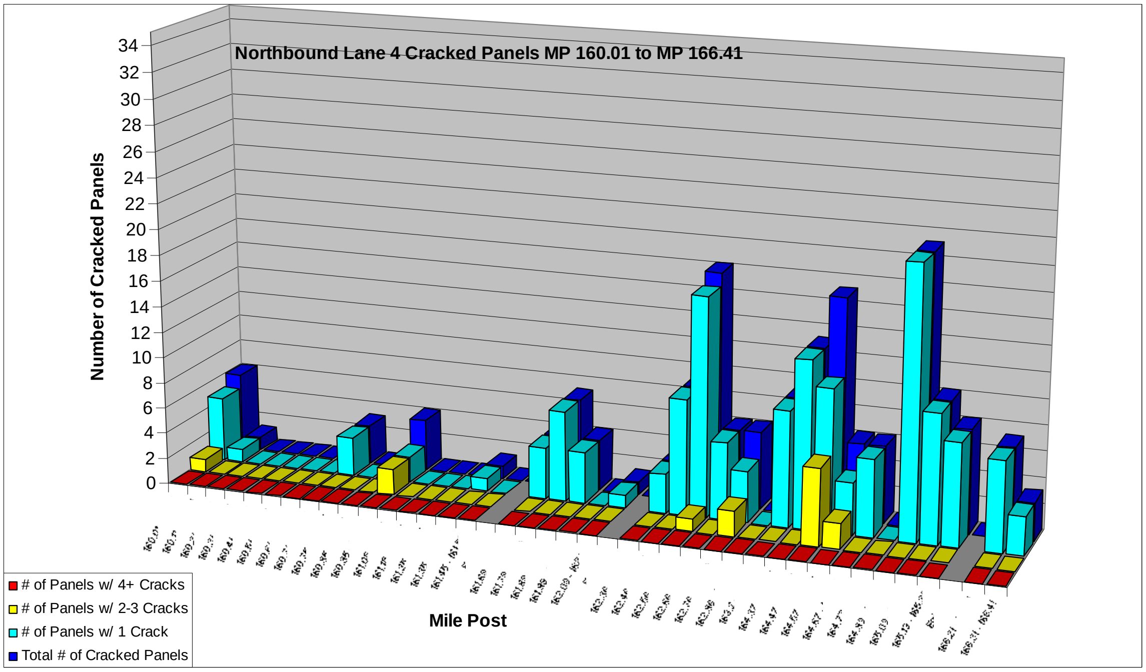
Northbound Lane 4 Cracked Panel Plots

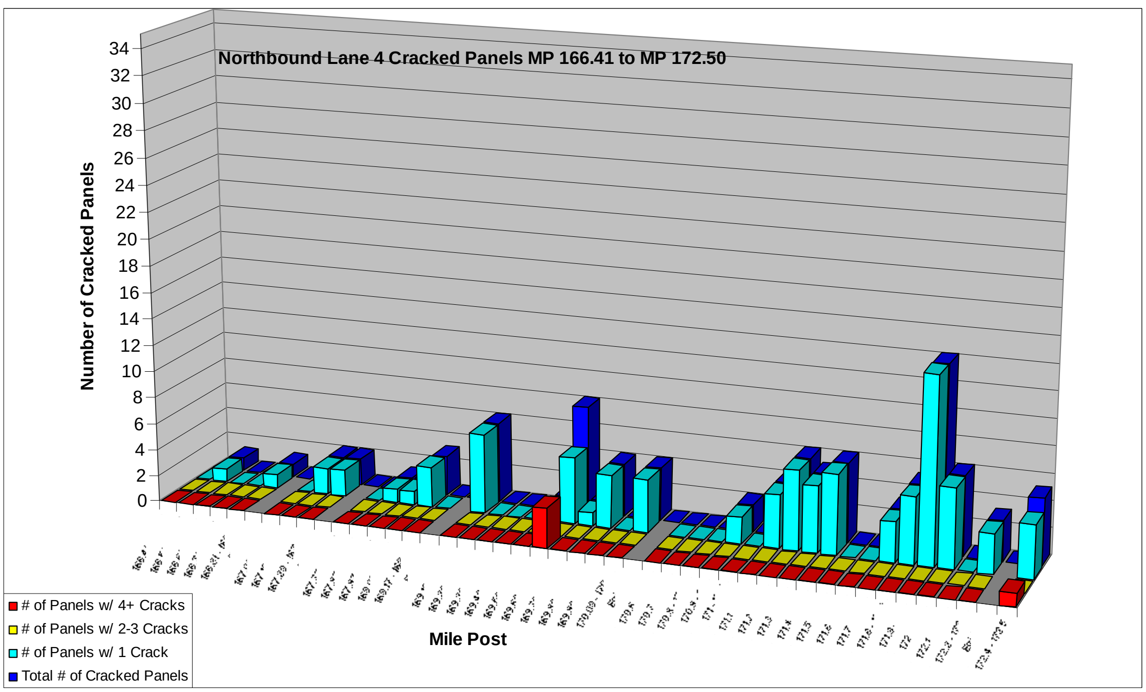


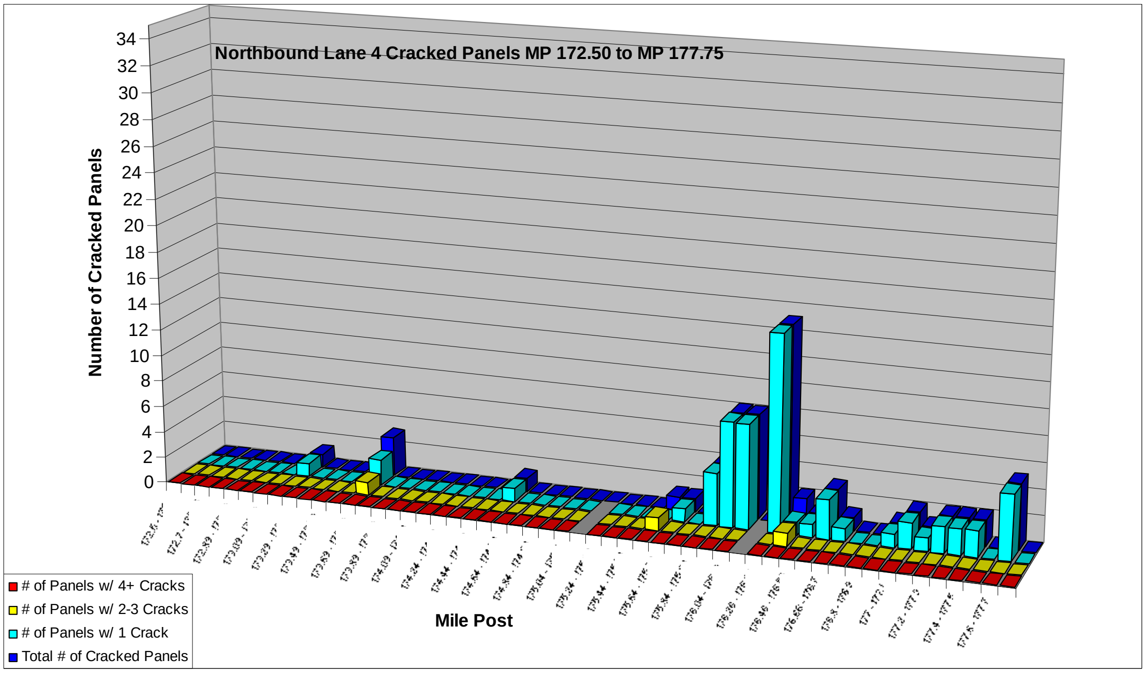



Northbound Lane 4 Cracked Panels MP 147.87 to MP 151.97
Number of Cracked Panels
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels

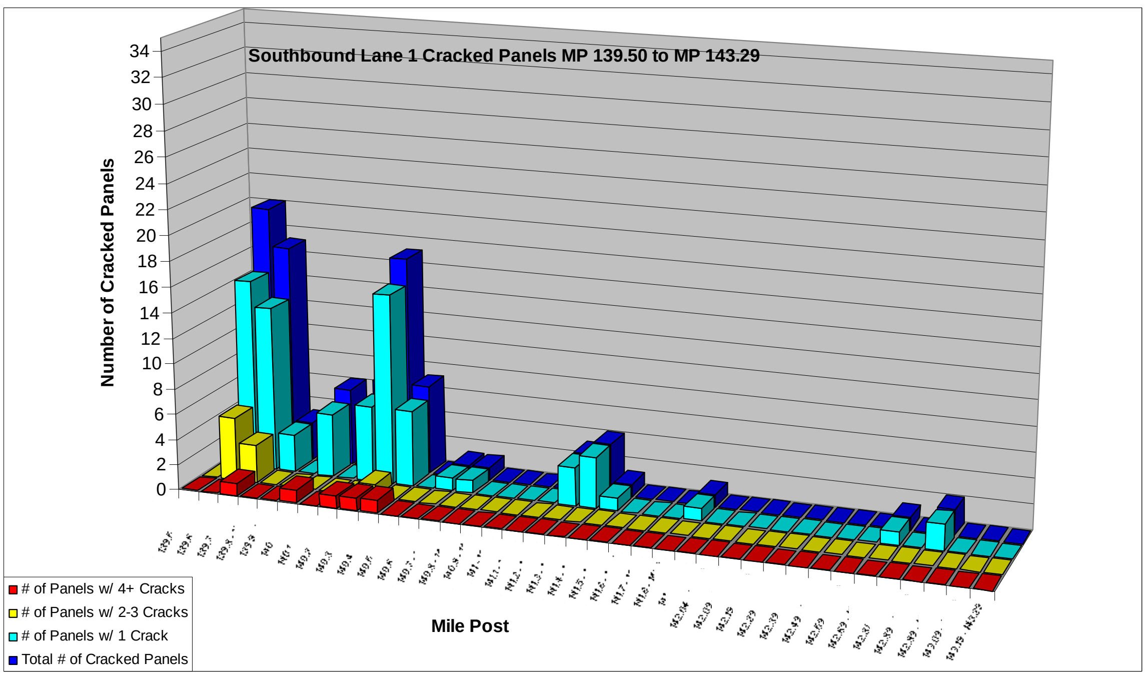

Northbound Lane 4 Cracked Panels MP 151.99 to MP 160.01
Number of Cracked Panels
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Caacks
# of Panels w/ 1 Crack
Total # of Cracked Panels

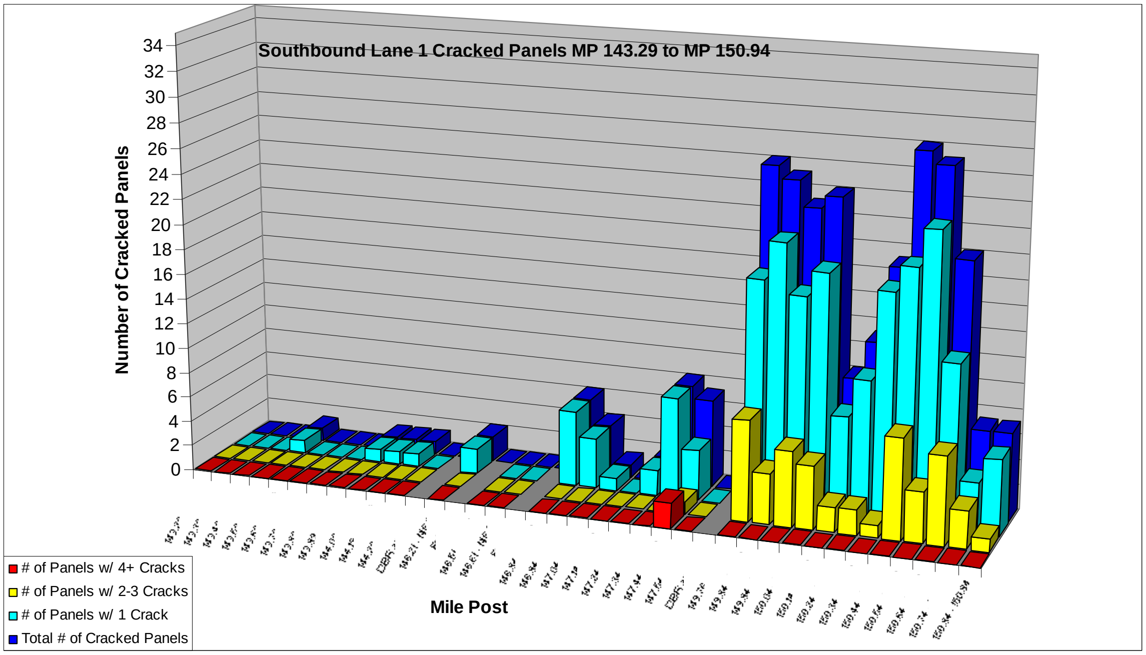

Northbound Lane 4 Cracked Panels MP 160.01 to MP 166.41
Number of Cracked Panels
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels

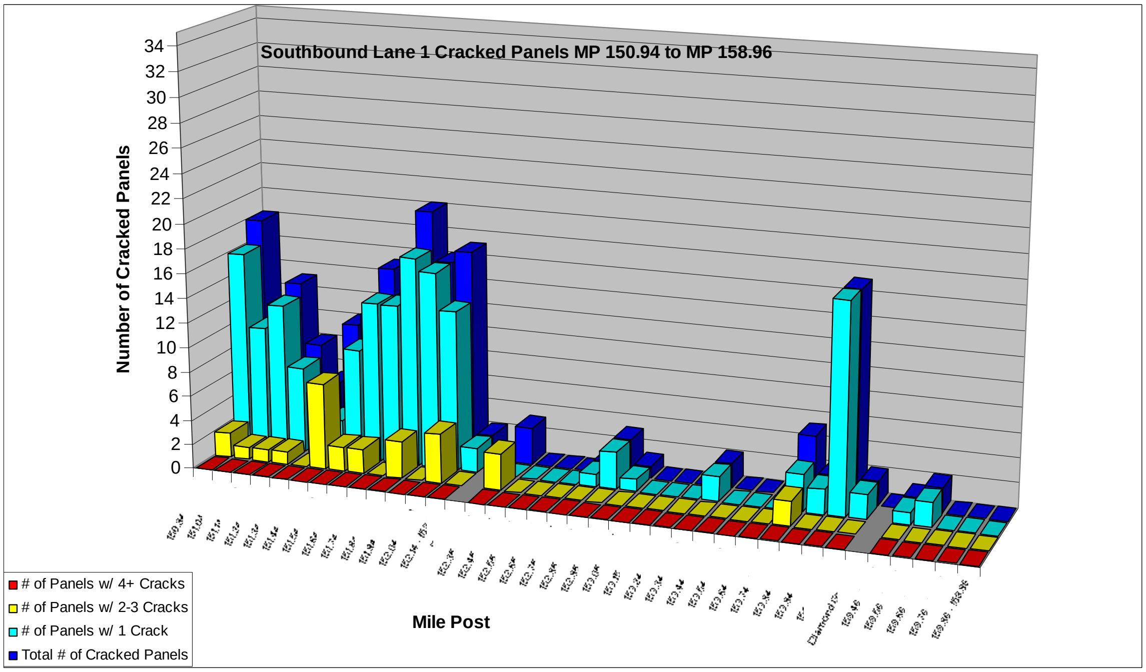

Northbound Lane 4 Cracked Panels MP 166.41 to MP 172.50
Number of Cracked Panels
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels

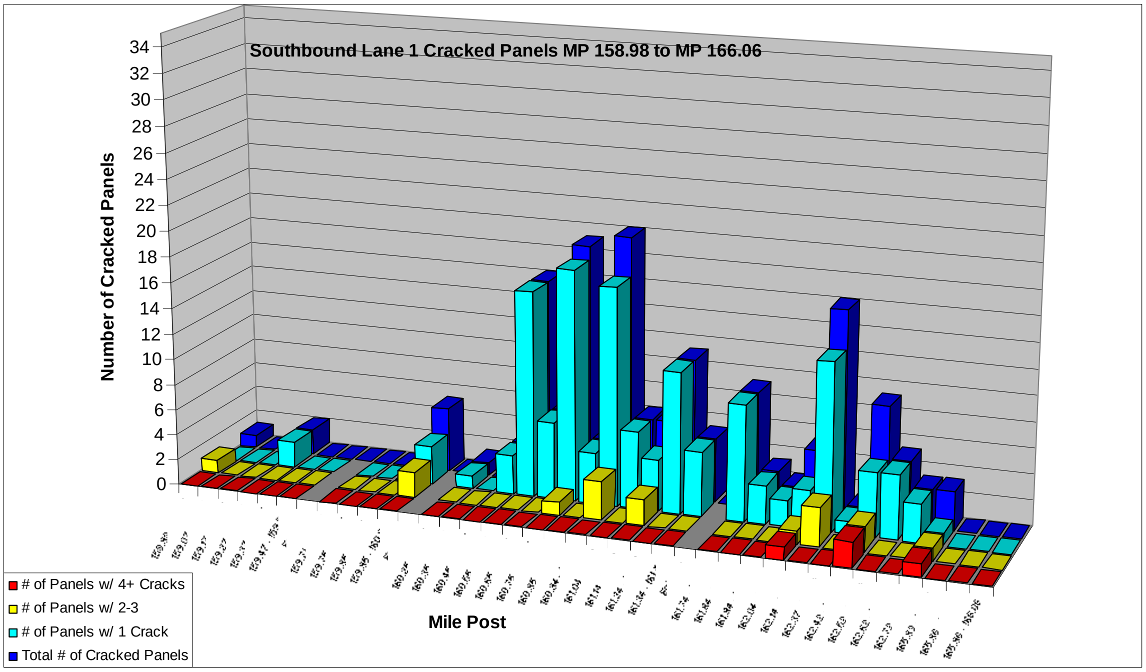


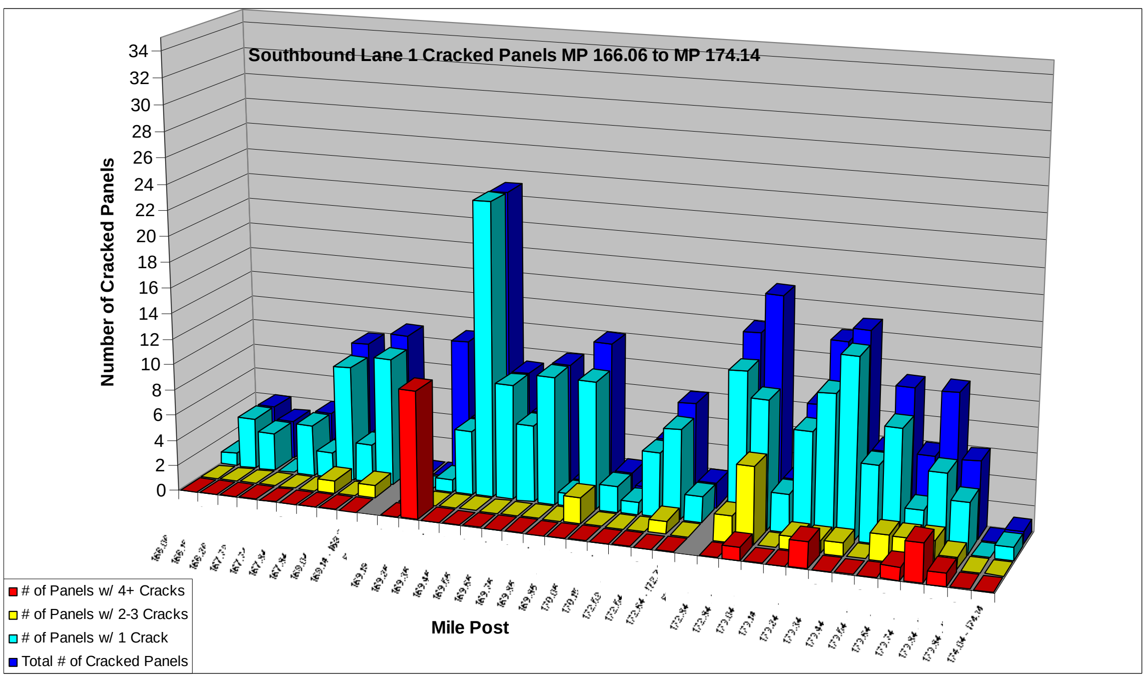
Southbound Lane 1 Cracked Panel Plots



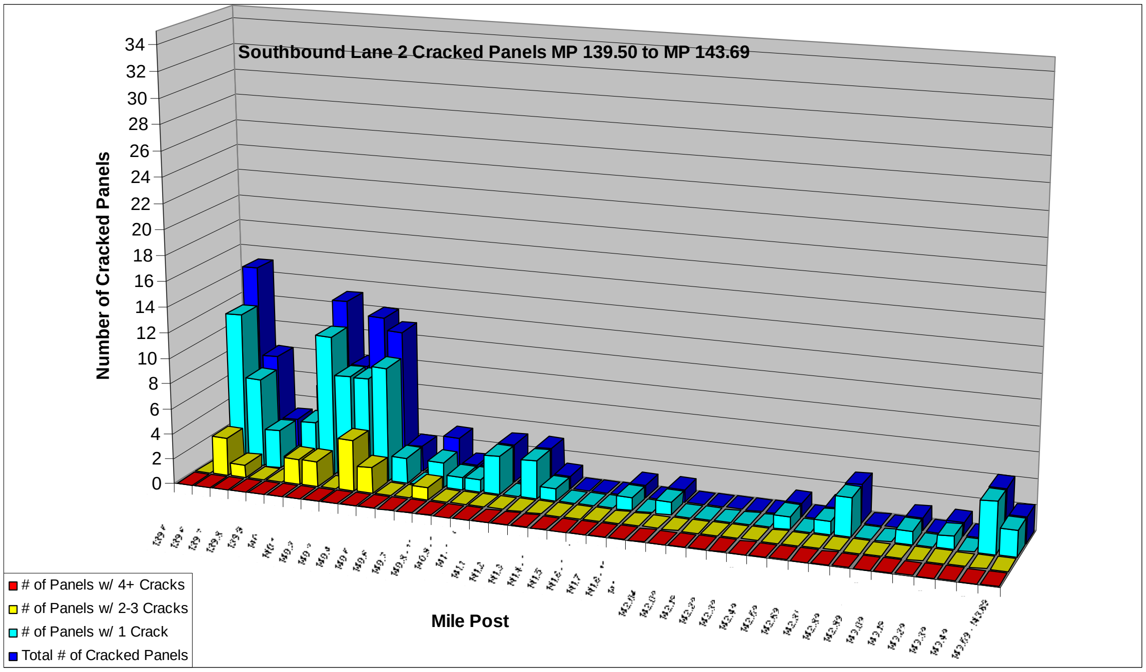

Southbound Lane 1 Cracked Panels MP 143.29 to MP 150.94
Number of Cracked Panels
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels

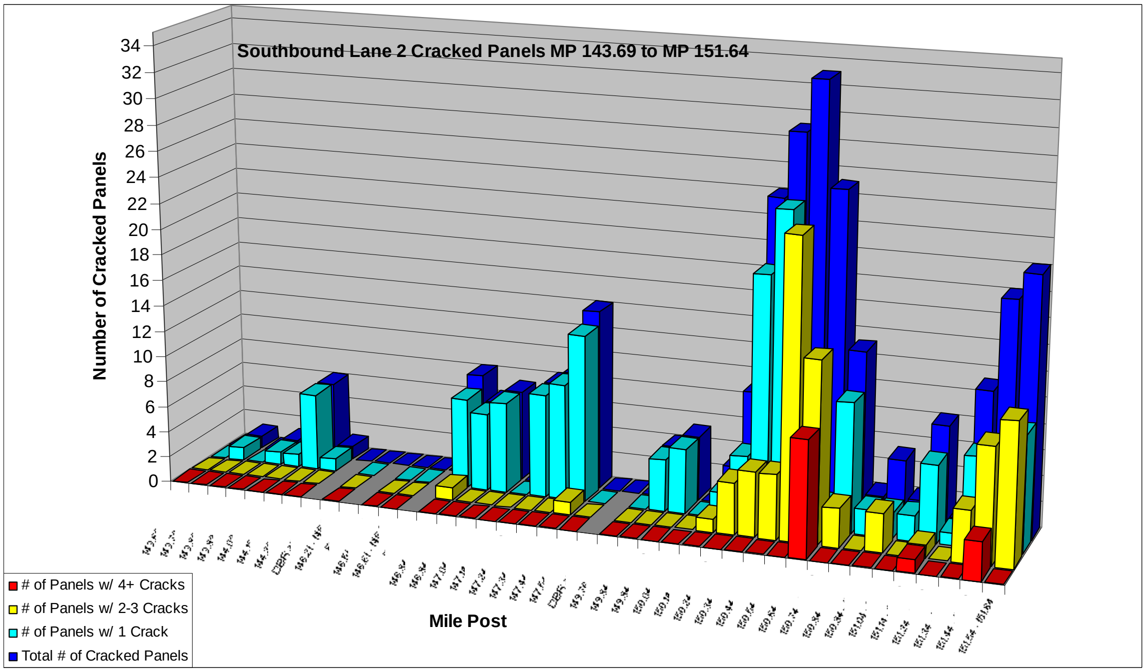

Southbound Lane 1 Cracked Panels MP 150.94 to MP 158.96
Number of Cracked Panels
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels

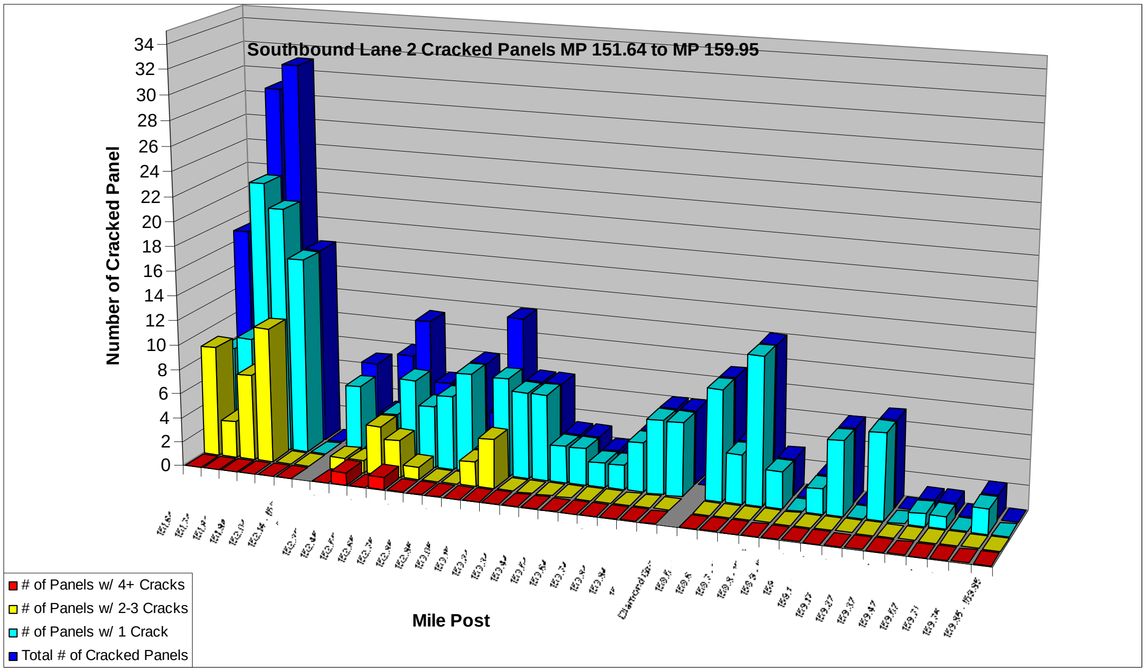

Southbound Lane 1 Cracked Panels MP 158.98 to MP 166.06
Number of Cracked Panels
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3
# of Panels w/ 1 Crack
Total # of Cracked Panels


Southbound Lane 1 Cracked Panels MP 166.06 to MP 174.14
Number of Cracked Panels
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels

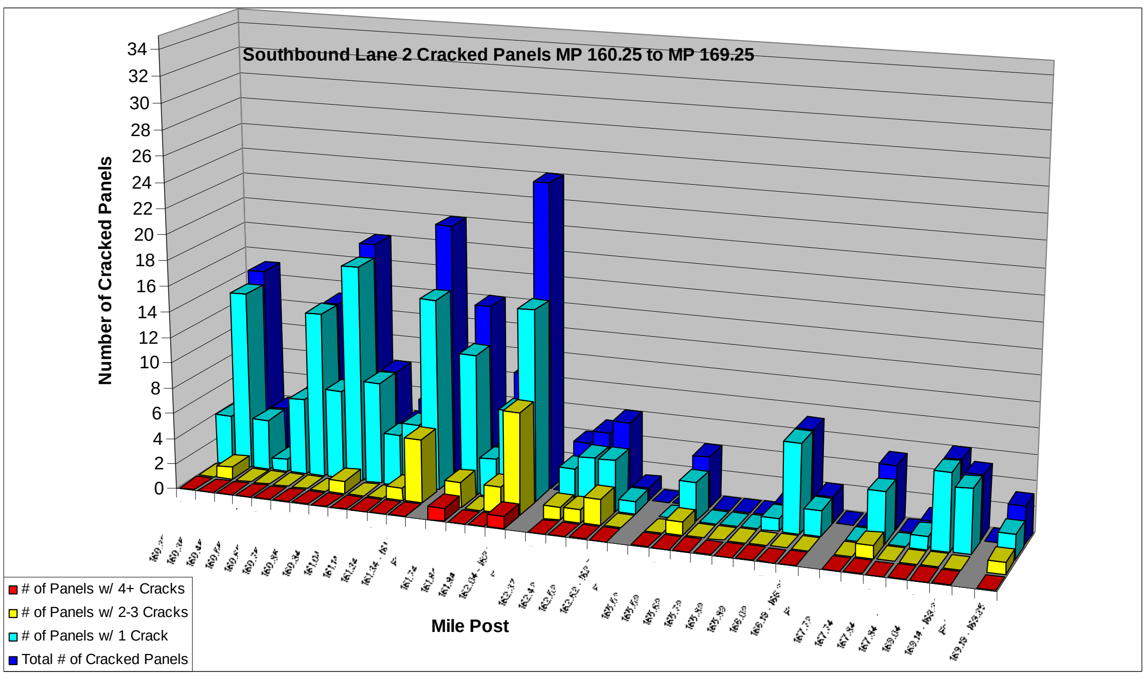
Southbound Lane 2 Cracked Panel Plots



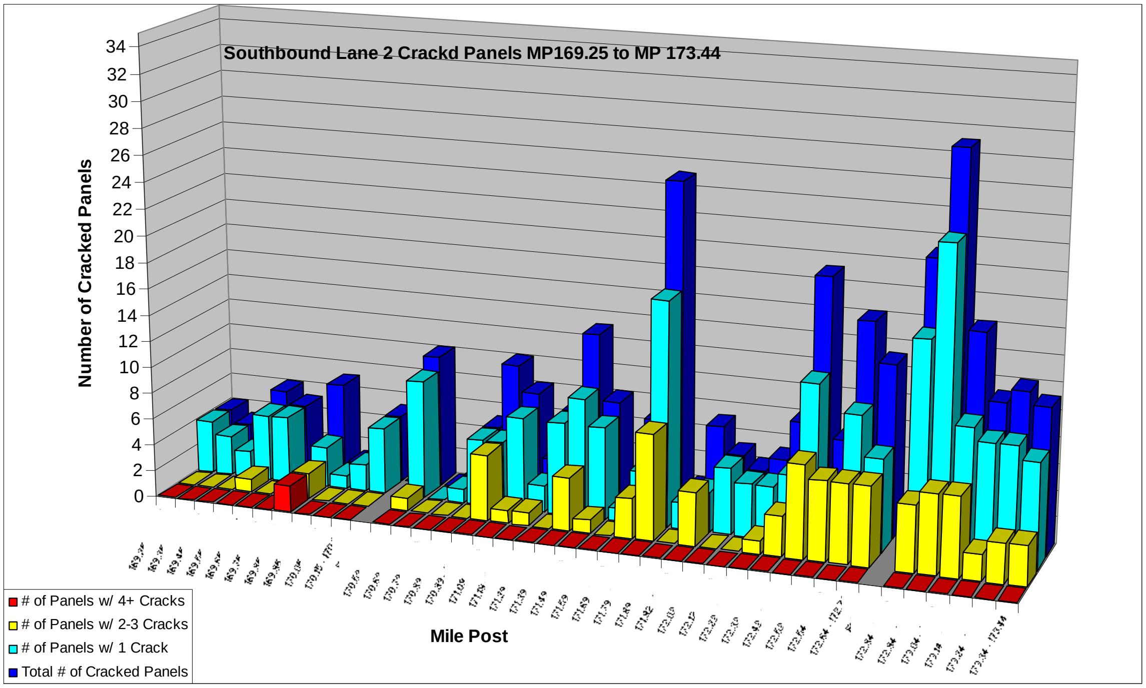


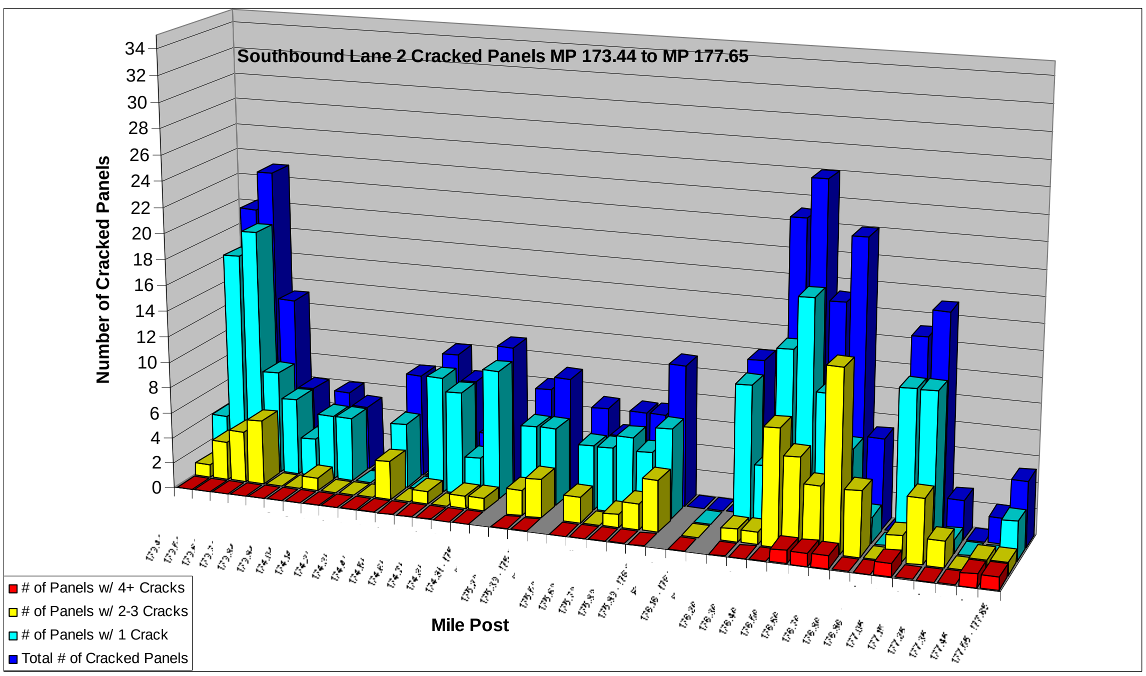


Southbound Lane 2 Cracked Panels MP 151.64 to MP 159.95
Number of Cracked Panel
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels

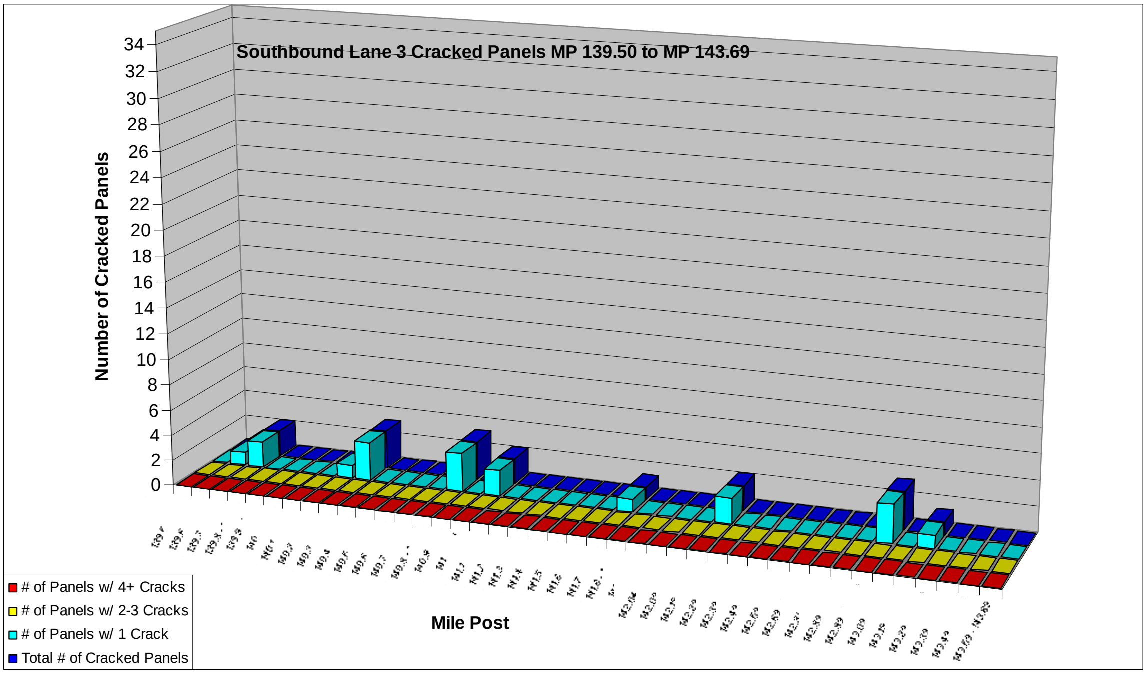


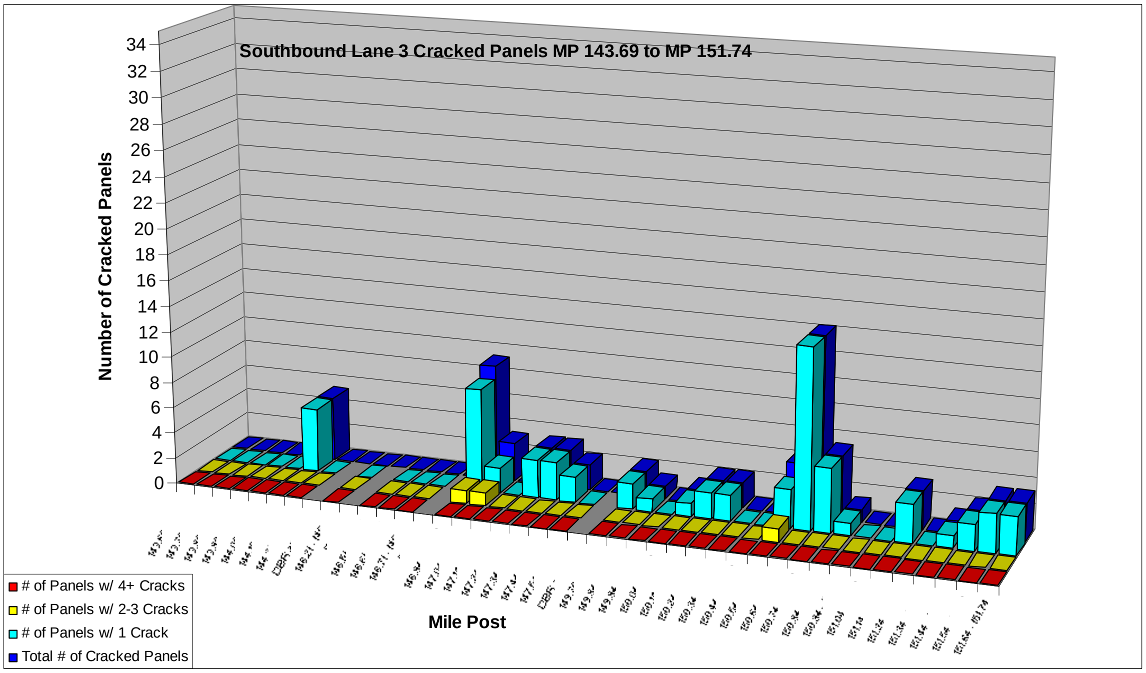
Southbound Lane 2 Cracked Panels MP 160.25 to MP 169.25
Number of Cracked Panels
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels

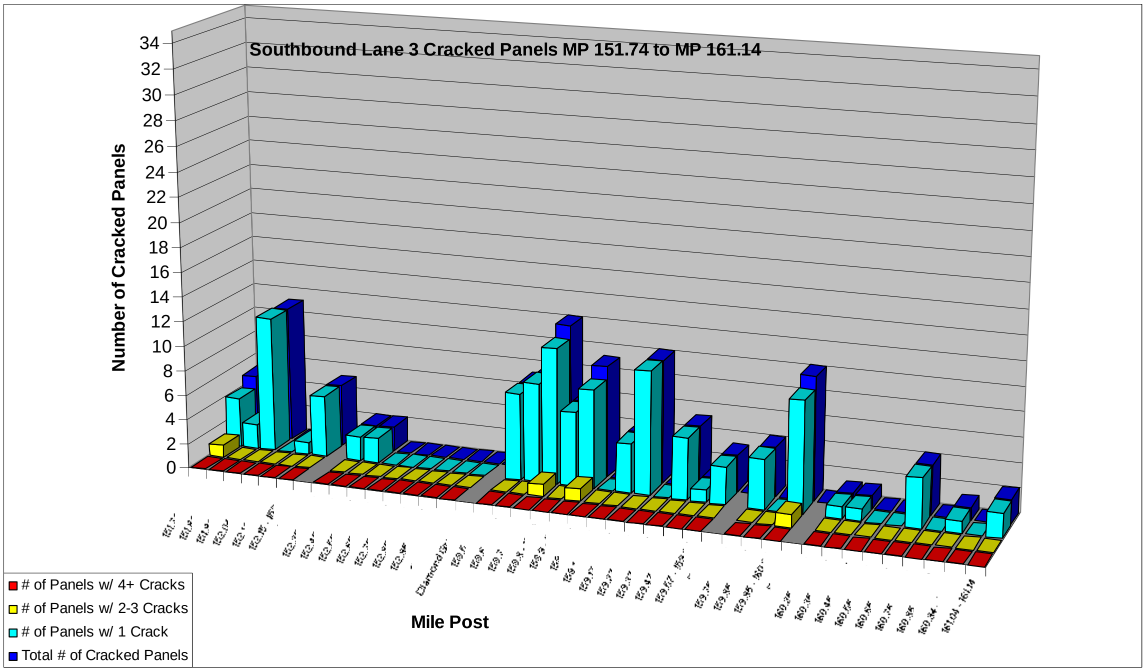

Southbound Lane 2 Crackd Panels MP169.25 to MP 173.44
Number of Cracked Panels
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels


Southbound Lane 2 Cracked Panels MP 173.44 to MP 177.65
Number of Cracked Panels
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels

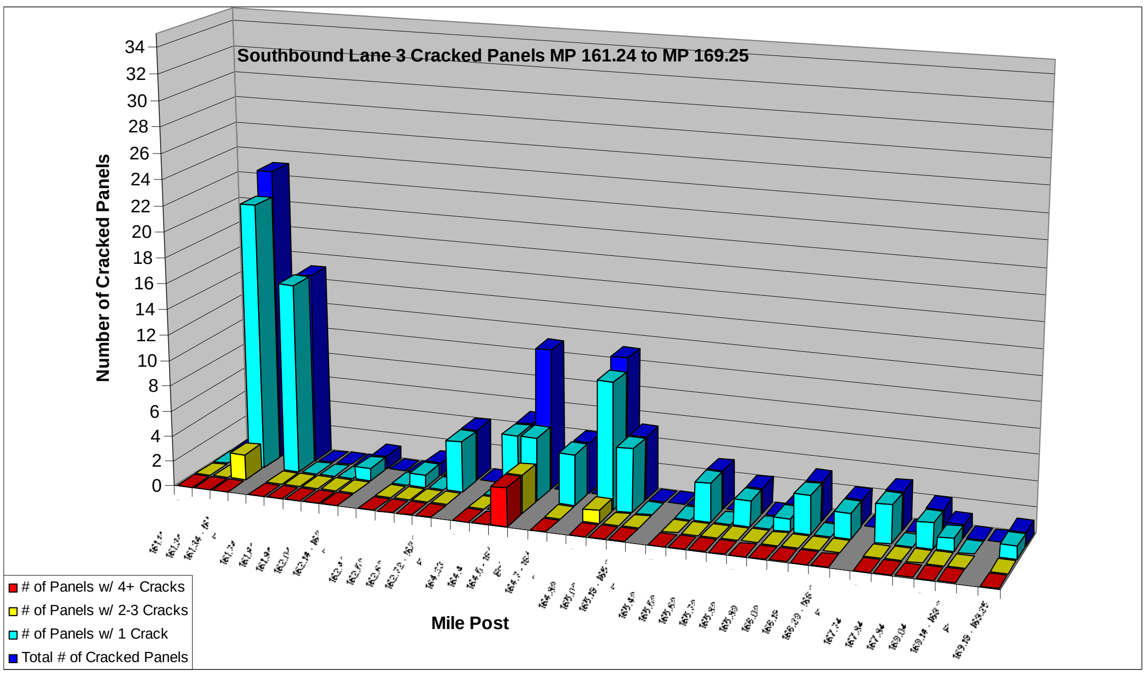
Southbound Lane 3 Cracked Panel Plots



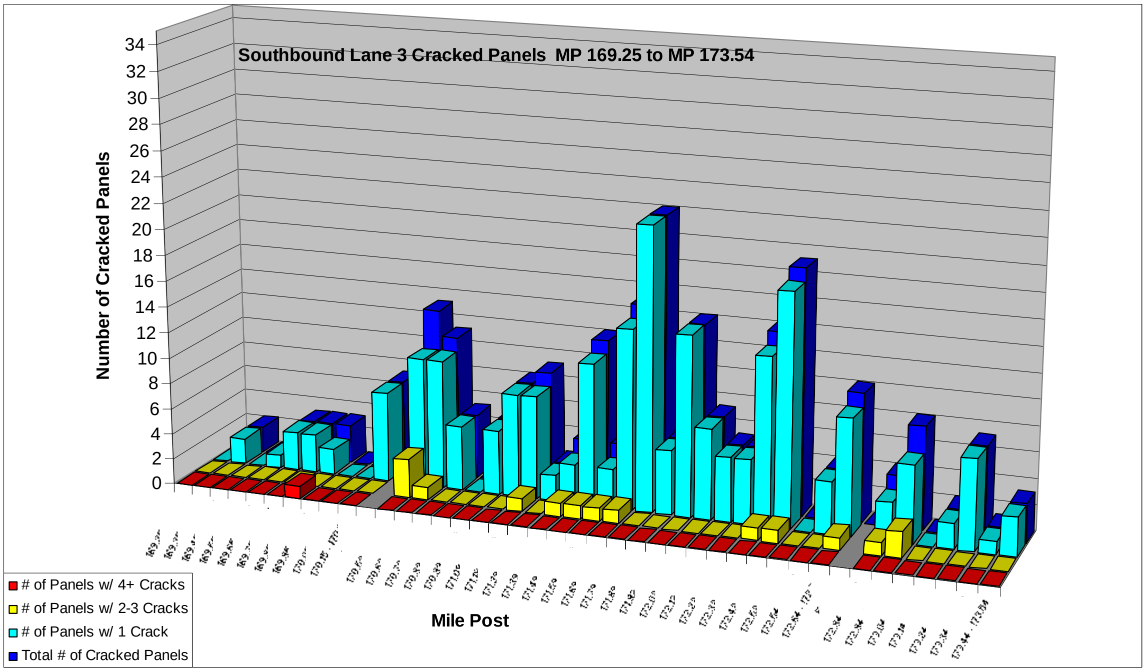




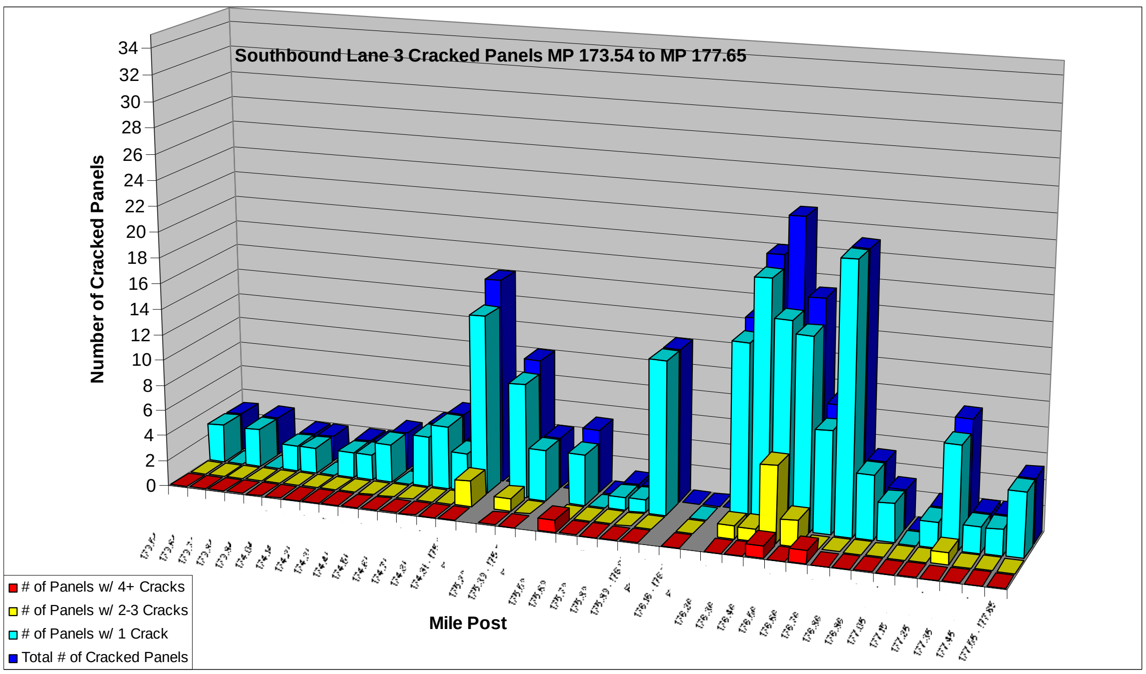
Southbound Lane 3 Cracked Panels MP 151.74 to MP 161.14
Number of Cracked Panels
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels



Southbound Lane 3 Cracked Panels MP 161.24 to MP 169.25
Number of Cracked Panels
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels

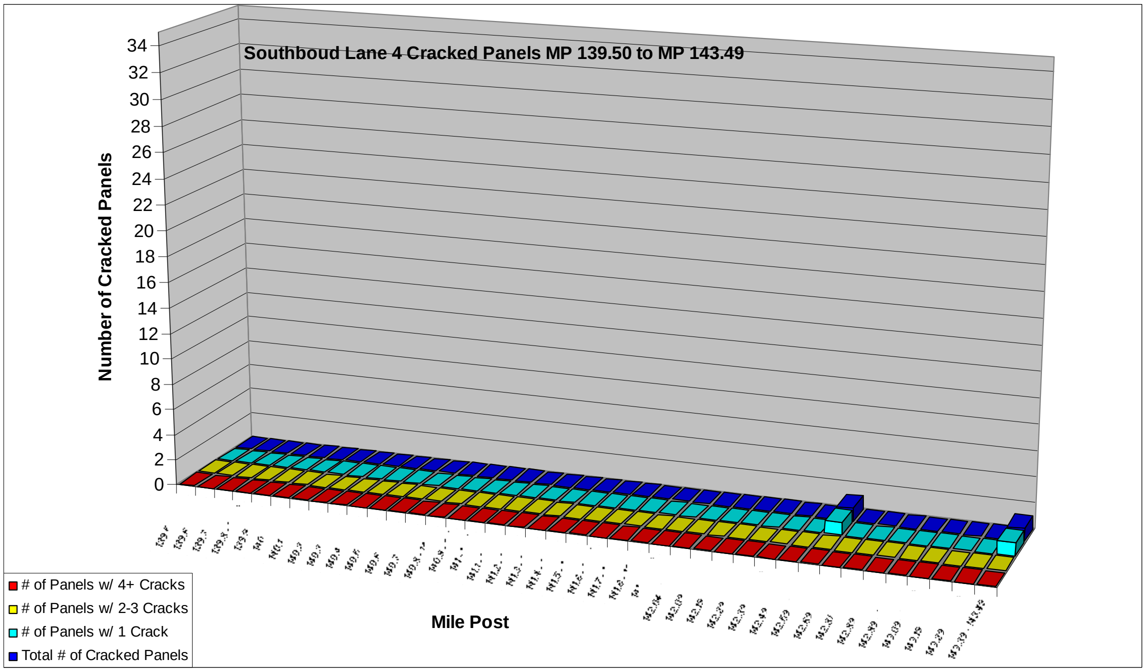


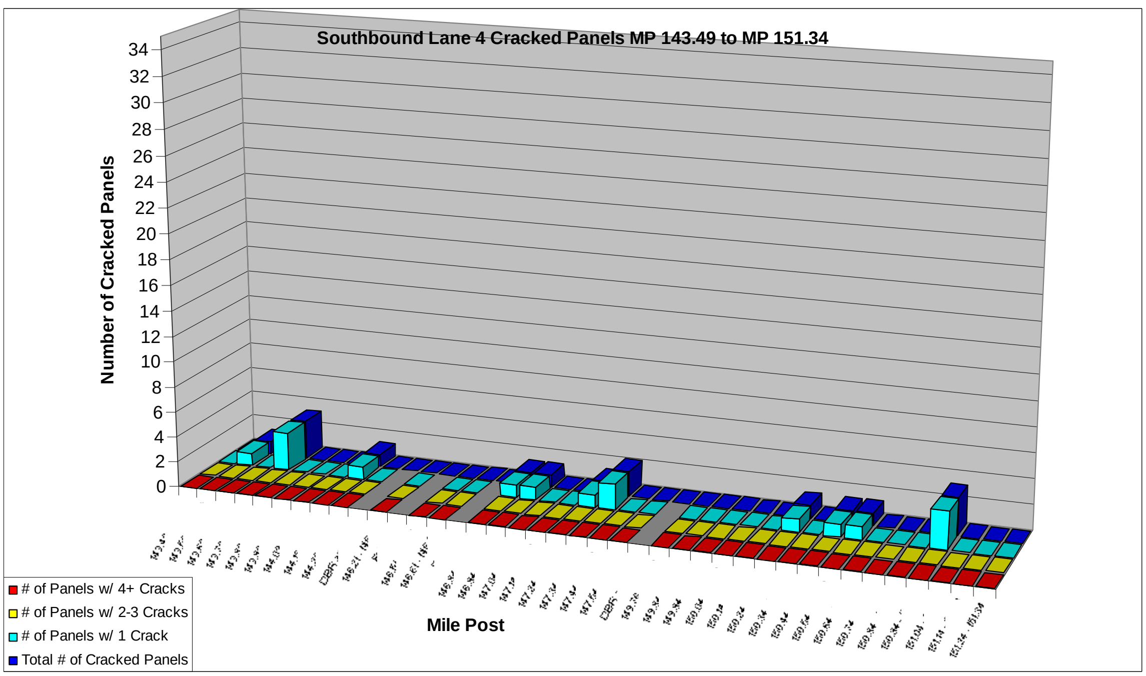
Southbound Lane 3 Cracked Panels MP 169.25 to MP 173.54
Number of Cracked Panels
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels

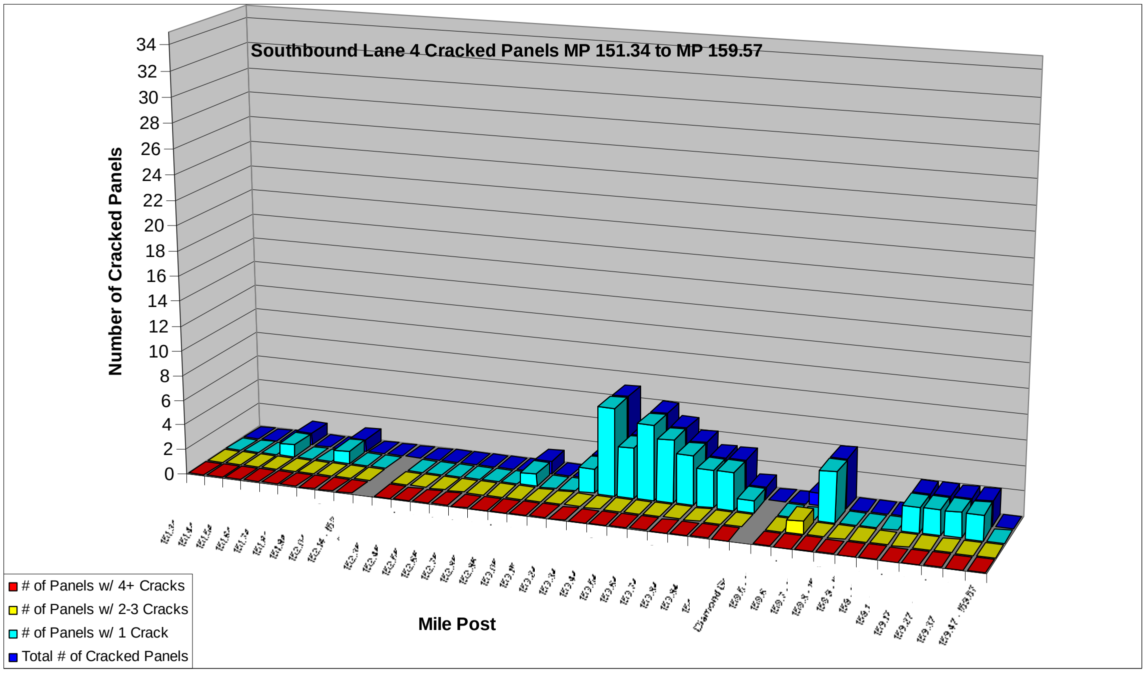


Southbound Lane 3 Cracked Panels MP 173.54 to MP 177.65
Number of Cracked Panels
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels

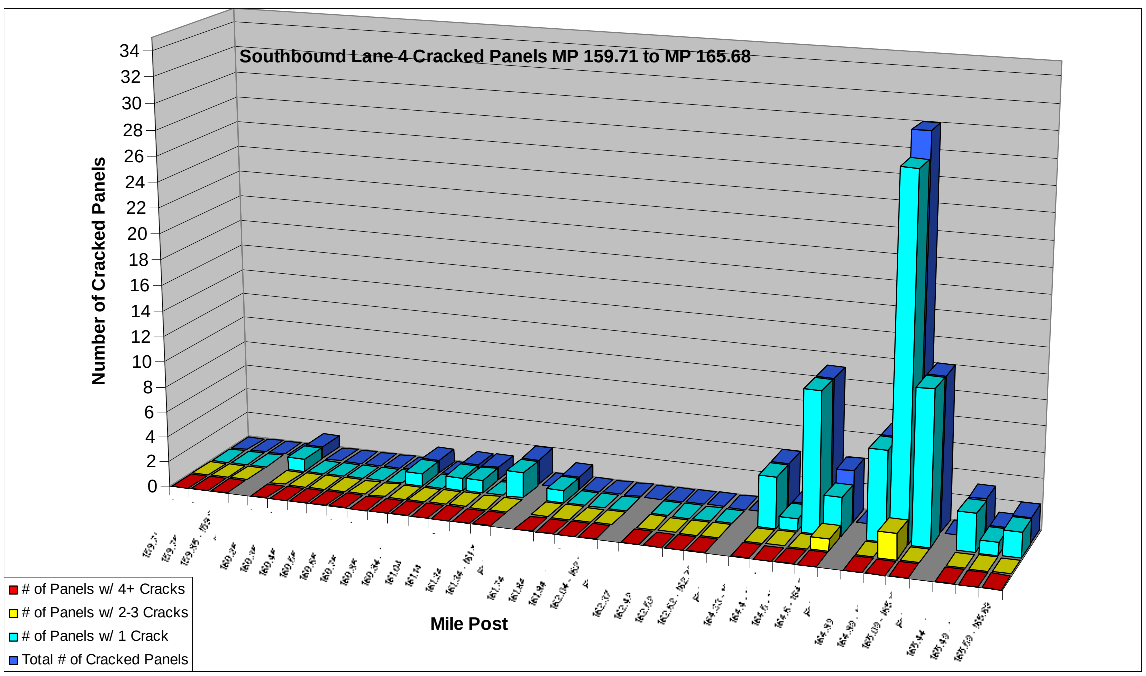
Southbound Lane 4 Cracked Panel Plots



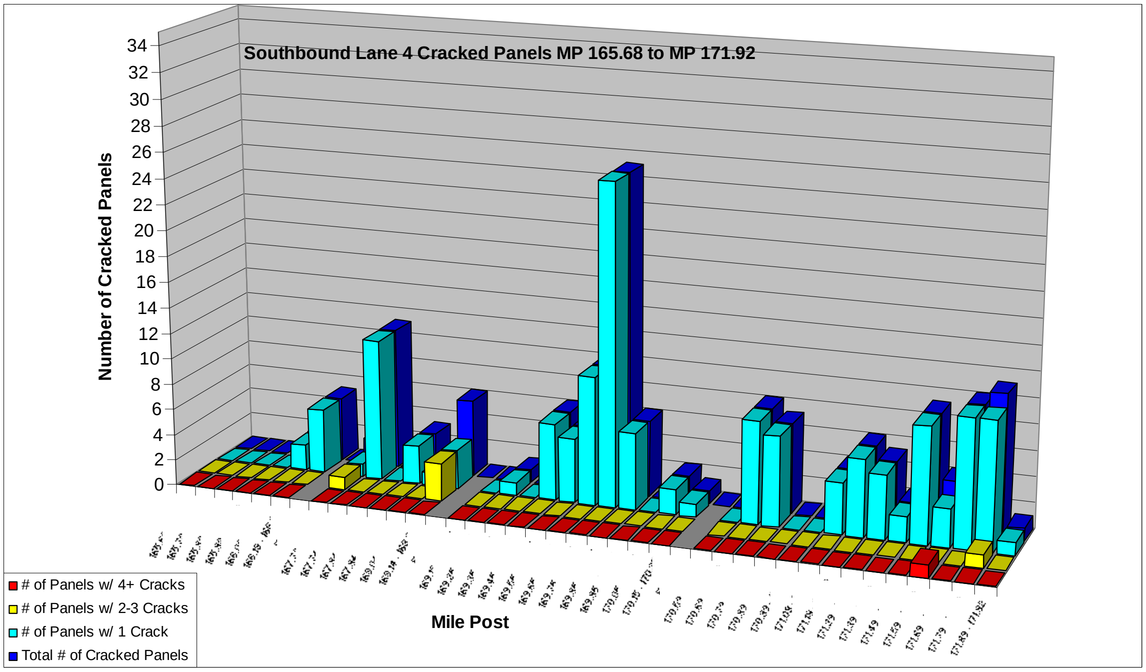


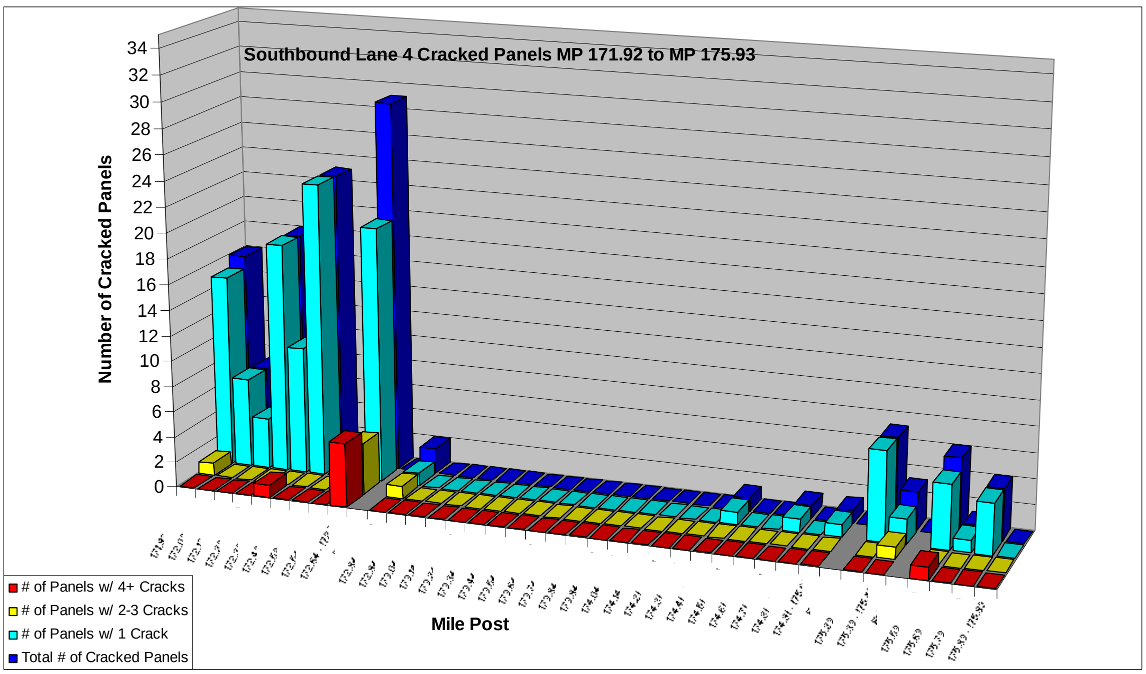


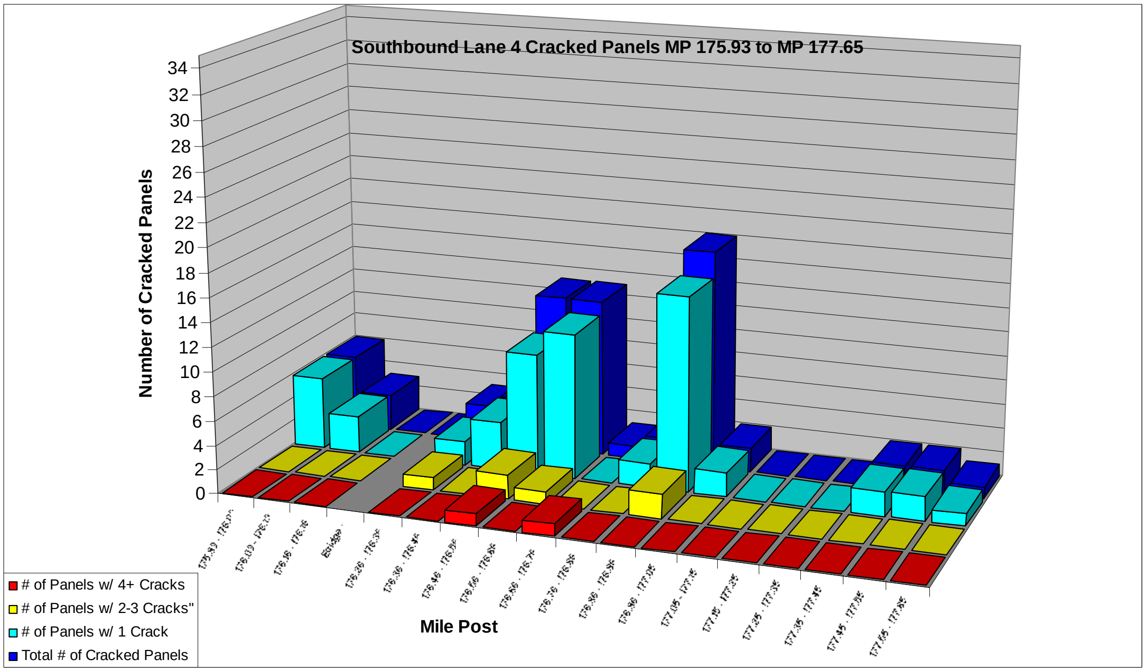
Southbound Lane 4 Cracked Panels MP 151.34 to MP 159.57
Number of Cracked Panels
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels



Southbound Lane 4 Cracked Panels MP 159.71 to MP 165.68
Number of Cracked Panels
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels

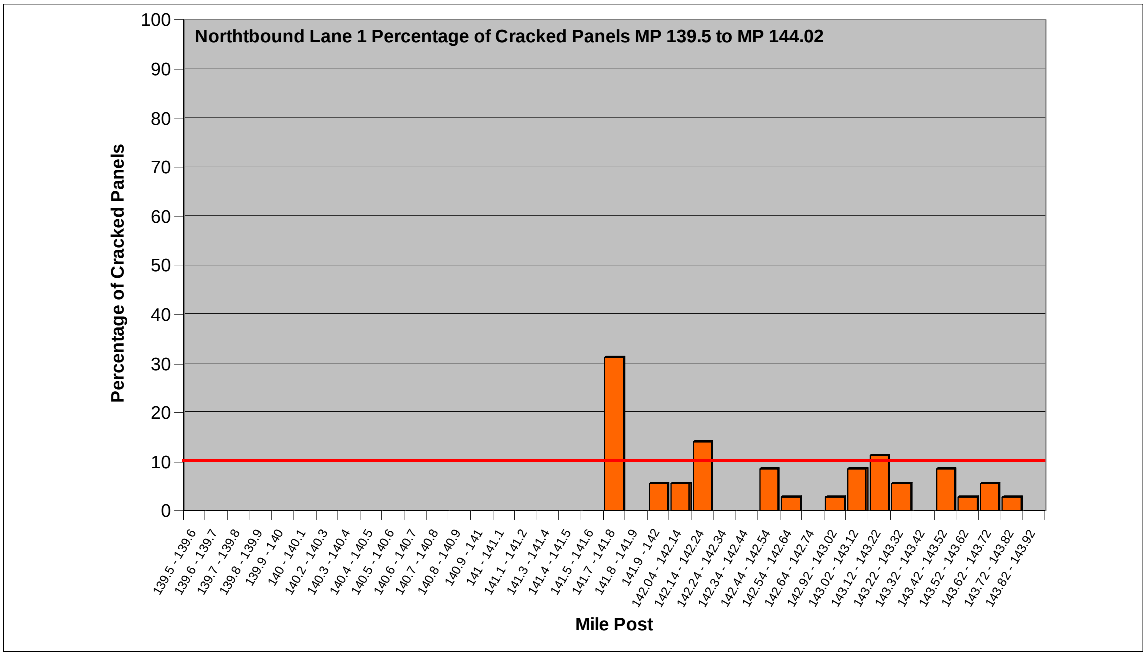

Southbound Lane 4 Cracked Panels MP 165.68 to MP 171.92
Number of Cracked Panels
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels

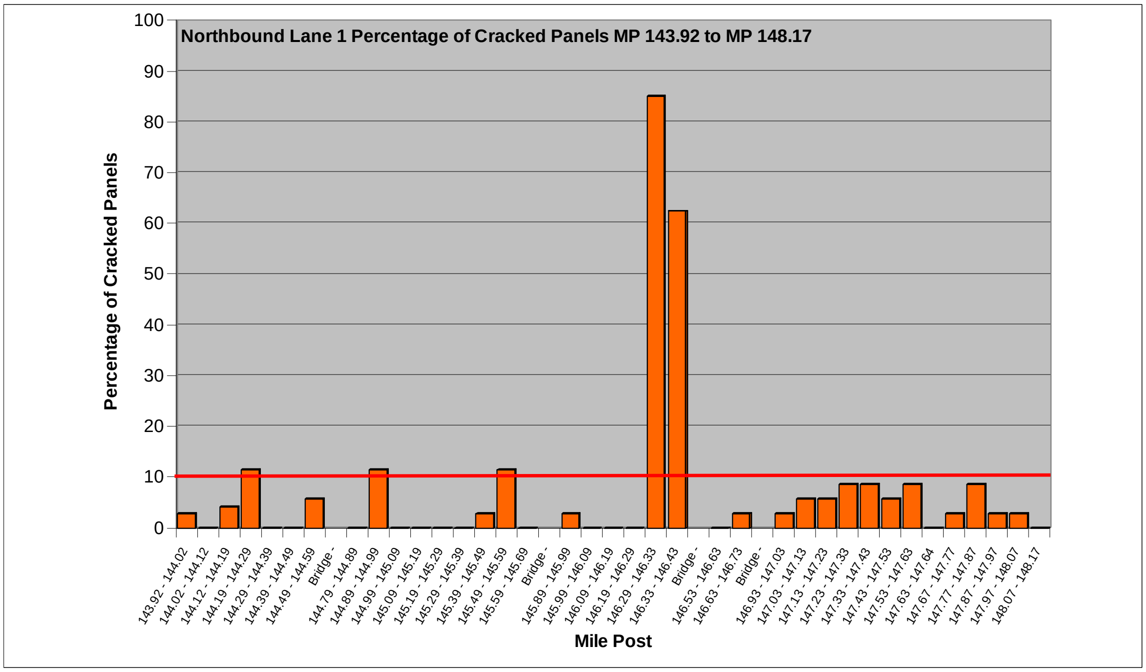

Southbound Lane 4 Cracked Panels MP 171.92 to MP 175.93
Number of Cracked Panels
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks
# of Panels w/ 1 Crack
Total # of Cracked Panels

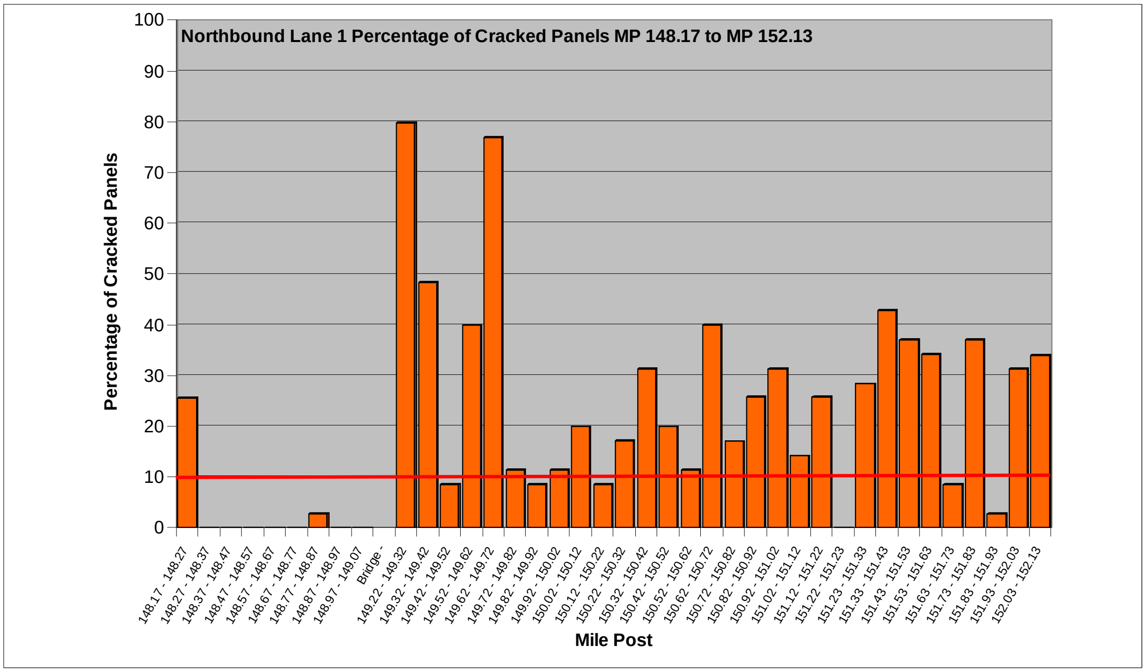

Southbound Lane 4 Cracked Panels MP 175.93 to MP 177.65
Number of Cracked Panels
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
Mile Post
# of Panels w/ 4+ Cracks
# of Panels w/ 2-3 Cracks"
# of Panels w/ 1 Crack
Total # of Cracked Panels

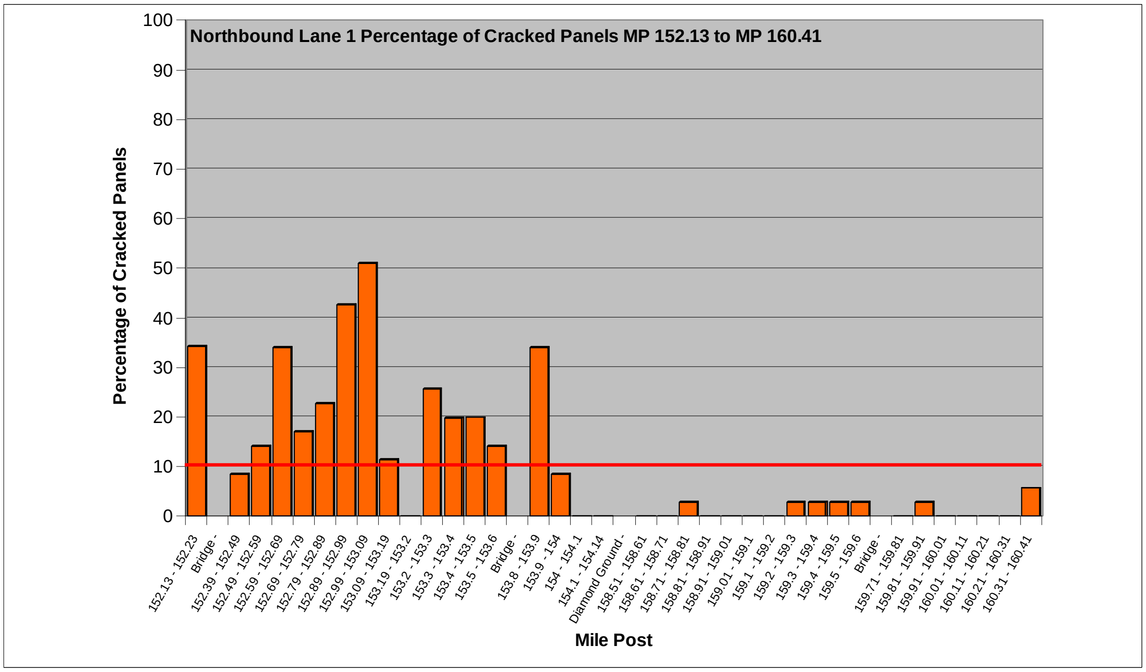
Appendix L –
Percentage of Cracked Panels Distress Plots

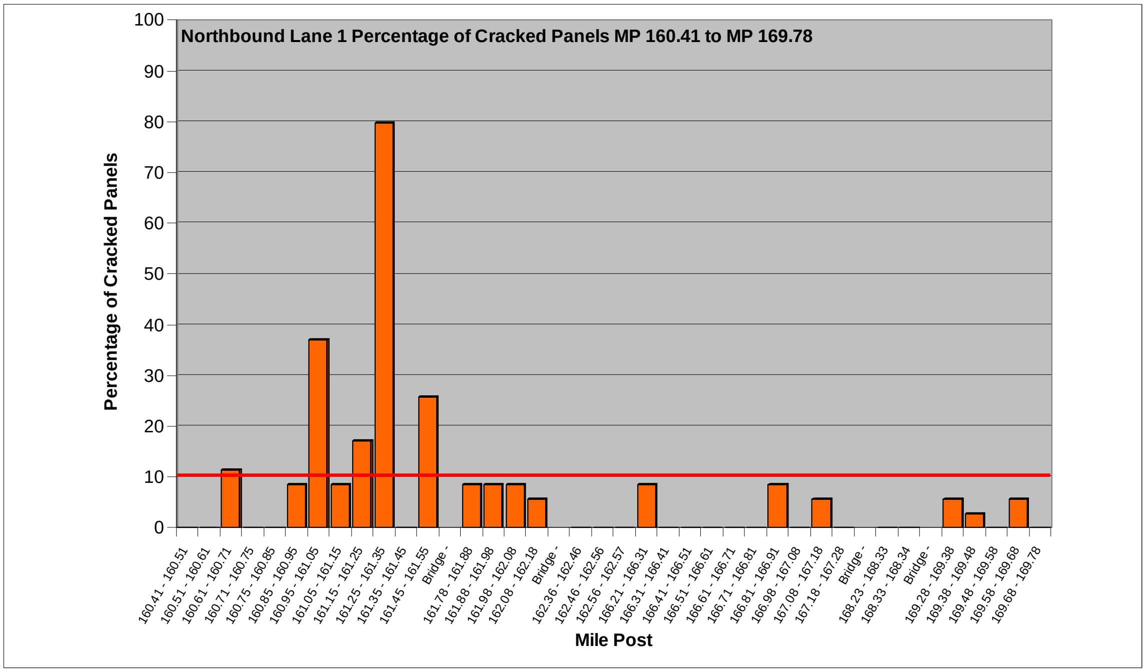
Northbound Lane 1 Percentage of Cracked Panel Plots

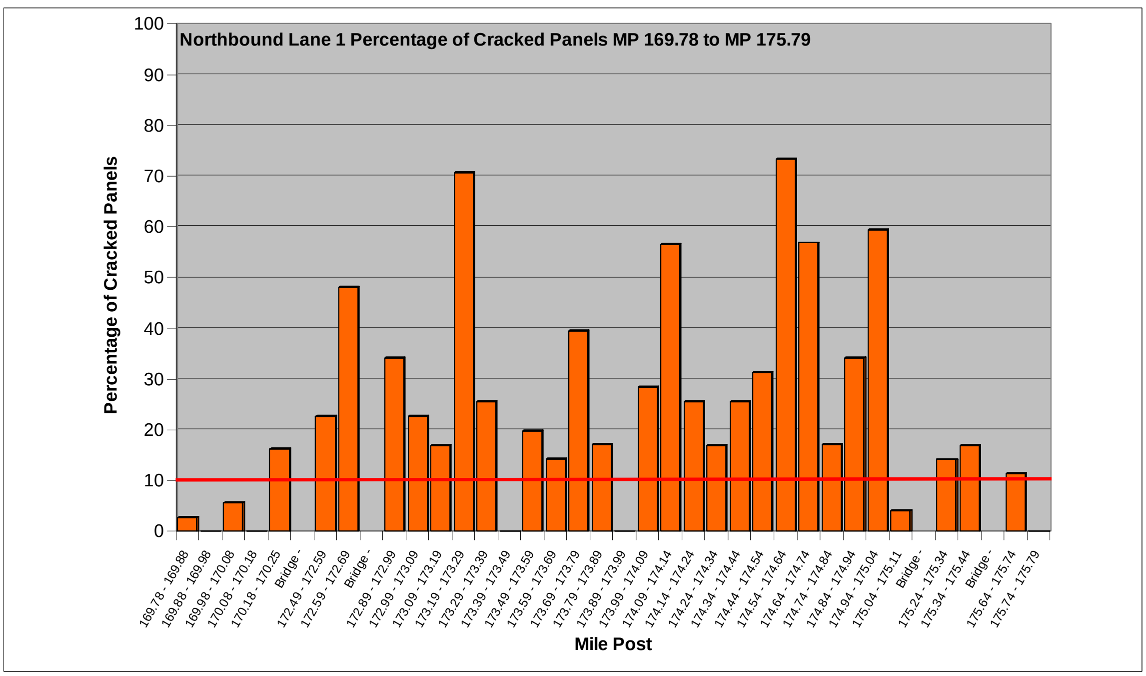




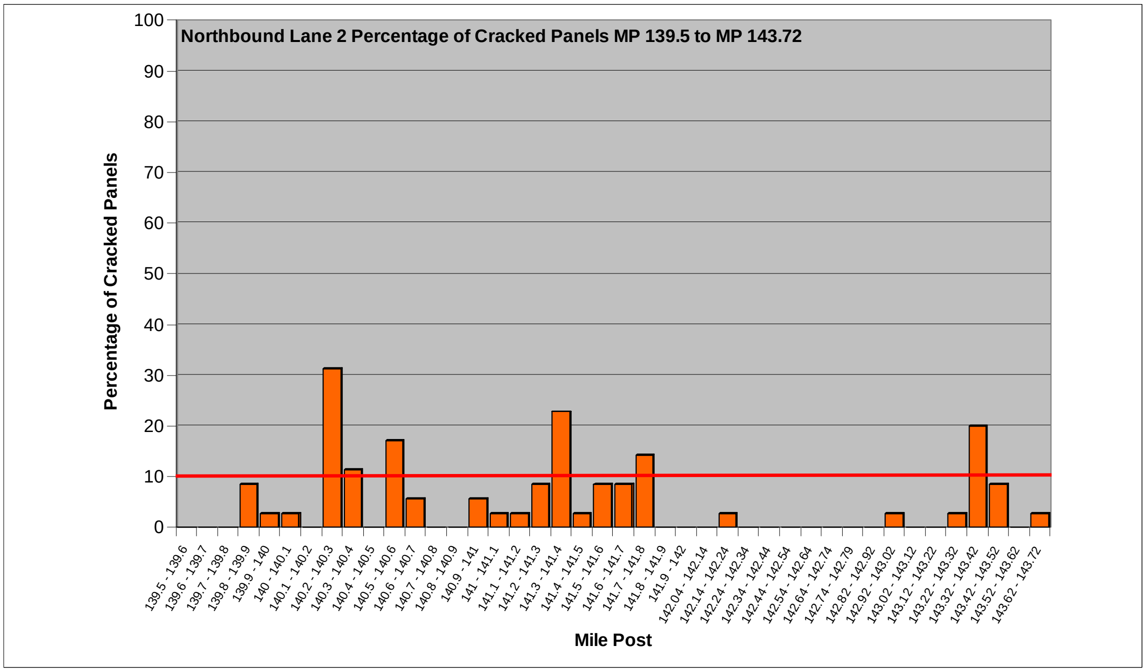

Northbound Lane 1 Percentage of Cracked Panels MP 148.17 to MP 152.13
Percentage of Cracked Panels
Mile Post

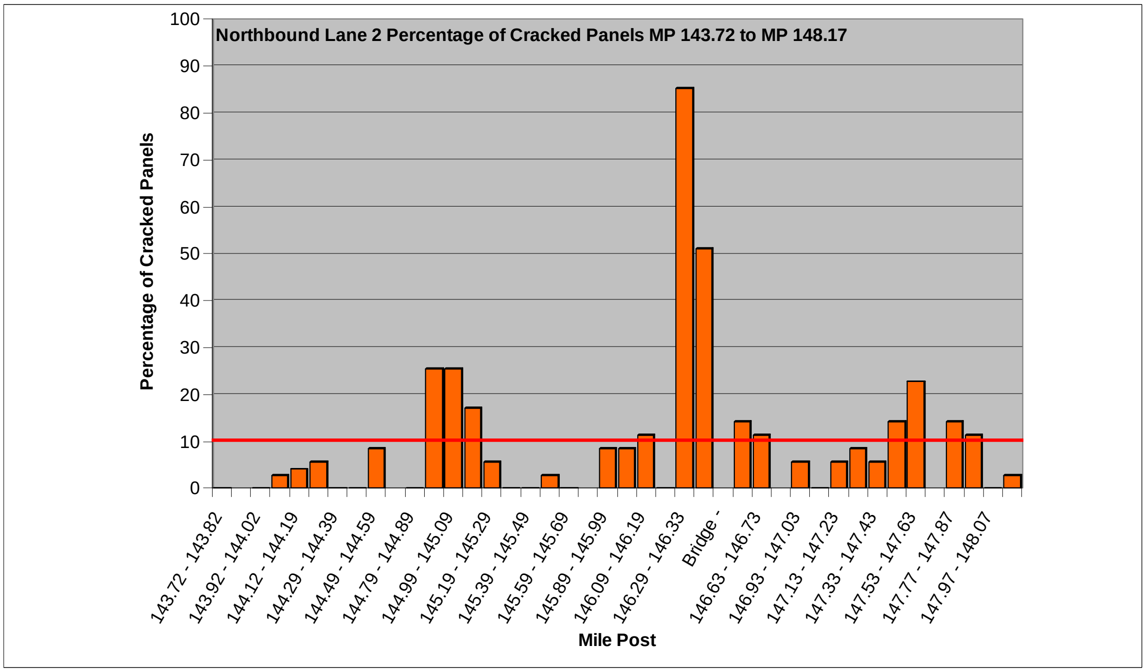

Northbound Lane 1 Percentage of Cracked Panels MP 152.13 to MP 160.41
Percentage of Cracked Panels
Mile Post

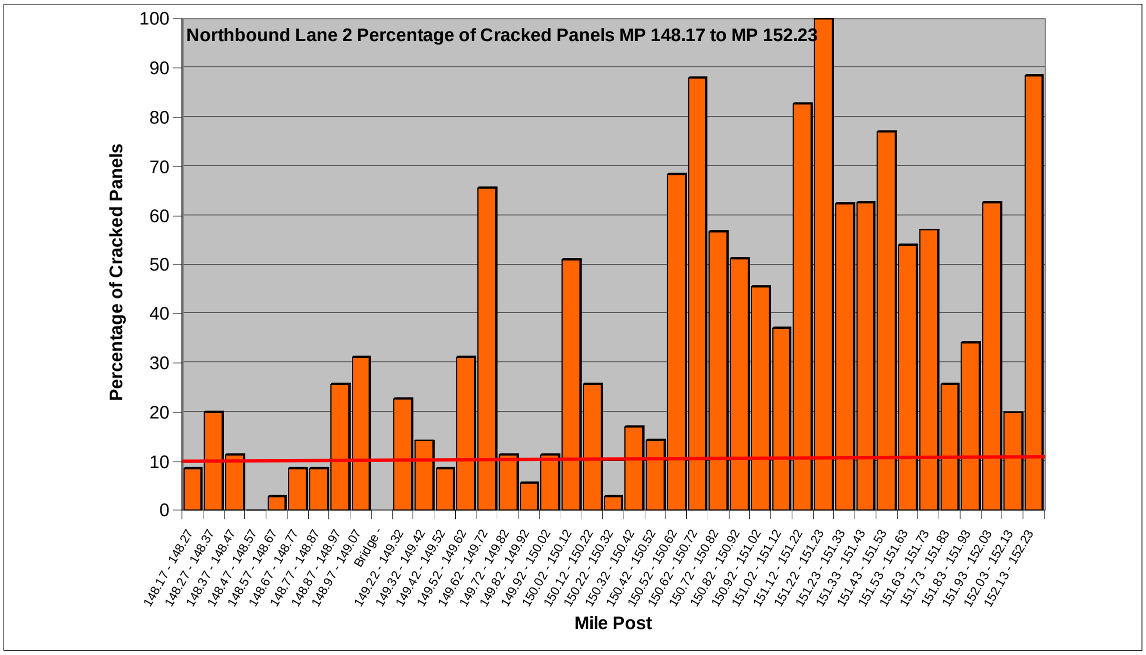

Northbound Lane 1 Percentage of Cracked Panels MP 160.41 to MP 169.78
Percentage of Cracked Panels
100
90
80
70
60
50
40
30
20
10
0
160.41 - 160.51
160.51 - 160.61
160.61 - 160.71
160.71 - 160.75
160.75 - 160.85
160.85 - 160.95
160.95 - 161.05
161.05 - 161.15
161.15 - 161.25
161.25 - 161.35
161.35 - 161.45
161.45 - 161.55
Bridge -
161.78 - 161.88
161.88 - 161.98
161.98 - 162.08
162.08 - 162.18
Bridge -
162.36 - 162.46
162.46 - 162.56
162.56 - 162.57
166.21 - 166.31
166.31 - 166.41
166.41 - 166.51
166.51 - 166.61
166.61 - 166.71
166.71 - 166.81
166.81 - 166.91
166.98 - 167.08
167.08 - 167.18
167.18 - 167.28
Bridge -
168.23 - 168.33
168.33 - 168.34
Bridge -
169.28 - 169.38
169.38 - 169.48
169.48 - 169.58
169.58 - 169.68
169.68 - 169.78
Mile Post

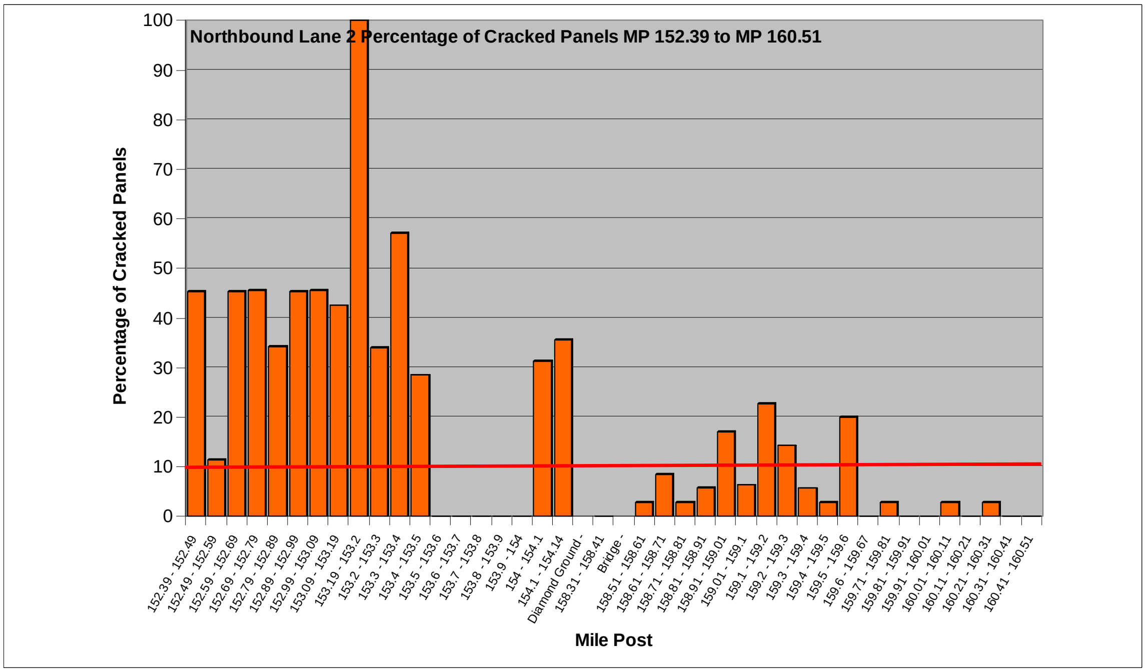

Northbound Lane 1 Percentage of Cracked Panels MP 169.78 to MP 175.79
Percentage of Cracked Panels
100
90
80
70
60
50
40
30
20
10
0
169.78 - 169.88
169.88 - 169.98
169.98 - 170.08
170.08 - 170.18
170.18 - 170.25
Bridge -
172.49 - 172.59
172.59 - 172.69
Bridge -
172.89 - 172.99
172.99 - 173.09
173.09 - 173.19
173.19 - 173.29
173.29 - 173.39
173.39 - 173.49
173.49 - 173.59
173.59 - 173.69
173.69 - 173.79
173.79 - 173.89
173.89 - 173.99
173.99 - 174.09
174.09 - 174.14
174.14 - 174.24
174.24 - 174.34
174.34 - 174.44
174.44 - 174.54
174.54 - 174.64
174.64 - 174.74
174.74 - 174.84
174.84 - 174.94
174.94 - 175.04
175.04 - 175.11
Bridge -
175.24 - 175.34
175.34 - 175.44
Bridge -
175.64 - 175.74
175.74 - 175.79
Mile Post

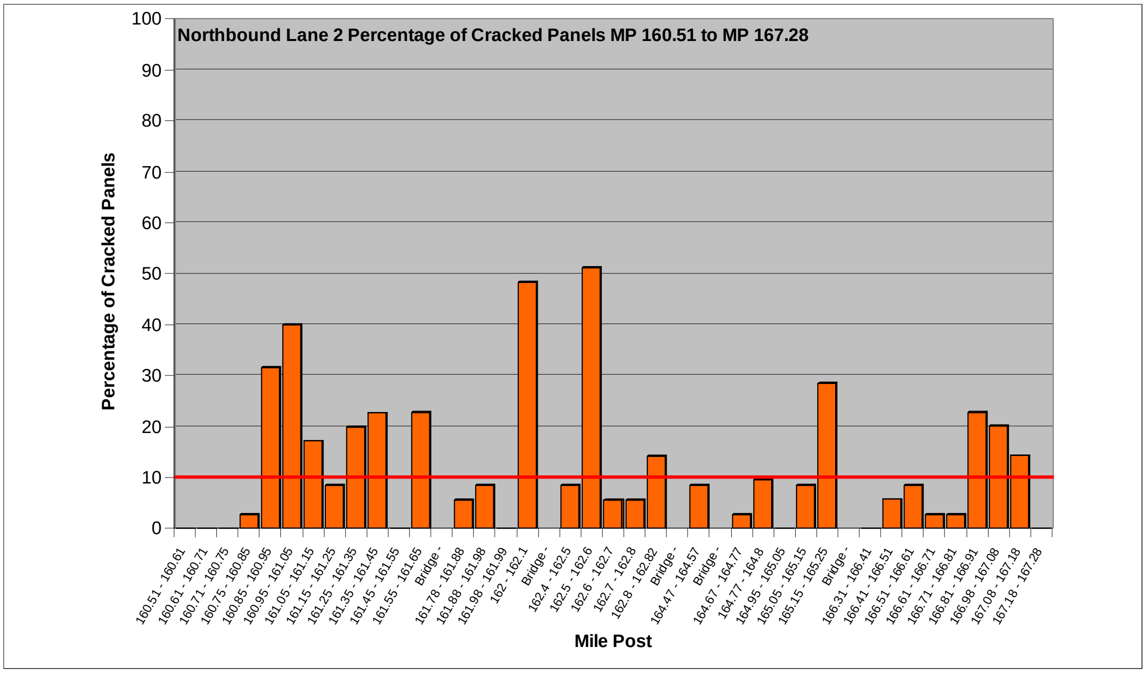
Northbound Lane 2 Percentage of Cracked Panel Plots

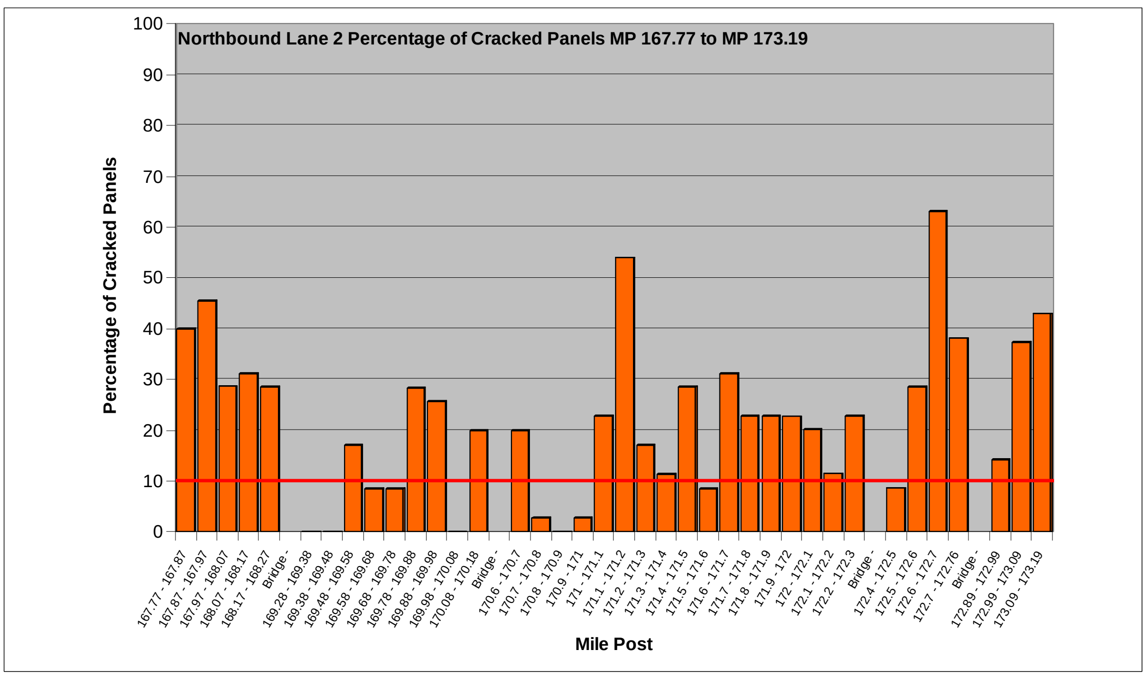


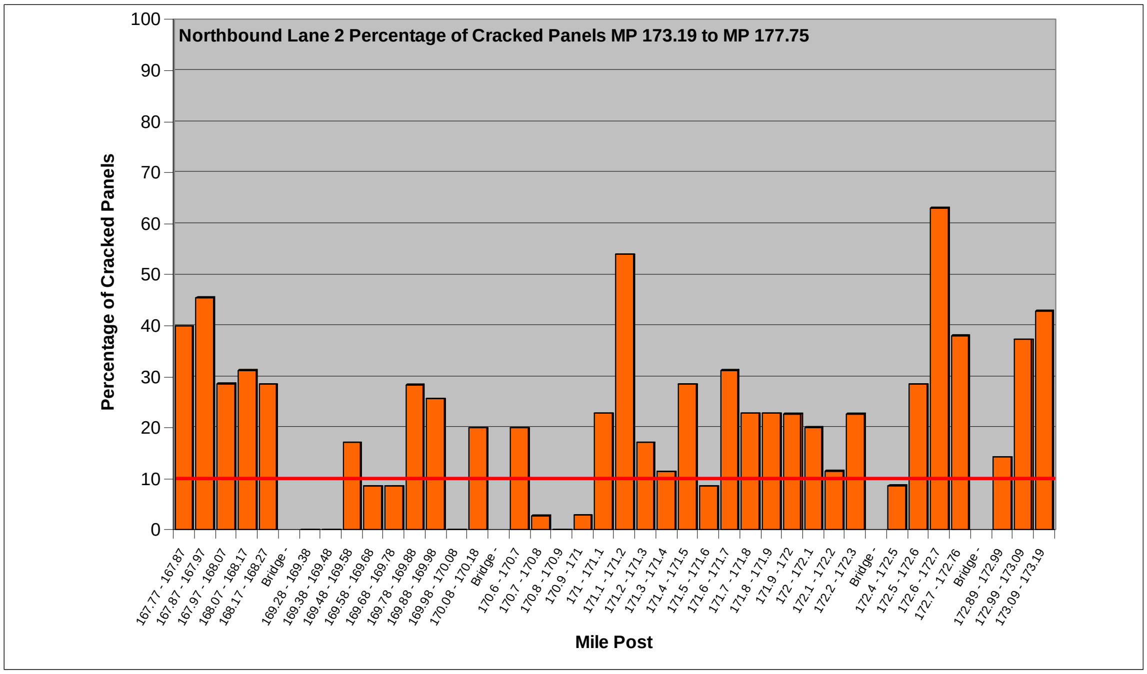



Northbound Lane 2 Percentage of Cracked Panels MP 148.17 to MP 152.23
Percentage of Cracked Panels
100
90
80
70
60
50
40
30
20
10
0
148.17 - 148.27
148.27 - 148.37
148.37 - 148.47
148.47 - 148.57
148.57 - 148.67
148.67 - 148.77
148.77 - 148.87
148.87 - 148.97
148.97 - 149.07
Bridge -
149.22 - 149.32
149.32 - 149.42
149.42 - 149.52
149.52 - 149.62
149.62 - 149.72
149.72 - 149.82
149.82 - 149.92
149.92 - 150.02
150.02 - 150.12
150.12 - 150.22
150.22 - 150.32
150.32 - 150.42
150.42 - 150.52
150.52 - 150.62
150.62 - 150.72
150.72 - 150.82
150.82 - 150.92
150.92 - 151.02
151.02 - 151.12
151.12 - 151.22
151.22 - 151.23
151.23 - 151.33
151.33 - 151.43
151.43 - 151.53
151.53 - 151.63
151.63 - 151.73
151.73 - 151.83
151.83 - 151.93
151.93 - 152.03
152.03 - 152.13
152.13 - 152.23
Mile Post

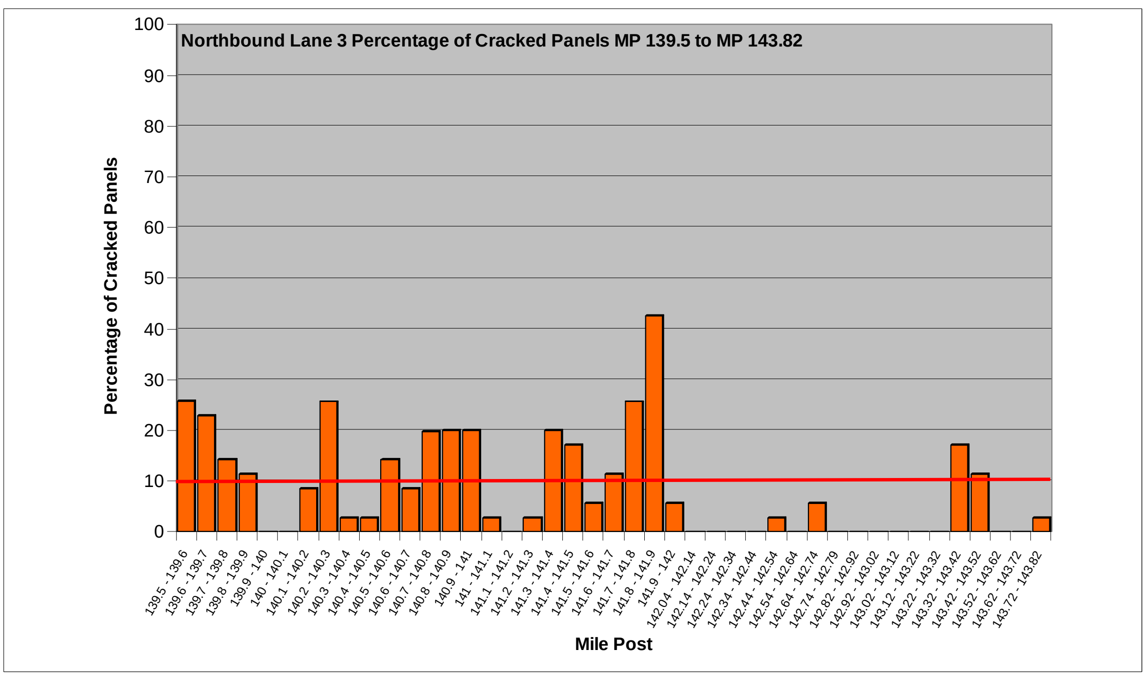

Northbound Lane 2 Percentage of Cracked Panels MP 152.39 to MP 160.51
Percentage of Cracked Panels
100
90
80
70
60
50
40
30
20
10
0
152.39 - 152.49
152.49 - 152.59
152.59 - 152.69
152.69 - 152.79
152.79 - 152.89
152.89 - 152.99
152.99 - 153.09
153.09 - 153.19
153.19 - 153.2
153.2 - 153.3
153.3 - 153.4
153.4 - 153.5
153.5 - 153.6
153.6 - 153.7
153.7 - 153.8
153.8 - 153.9
153.9 - 154
154 - 154.1
154.1 - 154.14
Diamond Ground -
158.31 - 158.41
Bridge -
158.51 - 158.61
158.61 - 158.71
158.71 - 158.81
158.81 - 158.91
158.91 - 159.01
159.01 - 159.1
159.1 - 159.2
159.2 - 159.3
159.3 - 159.4
159.4 - 159.5
159.5 - 159.6
159.6 - 159.67
159.71 - 159.81
159.81 - 159.91
159.91 - 160.01
160.01 - 160.11
160.11 - 160.21
160.21 - 160.31
160.31 - 160.41
160.41 - 160.51
Mile Post

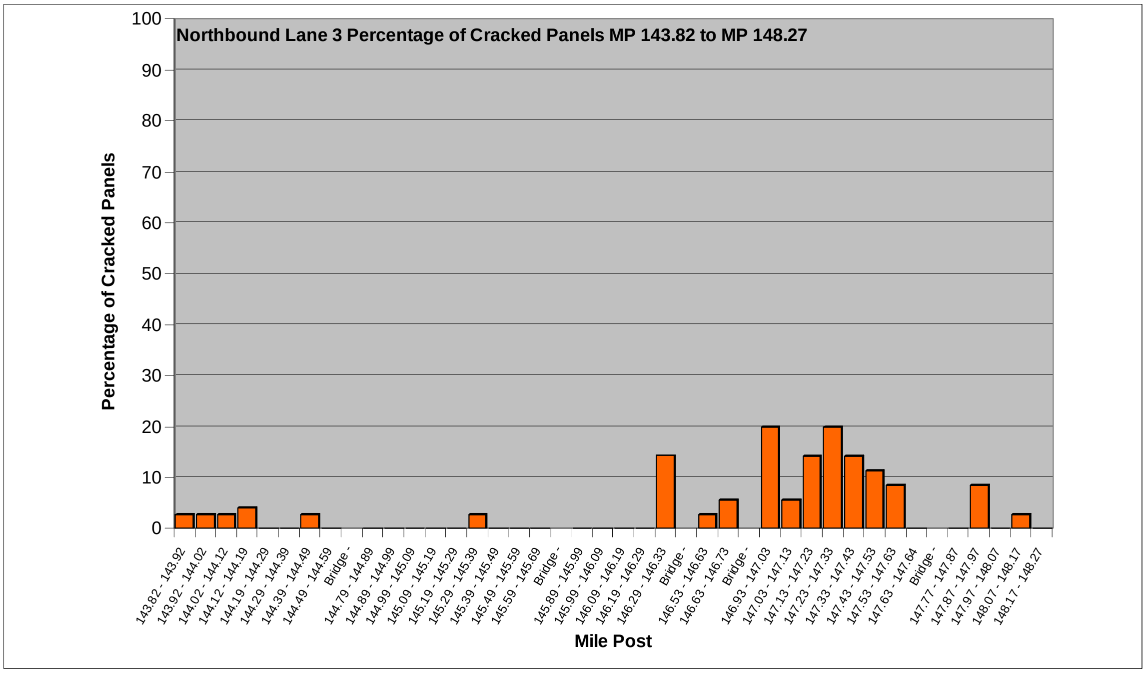

Northbound Lane 2 Percentage of Cracked Panels MP 160.51 to MP 167.28
Percentage of Cracked Panels
100
90
80
70
60
50
40
30
20
10
0
160.51 - 160.61
160.61 - 160.71
160.71 - 160.75
160.75 - 160.85
160.85 - 160.95
160.95 - 161.05
161.05 - 161.15
161.15 - 161.25
161.25 - 161.35
161.35 - 161.45
161.45 - 161.55
161.55 - 161.65
Bridge -
161.78 - 161.88
161.88 - 161.98
161.98 - 161.99
162 - 162.1
Bridge -
162.4 - 162.5
162.5 - 162.6
162.6 - 162.7
162.7 - 162.8
162.8 - 162.82
Bridge -
164.47 - 164.57
Bridge -
164.67 - 164.77
164.77 - 164.8
164.95 - 165.05
165.05 - 165.15
165.15 - 165.25
Bridge -
166.31 - 166.41
166.41 - 166.51
166.51 - 166.61
166.61 - 166.71
166.71 - 166.81
166.81 - 166.91
166.98 - 167.08
167.08 - 167.18
167.18 - 167.28
Mile Post

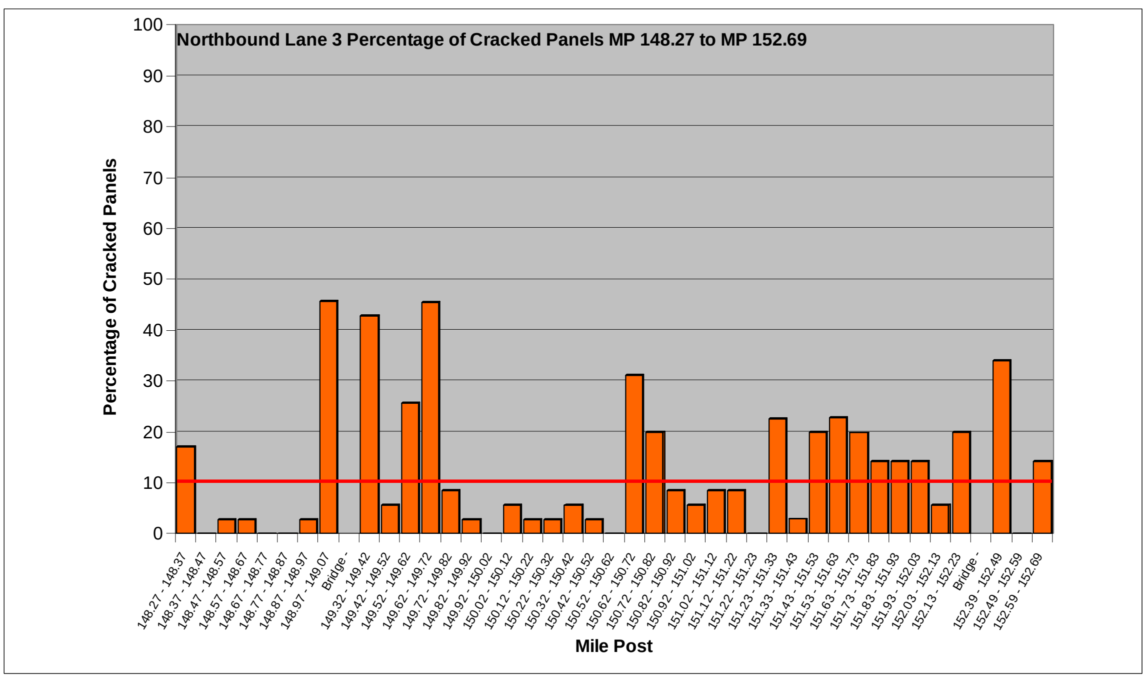

Northbound Lane 2 Percentage of Cracked Panels MP 167.77 to MP 173.19
Percentage of Cracked Panels
100
90
80
70
60
50
40
30
20
10
0
167.77 - 167.87
167.87 - 167.97
167.97 - 168.07
168.07 - 168.17
168.17 - 168.27
Bridge -
169.28 - 169.38
169.38 - 169.48
169.48 - 169.58
169.58 - 169.68
169.68 - 169.78
169.78 - 169.88
169.88 - 169.98
169.98 - 170.08
170.08 - 170.18
Bridge -
170.6 - 170.7
170.7 - 170.8
170.8 - 170.9
170.9 - 171
171 - 171.1
171.1 - 171.2
171.2 - 171.3
171.3 - 171.4
171.4 - 171.5
171.5 - 171.6
171.6 - 171.7
171.7 - 171.8
171.8 - 171.9
171.9 - 172
172 - 172.1
172.1 - 172.2
172.2 - 172.3
Bridge -
172.4 - 172.5
172.5 - 172.6
172.6 - 172.7
172.7 - 172.76
Bridge -
172.89 - 172.99
172.99 - 173.09
173.09 - 173.19
Mile Post

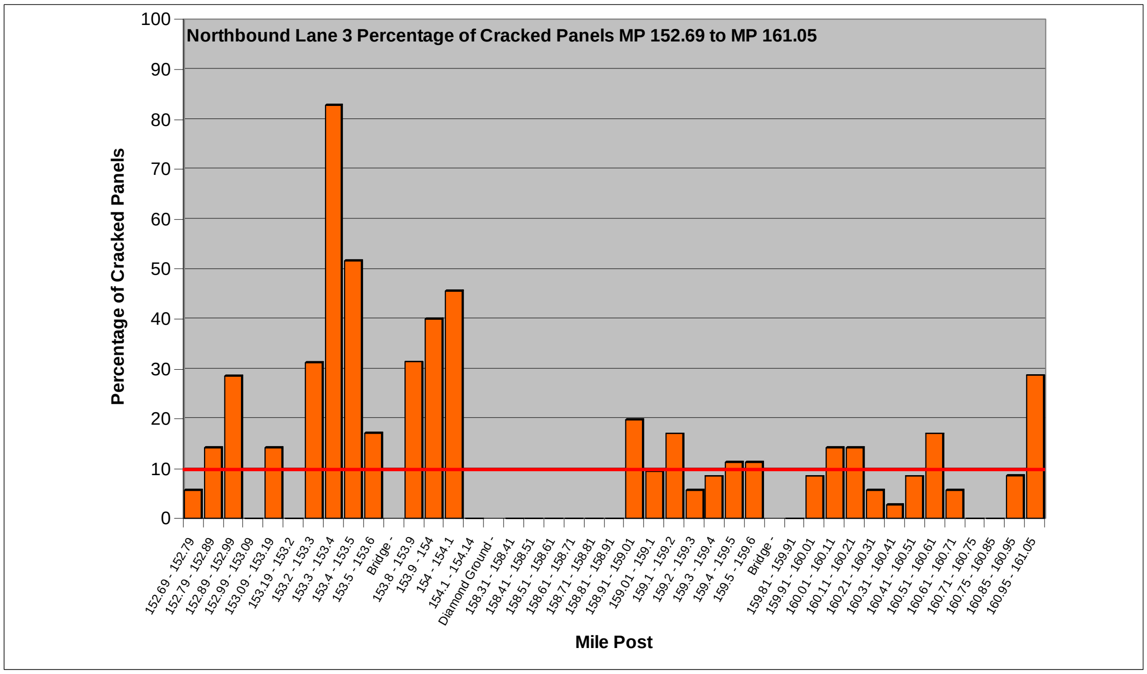


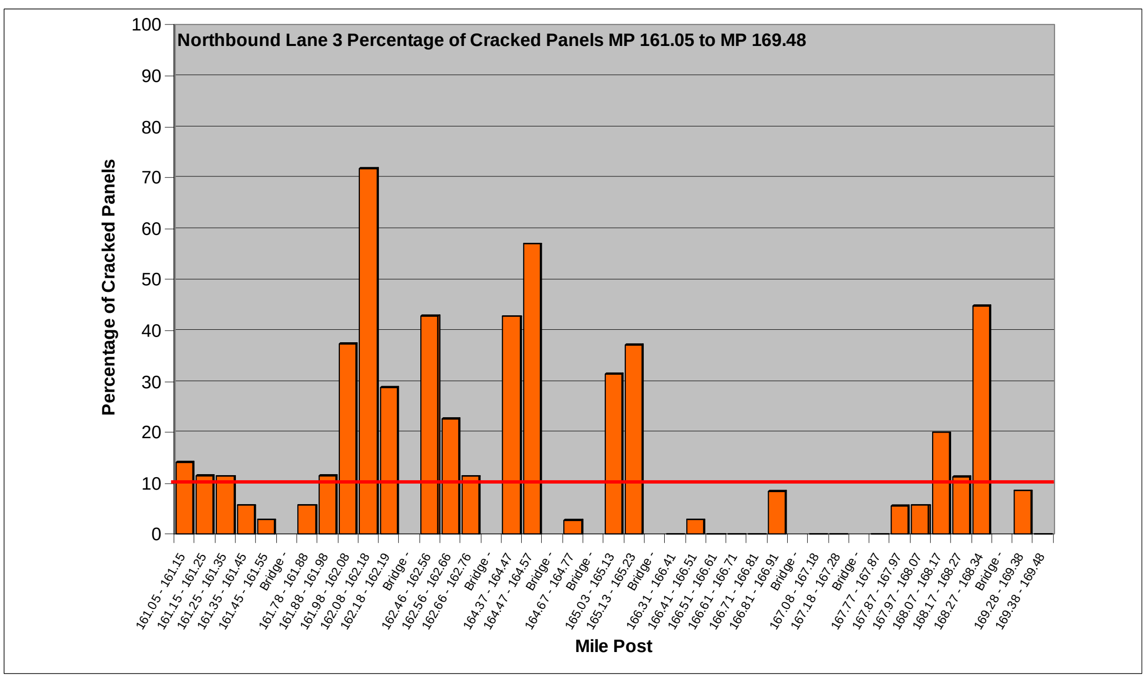
Northbound Lane 3 Percentage of Cracked Panels Plots

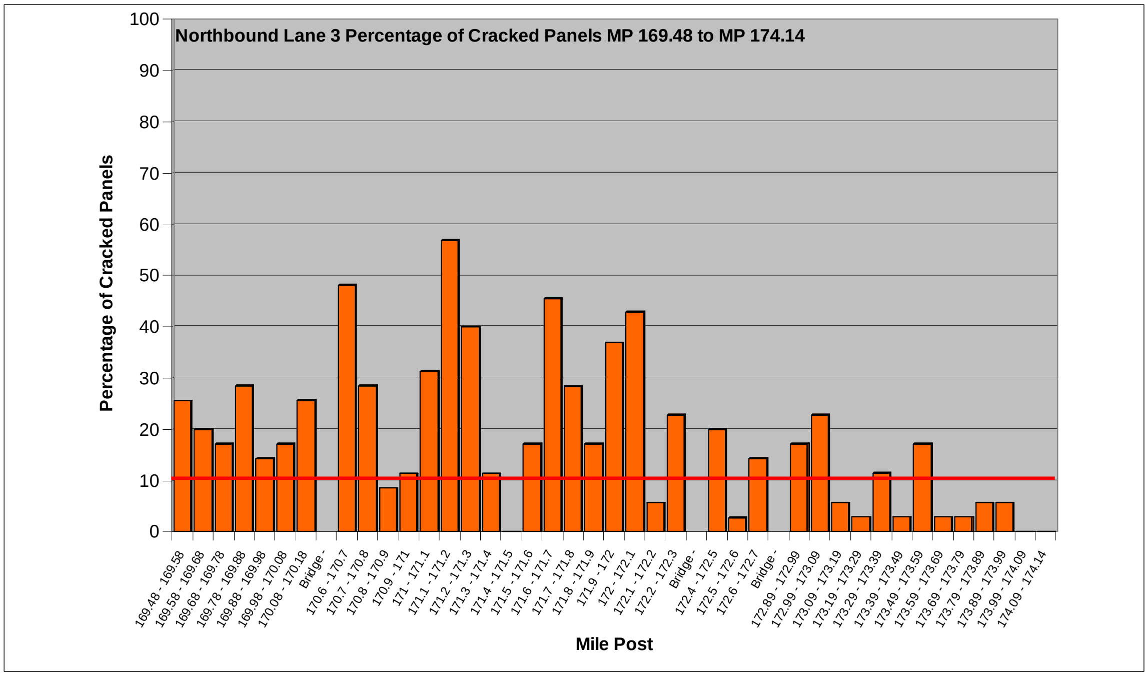


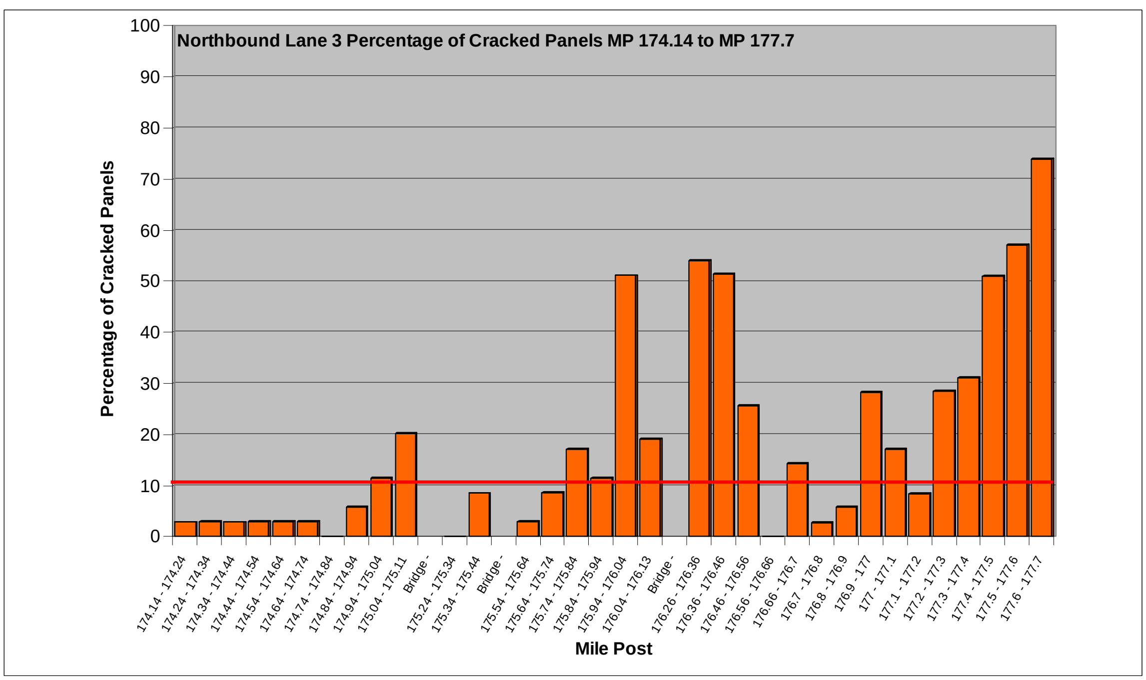

Northbound Lane 3 Percentage of Cracked Panels MP 143.82 to MP 148.27
Percentage of Cracked Panels
100
90
80
70
60
50
40
30
20
10
0
143.82 - 143.92
143.92 - 144.02
144.02 - 144.12
144.12 - 144.19
144.19 - 144.29
144.29 - 144.39
144.39 - 144.49
144.49 - 144.59
Bridge -
144.79 - 144.89
144.89 - 144.99
144.99 - 145.09
145.09 - 145.19
145.19 - 145.29
145.29 - 145.39
145.39 - 145.49
145.49 - 145.59
145.59 - 145.69
Bridge -
145.89 - 145.99
145.99 - 146.09
146.09 - 146.19
146.19 - 146.29
146.29 - 146.33
Bridge -
146.53 - 146.63
146.63 - 146.73
Bridge -
146.93 - 147.03
147.03 - 147.13
147.13 - 147.23
147.23 - 147.33
147.33 - 147.43
147.43 - 147.53
147.53 - 147.63
147.63 - 147.64
Bridge -
147.77 - 147.87
147.87 - 147.97
147.97 - 148.07
148.07 - 148.17
148.17 - 148.27
Mile Post


Northbound Lane 3 Percentage of Cracked Panels MP 148.27 to MP 152.69
Percentage of Cracked Panels
100
90
80
70
60
50
40
30
20
10
0
148.27 - 148.37
148.37 - 148.47
148.47 - 148.57
148.57 - 148.67
148.67 - 148.77
148.77 - 148.87
148.87 - 148.97
148.97 - 149.07
Bridge -
149.32 - 149.42
149.42 - 149.52
149.52 - 149.62
149.62 - 149.72
149.72 - 149.82
149.82 - 149.92
149.92 - 150.02
150.02 - 150.12
150.12 - 150.22
150.22 - 150.32
150.32 - 150.42
150.42 - 150.52
150.52 - 150.62
150.62 - 150.72
150.72 - 150.82
150.82 - 150.92
150.92 - 151.02
151.02 - 151.12
151.12 - 151.22
151.22 - 151.23
151.23 - 151.33
151.33 - 151.43
151.43 - 151.53
151.53 - 151.63
151.63 - 151.73
151.73 - 151.83
151.83 - 151.93
151.93 - 152.03
152.03 - 152.13
152.13 - 152.23
Bridge -
152.39 - 152.49
152.49 - 152.59
152.59 - 152.69
Mile Post

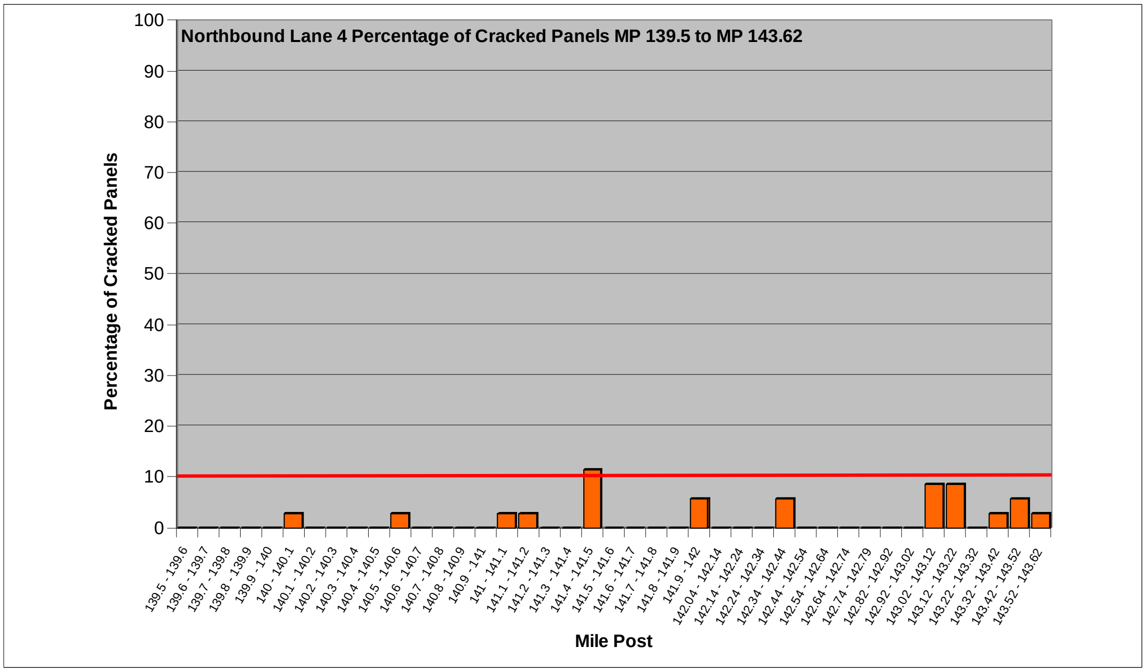

Northbound Lane 3 Percentage of Cracked Panels MP 152.69 to MP 161.05
Percentage of Cracked Panels
Mile Post
0
10
20
30
40
50
60
70
80
90
100
152.69 - 152.79
152.79 - 152.89
152.89 - 152.99
152.99 - 153.09
153.09 - 153.19
153.19 - 153.2
153.2 - 153.3
153.3 - 153.4
153.4 - 153.5
153.5 - 153.6
Bridge -
153.8 - 153.9
153.9 - 154
154 - 154.1
154.1 - 154.14
Diamond Ground -
158.31 - 158.41
158.41 - 158.51
158.51 - 158.61
158.61 - 158.71
158.71 - 158.81
158.81 - 158.91
158.91 - 159.01
159.01 - 159.1
159.1 - 159.2
159.2 - 159.3
159.3 - 159.4
159.4 - 159.5
159.5 - 159.6
Bridge -
159.81 - 159.91
159.91 - 160.01
160.01 - 160.11
160.11 - 160.21
160.21 - 160.31
160.31 - 160.41
160.41 - 160.51
160.51 - 160.61
160.61 - 160.71
160.71 - 160.75
160.75 - 160.85
160.85 - 160.95
160.95 - 161.05

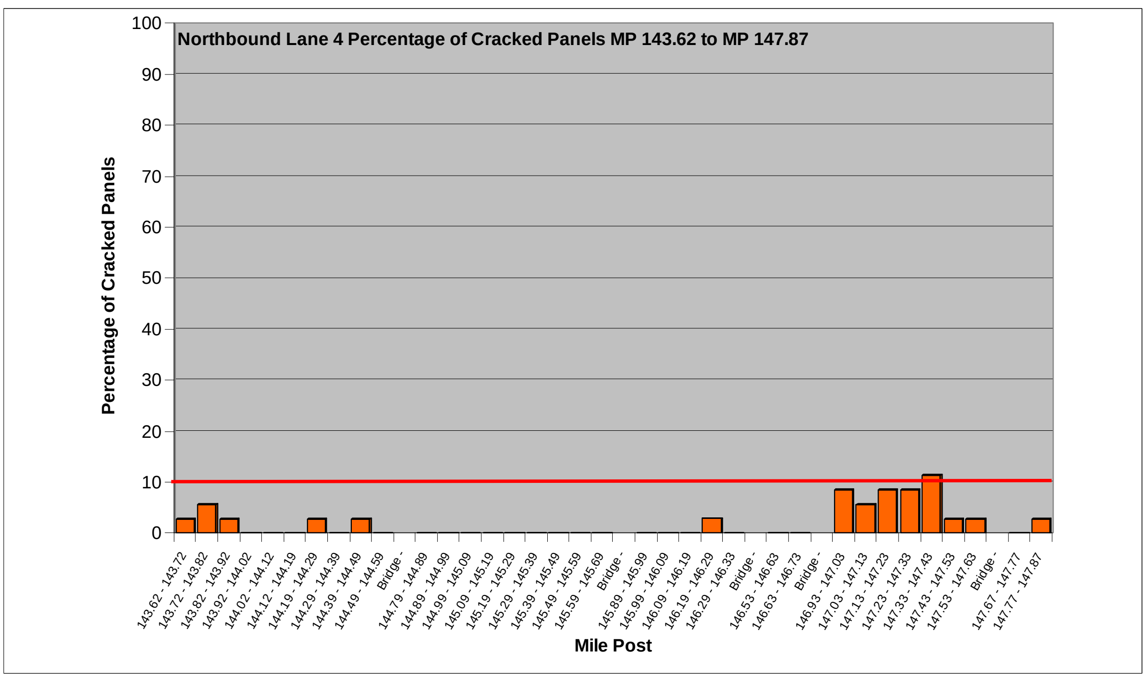

Northbound Lane 3 Percentage of Cracked Panels MP 161.05 to MP 169.48
Percentage of Cracked Panels
Mile Post
0
10
20
30
40
50
60
70
80
90
100
161.05 - 161.15
161.15 - 161.25
161.25 - 161.35
161.35 - 161.45
161.45 - 161.55
Bridge -
161.78 - 161.88
161.88 - 161.98
161.98 - 162.08
162.08 - 162.18
162.18 - 162.19
Bridge -
162.46 - 162.56
162.56 - 162.66
162.66 - 162.76
Bridge -
164.37 - 164.47
164.47 - 164.57
Bridge -
164.67 - 164.77
Bridge -
165.03 - 165.13
165.13 - 165.23
Bridge -
166.31 - 166.41
166.41 - 166.51
166.51 - 166.61
166.61 - 166.71
166.71 - 166.81
166.81 - 166.91
Bridge -
167.08 - 167.18
167.18 - 167.28
Bridge -
167.77 - 167.87
167.87 - 167.97
167.97 - 168.07
168.07 - 168.17
168.17 - 168.27
168.27 - 168.34
Bridge -
169.28 - 169.38
169.38 - 169.48

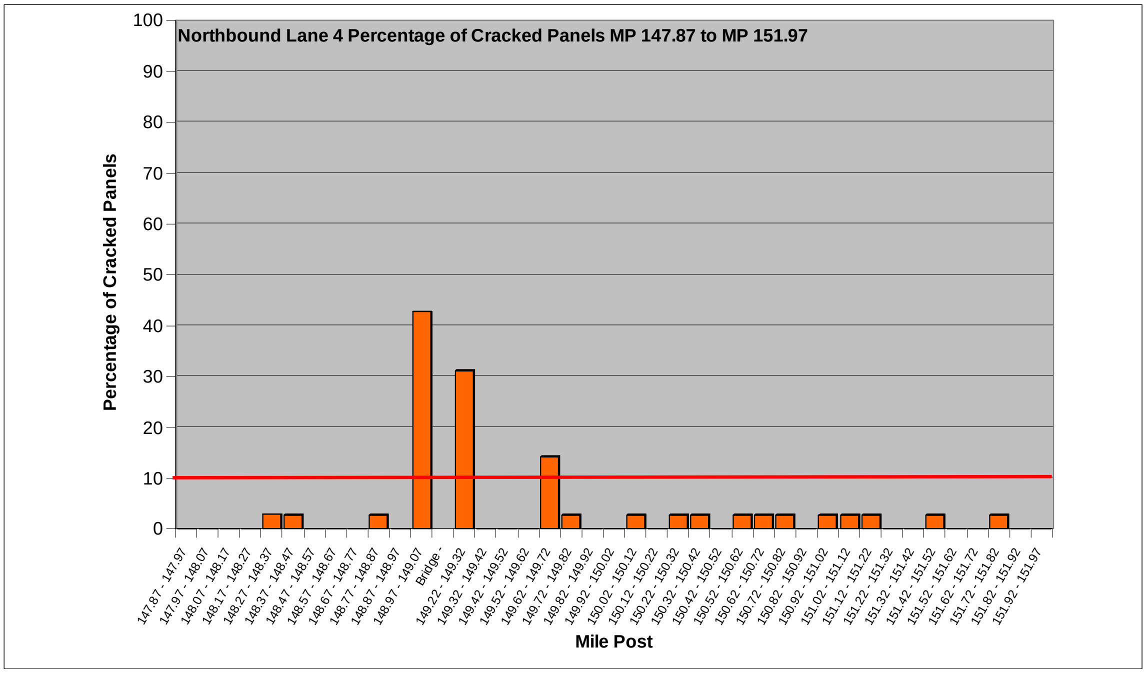

Northbound Lane 3 Percentage of Cracked Panels MP 169.48 to MP 174.14
Percentage of Cracked Panels
Mile Post
0
10
20
30
40
50
60
70
80
90
100
169.48 - 169.58
169.58 - 169.68
169.68 - 169.78
169.78 - 169.88
169.88 - 169.98
169.98 - 170.08
170.08 - 170.18
Bridge -
170.6 - 170.7
170.7 - 170.8
170.8 - 170.9
170.9 - 171
171 - 171.1
171.1 - 171.2
171.2 - 171.3
171.3 - 171.4
171.4 - 171.5
171.5 - 171.6
171.6 - 171.7
171.7 - 171.8
171.8 - 171.9
171.9 - 172
172 - 172.1
172.1 - 172.2
172.2 - 172.3
Bridge -
172.4 - 172.5
172.5 - 172.6
172.6 - 172.7
Bridge -
172.89 - 172.99
172.99 - 173.09
173.09 - 173.19
173.19 - 173.29
173.29 - 173.39
173.39 - 173.49
173.49 - 173.59
173.59 - 173.69
173.69 - 173.79
173.79 - 173.89
173.89 - 173.99
173.99 - 174.09
174.09 - 174.14

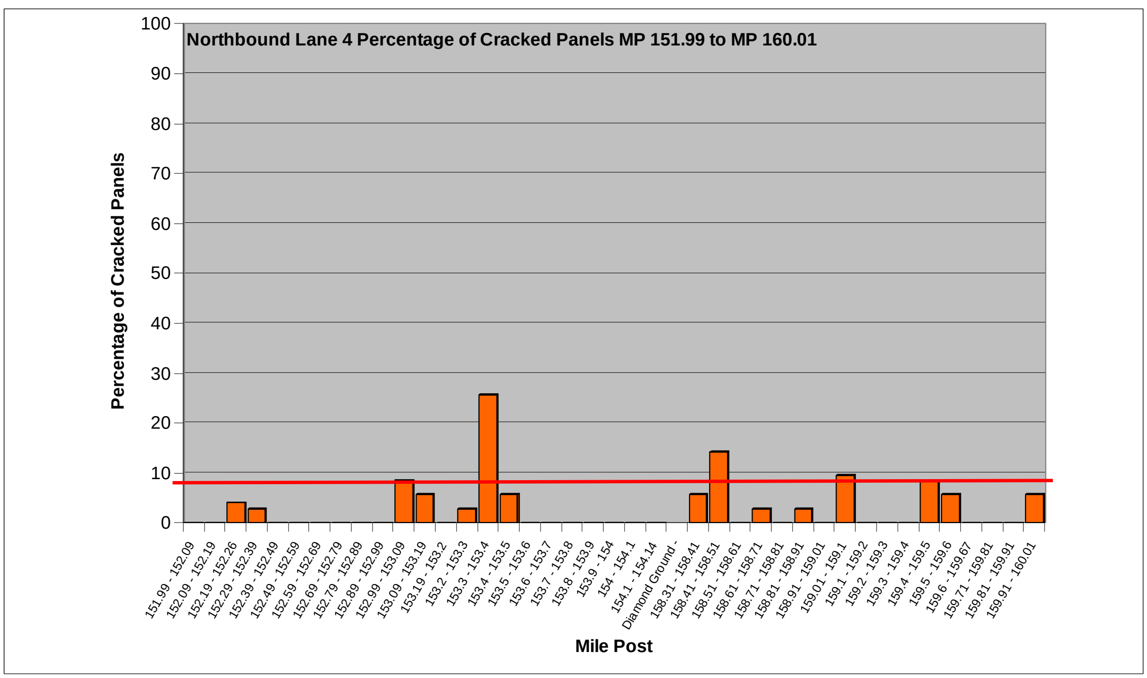

Northbound Lane 3 Percentage of Cracked Panels MP 174.14 to MP 177.7
Percentage of Cracked Panels
Mile Post
0
10
20
30
40
50
60
70
80
90
100
174.14 - 174.24
174.24 - 174.34
174.34 - 174.44
174.44 - 174.54
174.54 - 174.64
174.64 - 174.74
174.74 - 174.84
174.84 - 174.94
174.94 - 175.04
175.04 - 175.11
Bridge -
175.24 - 175.34
175.34 - 175.44
Bridge -
175.54 - 175.64
175.64 - 175.74
175.74 - 175.84
175.84 - 175.94
175.94 - 176.04
176.04 - 176.13
Bridge -
176.26 - 176.36
176.36 - 176.46
176.46 - 176.56
176.56 - 176.66
176.66 - 176.7
176.7 - 176.8
176.8 - 176.9
176.9 - 177
177 - 177.1
177.1 - 177.2
177.2 - 177.3
177.3 - 177.4
177.4 - 177.5
177.5 - 177.6
177.6 - 177.7

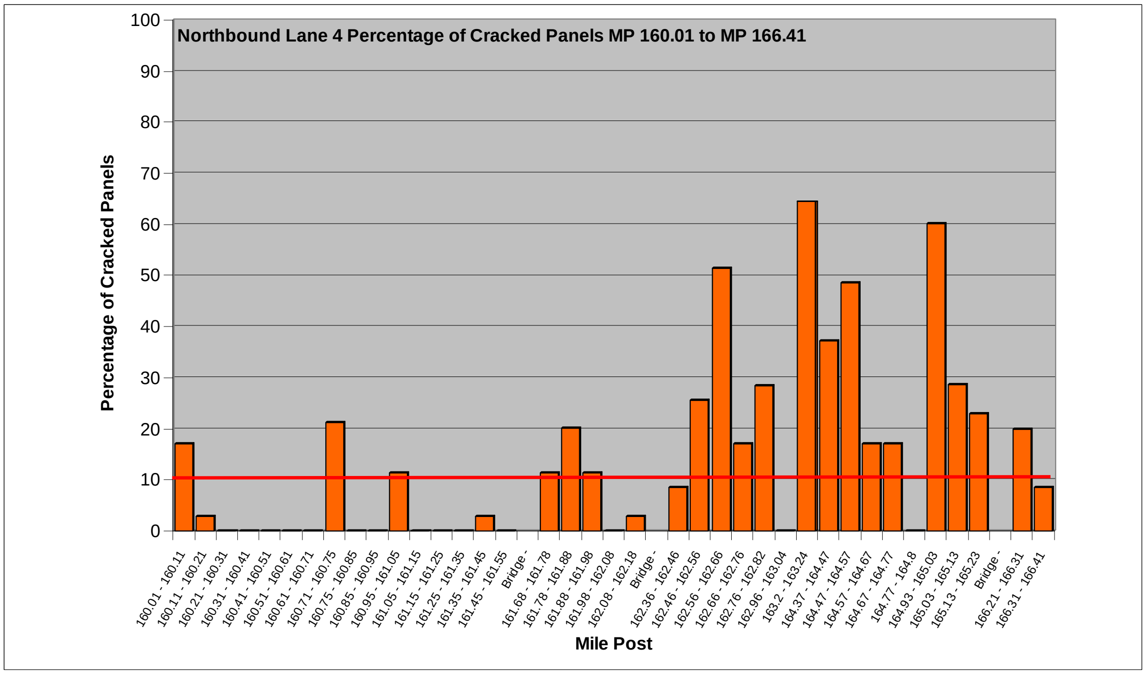
Northbound Lane 4 Percentage of Cracked Panels Plots

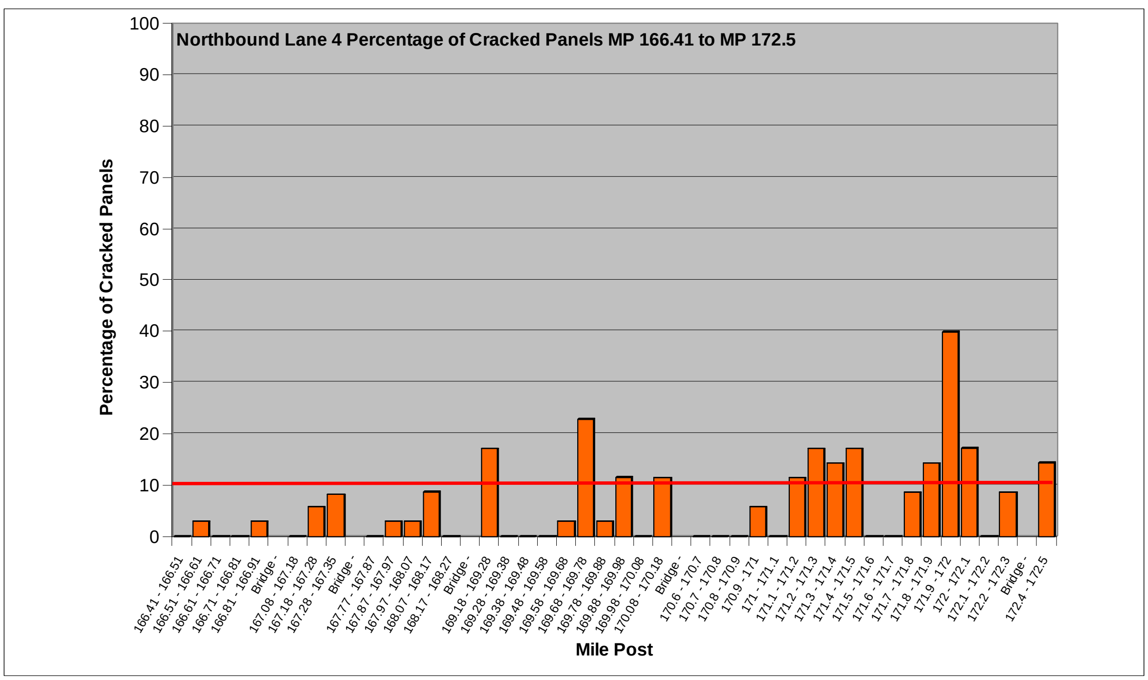


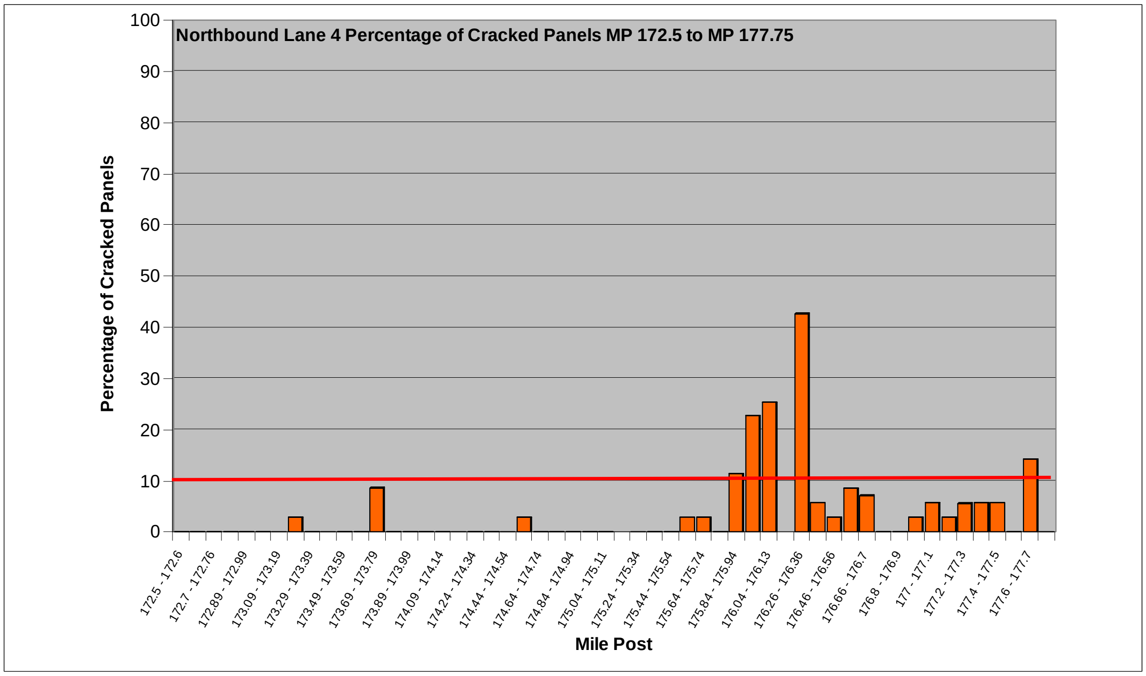



Northbound Lane 4 Percentage of Cracked Panels MP 147.87 to MP 151.97
Percentage of Cracked Panels
100
90
80
70
60
50
40
30
20
10
0
147.87 - 147.97
147.97 - 148.07
148.07 - 148.17
148.17 - 148.27
148.27 - 148.37
148.37 - 148.47
148.47 - 148.57
148.57 - 148.67
148.67 - 148.77
148.77 - 148.87
148.87 - 148.97
148.97 - 149.07
Bridge -
149.22 - 149.32
149.32 - 149.42
149.42 - 149.52
149.52 - 149.62
149.62 - 149.72
149.72 - 149.82
149.82 - 149.92
149.92 - 150.02
150.02 - 150.12
150.12 - 150.22
150.22 - 150.32
150.32 - 150.42
150.42 - 150.52
150.52 - 150.62
150.62 - 150.72
150.72 - 150.82
150.82 - 150.92
150.92 - 151.02
151.02 - 151.12
151.12 - 151.22
151.22 - 151.32
151.32 - 151.42
151.42 - 151.52
151.52 - 151.62
151.62 - 151.72
151.72 - 151.82
151.82 - 151.92
151.92 - 151.97
Mile Post

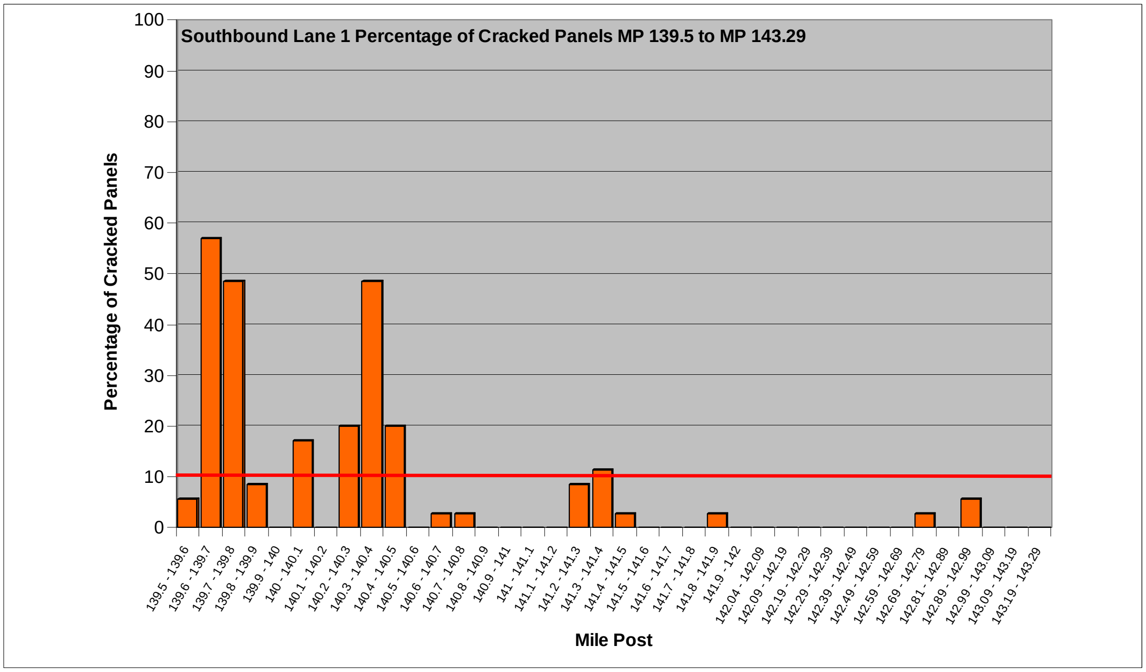

Northbound Lane 4 Percentage of Cracked Panels MP 151.99 to MP 160.01
Percentage of Cracked Panels
100
90
80
70
60
50
40
30
20
10
0
151.99 - 152.09
152.09 - 152.19
152.19 - 152.26
152.29 - 152.39
152.39 - 152.49
152.49 - 152.59
152.59 - 152.69
152.69 - 152.79
152.79 - 152.89
152.89 - 152.99
152.99 - 153.09
153.09 - 153.19
153.19 - 153.2
153.2 - 153.3
153.3 - 153.4
153.4 - 153.5
153.5 - 153.6
153.6 - 153.7
153.7 - 153.8
153.8 - 153.9
153.9 - 154
154 - 154.1
154.1 - 154.14
Diamond Ground -
158.31 - 158.41
158.41 - 158.51
158.51 - 158.61
158.61 - 158.71
158.71 - 158.81
158.81 - 158.91
158.91 - 159.01
159.01 - 159.1
159.1 - 159.2
159.2 - 159.3
159.3 - 159.4
159.4 - 159.5
159.5 - 159.6
159.6 - 159.67
159.71 - 159.81
159.81 - 159.91
159.91 - 160.01
Mile Post

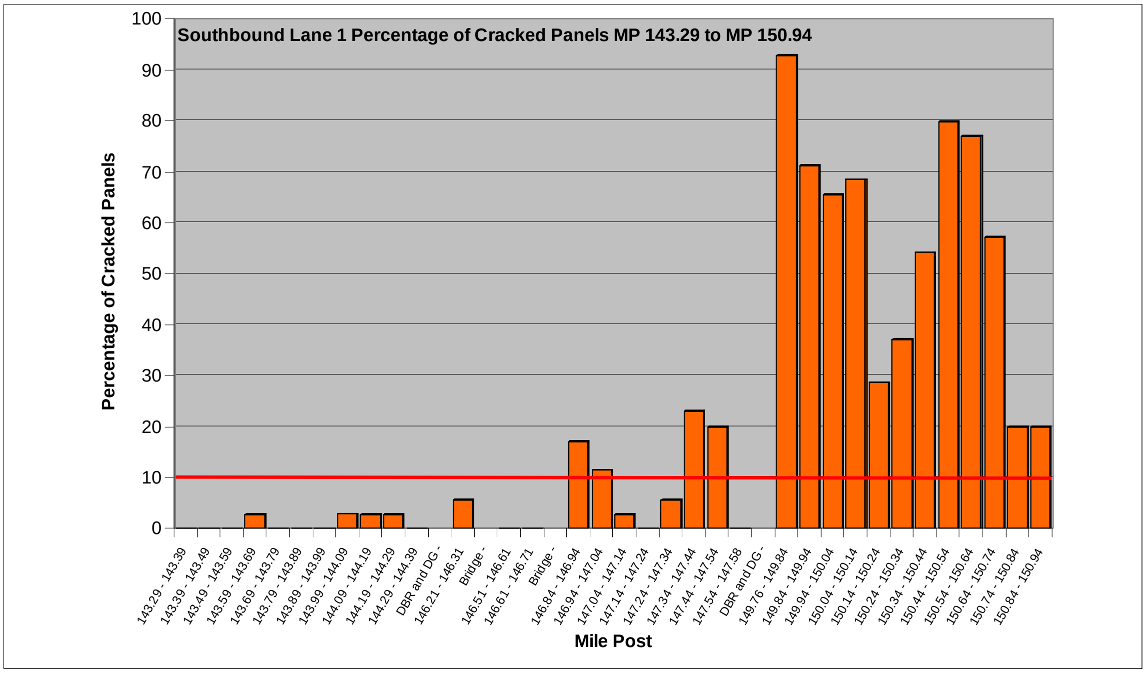

Northbound Lane 4 Percentage of Cracked Panels MP 160.01 to MP 166.41
Percentage of Cracked Panels
Mile Post
0
10
20
30
40
50
60
70
80
90
100

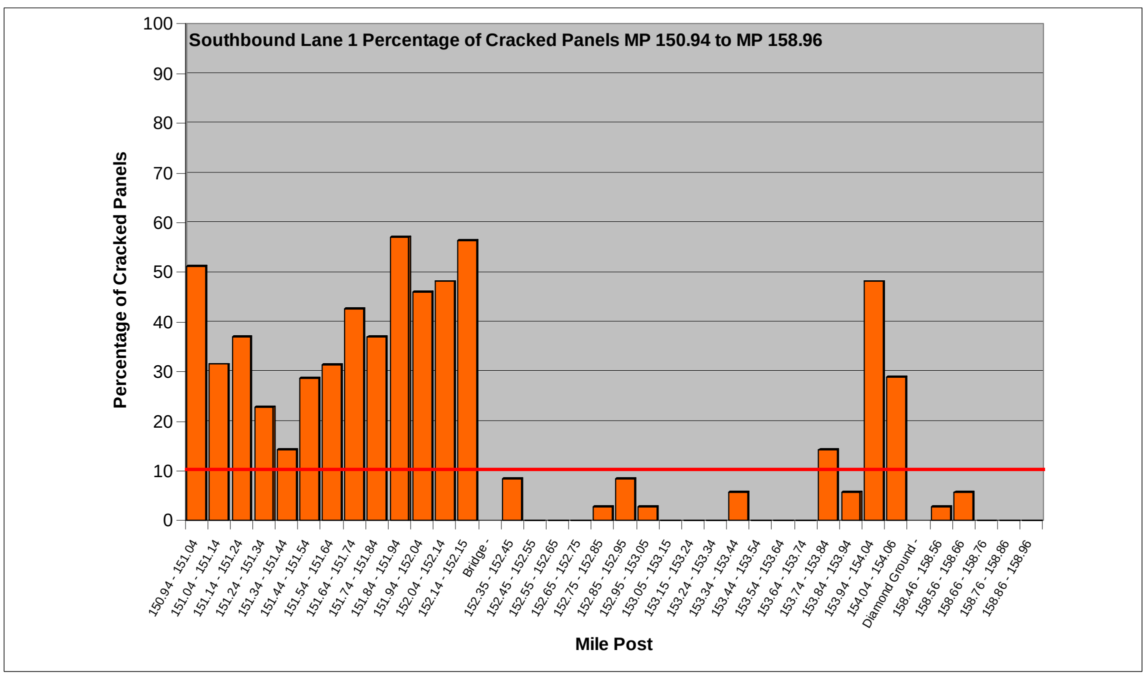

Northbound Lane 4 Percentage of Cracked Panels MP 166.41 to MP 172.5
Percentage of Cracked Panels
Mile Post
0
10
20
30
40
50
60
70
80
90
100

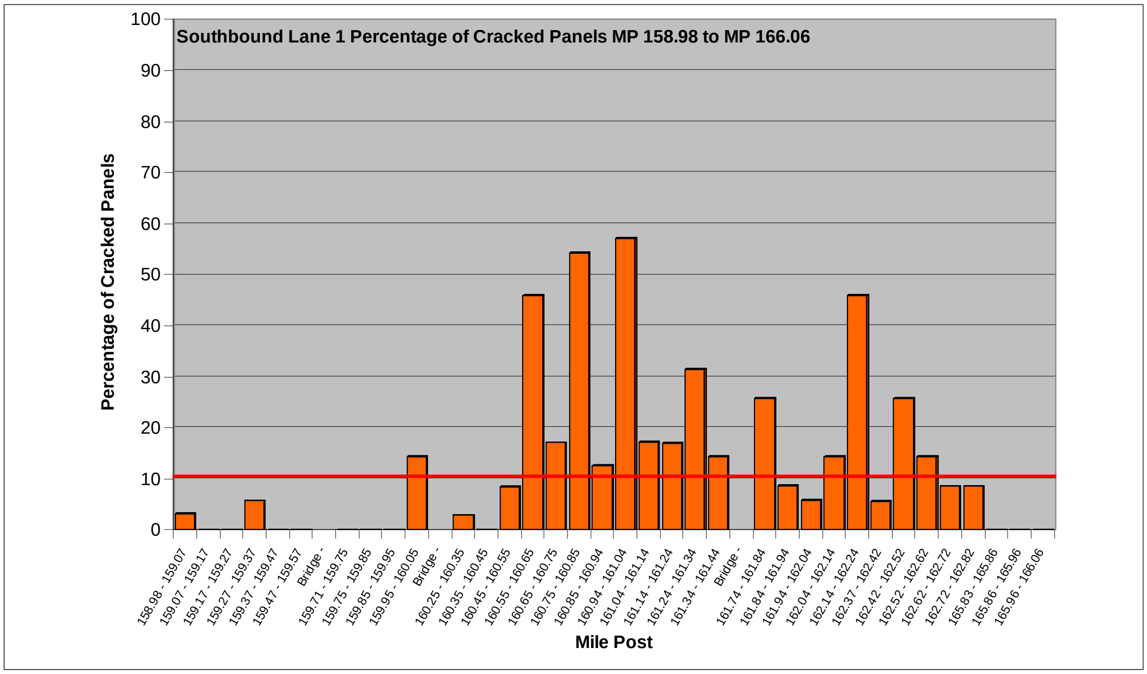


Southbound Lane 1 Percentage of Cracked Panels Plots

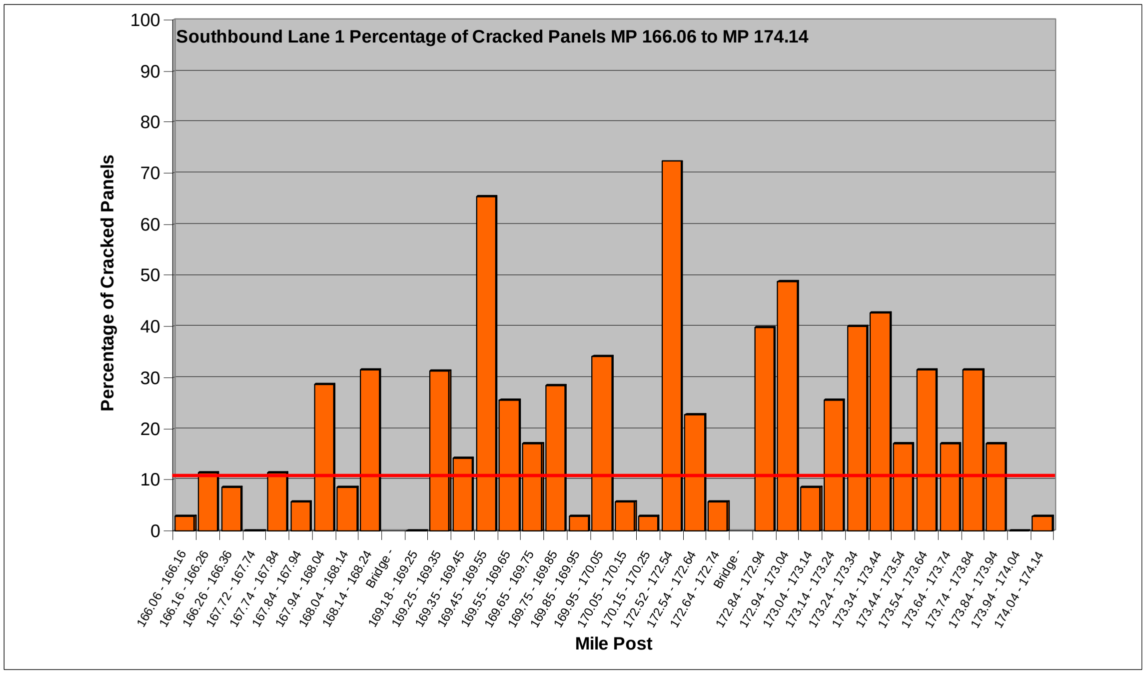



Southbound Lane 1 Percentage of Cracked Panels MP 143.29 to MP 150.94
Percentage of Cracked Panels
100
90
80
70
60
50
40
30
20
10
0
143.29 - 143.39
143.39 - 143.49
143.49 - 143.59
143.59 - 143.69
143.69 - 143.79
143.79 - 143.89
143.89 - 143.99
143.99 - 144.09
144.09 - 144.19
144.19 - 144.29
144.29 - 144.39
DBR and DG -
146.21 - 146.31
Bridge -
146.51 - 146.61
146.61 - 146.71
Bridge -
146.84 - 146.94
146.94 - 147.04
147.04 - 147.14
147.14 - 147.24
147.24 - 147.34
147.34 - 147.44
147.44 - 147.54
147.54 - 147.58
DBR and DG-
149.76 - 149.84
149.84 - 149.94
149.94 - 150.04
150.04 - 150.14
150.14 - 150.24
150.24 - 150.34
150.34 - 150.44
150.44 - 150.54
150.54 - 150.64
150.64 - 150.74
150.74 - 150.84
150.84 - 150.94
Mile Post


Southbound Lane 1 Percentage of Cracked Panels MP 150.94 to MP 158.96
Percentage of Cracked Panels
100
90
80
70
60
50
40
30
20
10
0
150.94 - 151.04
151.04 - 151.14
151.14 - 151.24
151.24 - 151.34
151.34 - 151.44
151.44 - 151.54
151.54 - 151.64
151.64 - 151.74
151.74 - 151.84
151.84 - 151.94
151.94 - 152.04
152.04 - 152.14
152.14 - 152.15
Bridge -
152.35 - 152.45
152.45 - 152.55
152.55 - 152.65
152.65 - 152.75
152.75 - 152.85
152.85 - 152.95
152.95 - 153.05
153.05 - 153.15
153.15 - 153.24
153.24 - 153.34
153.34 - 153.44
153.44 - 153.54
153.54 - 153.64
153.64 - 153.74
153.74 - 153.84
153.84 - 153.94
153.94 - 154.04
154.04 - 154.06
Diamond Ground -
158.46 - 158.56
158.56 - 158.66
158.66 - 158.76
158.76 - 158.86
158.86 - 158.96
Mile Post

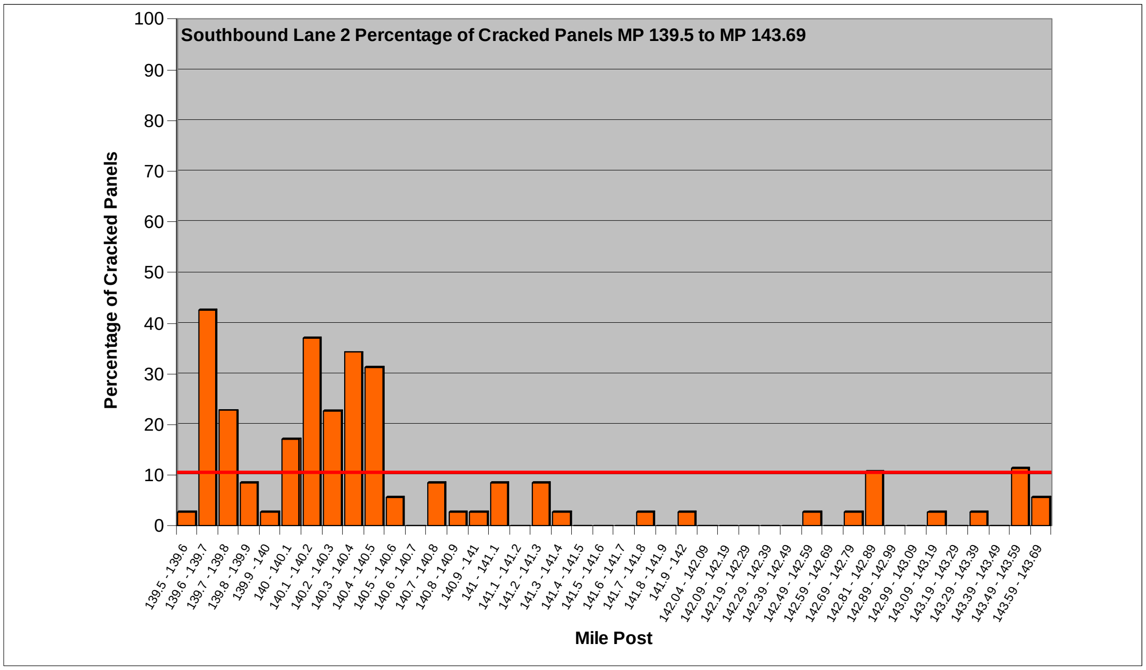


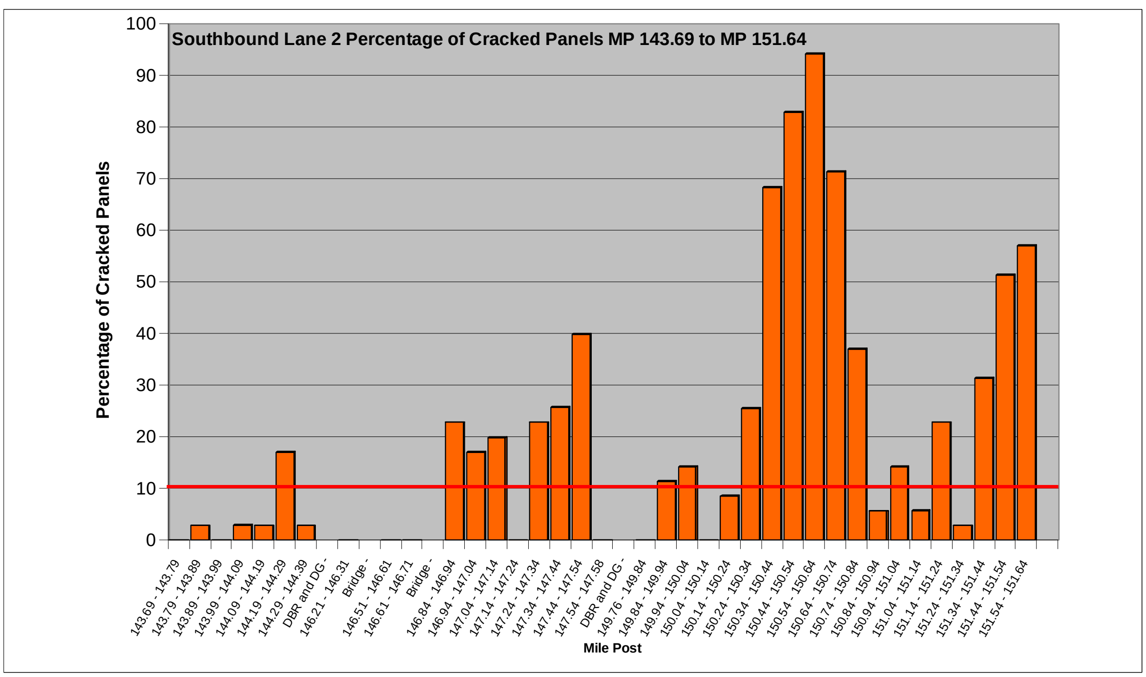
Southbound Lane 1 Percentage of Cracked Panels MP 158.98 to MP 166.06
Percentage of Cracked Panels
Mile Post

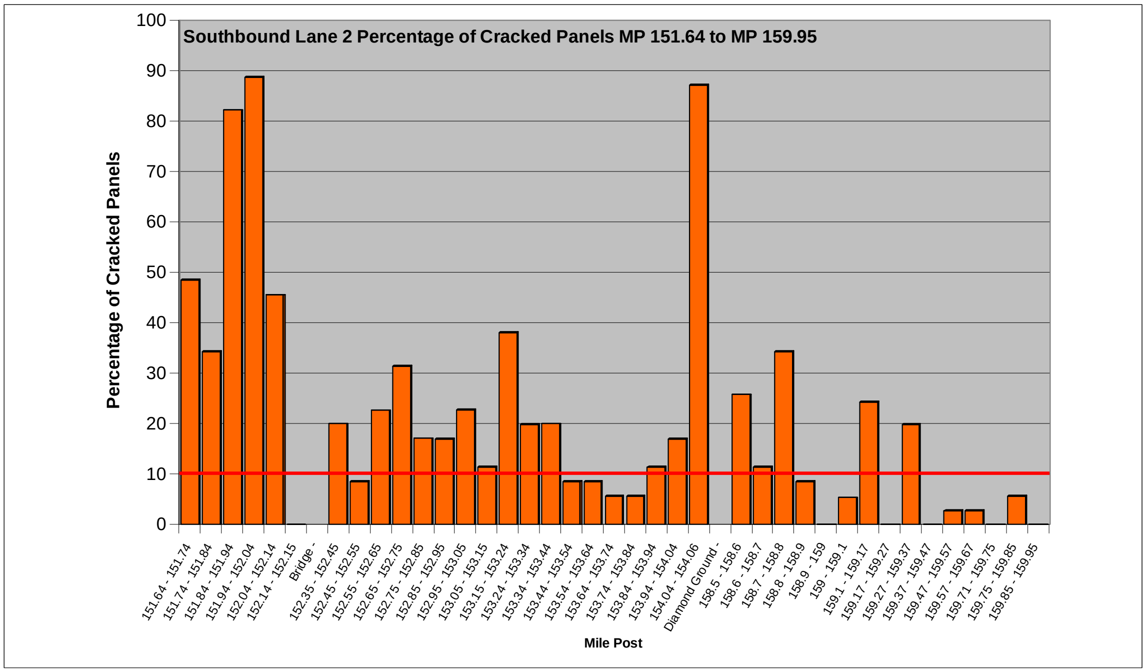


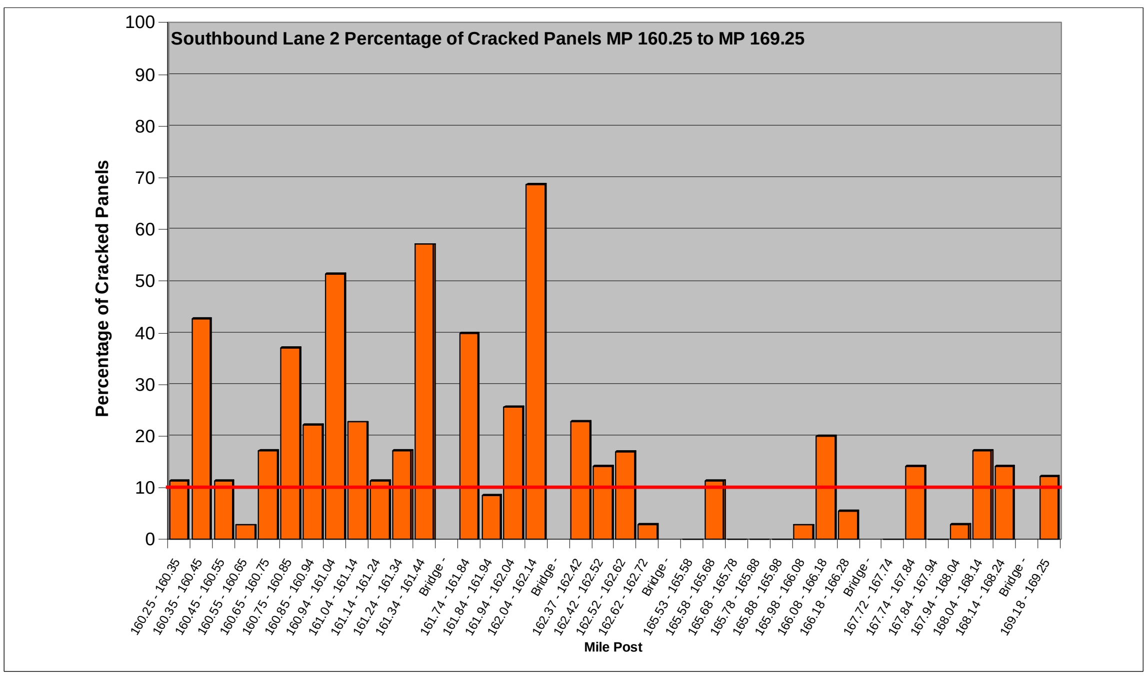
Southbound Lane 1 Percentage of Cracked Panels MP 166.06 to MP 174.14
Percentage of Cracked Panels
Mile Post

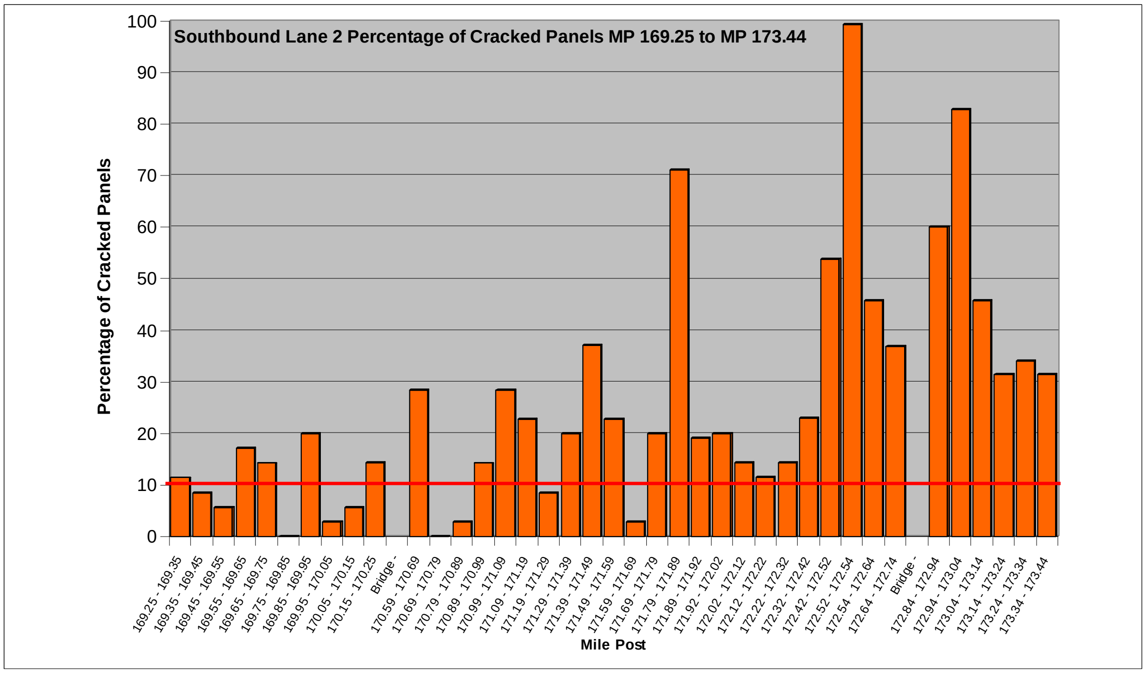
<u>Southbound Lane 2 Percentage of Cracked Panels Plots</u>

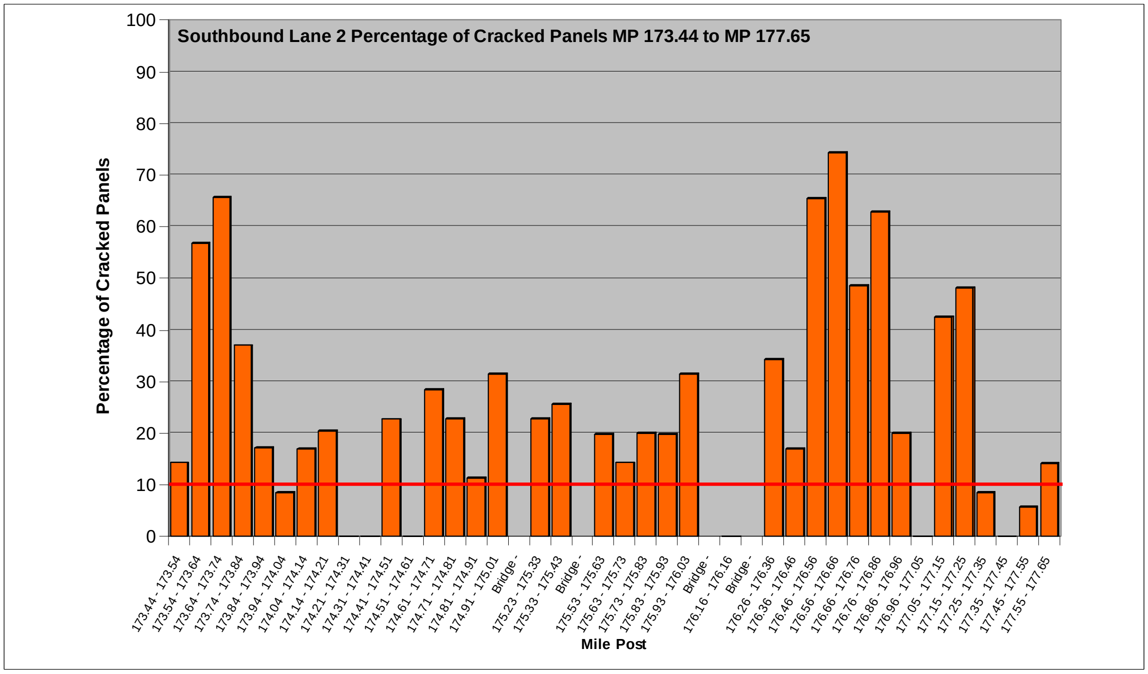




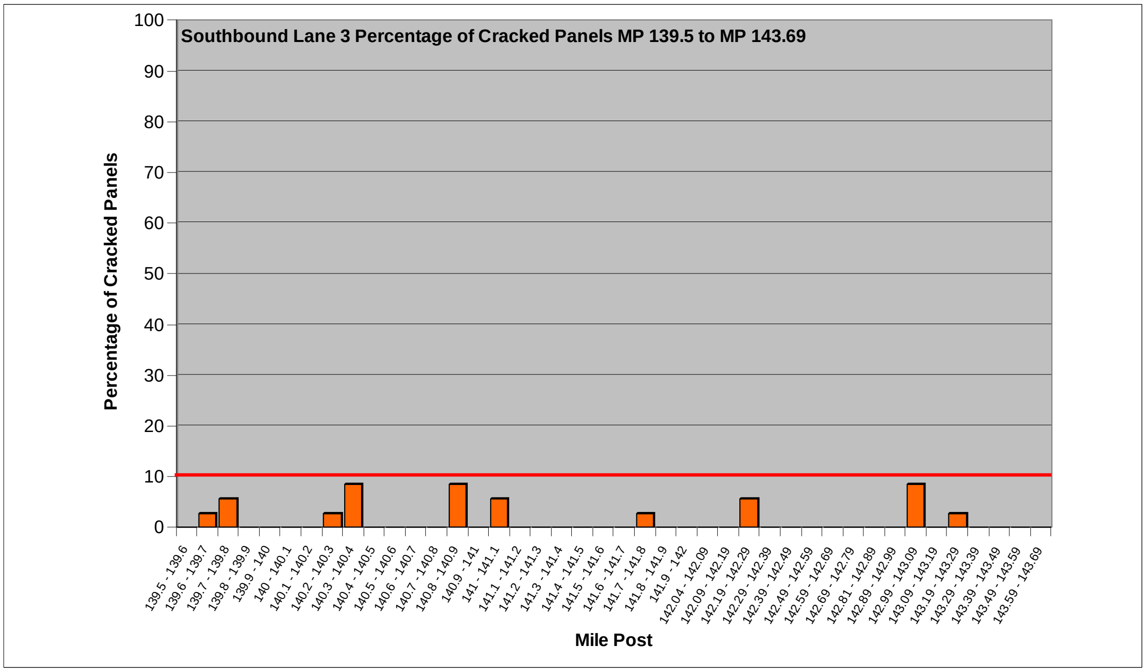

Southbound Lane 2 Percentage of Cracked Panels MP 151.64 to MP 159.95
Percentage of Cracked Panels
100
90
80
70
60
50
40
30
20
10
0
151.64 - 151.74
151.74 - 151.84
151.84 - 151.94
151.94 - 152.04
152.04 - 152.14
152.14 - 152.15
Bridge -
152.35 - 152.45
152.45 - 152.55
152.55 - 152.65
152.65 - 152.75
152.75 - 152.85
152.85 - 152.95
152.95 - 153.05
153.05 - 153.15
153.15 - 153.24
153.24 - 153.34
153.34 - 153.44
153.44 - 153.54
153.54 - 153.64
153.64 - 153.74
153.74 - 153.84
153.84 - 153.94
153.94 - 154.04
154.04 - 154.06
Diamond Ground -
158.5 - 158.6
158.6 - 158.7
158.7 - 158.8
158.8 - 158.9
158.9 - 159
159 - 159.1
159.1 - 159.17
159.17 - 159.27
159.27 - 159.37
159.37 - 159.47
159.47 - 159.57
159.57 - 159.67
159.71 - 159.75
159.75 - 159.85
159.85 - 159.95
Mile Post

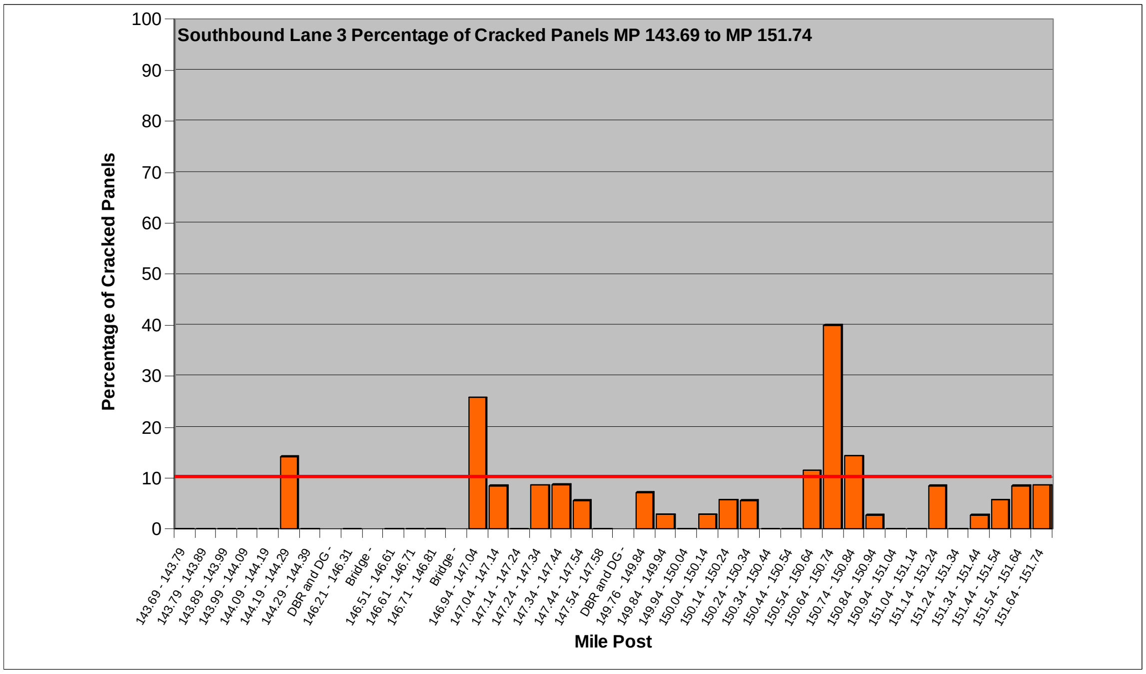

Southbound Lane 2 Percentage of Cracked Panels MP 160.25 to MP 169.25
Percentage of Cracked Panels
100
90
80
70
60
50
40
30
20
10
0
160.25 - 160.35
160.35 - 160.45
160.45 - 160.55
160.55 - 160.65
160.65 - 160.75
160.75 - 160.85
160.85 - 160.94
160.94 - 161.04
161.04 - 161.14
161.14 - 161.24
161.24 - 161.34
161.34 - 161.44
Bridge -
161.74 - 161.84
161.84 - 161.94
161.94 - 162.04
162.04 - 162.14
Bridge -
162.37 - 162.42
162.42 - 162.52
162.52 - 162.62
162.62 - 162.72
Bridge -
165.53 - 165.58
165.58 - 165.68
165.68 - 165.78
165.78 - 165.88
165.88 - 165.98
165.98 - 166.08
166.08 - 166.18
166.18 - 166.28
Bridge -
167.72 - 167.74
167.74 - 167.84
167.84 - 167.94
167.94 - 168.04
168.04 - 168.14
168.14 - 168.24
Bridge -
169.18 - 169.25
Mile Post

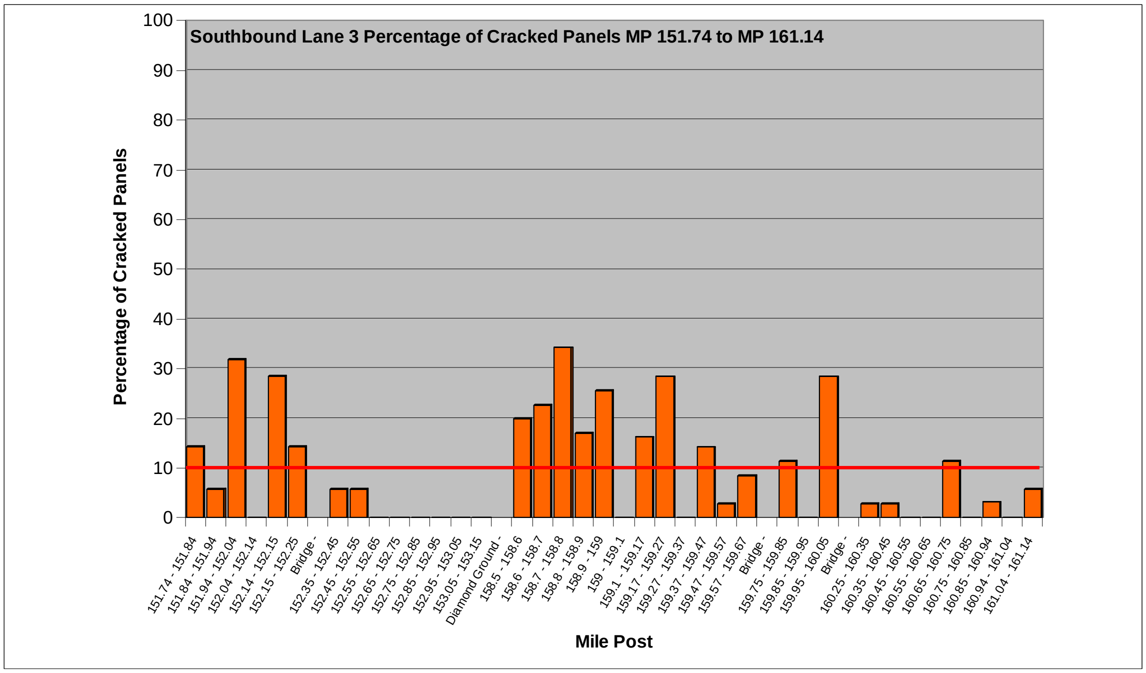

Southbound Lane 2 Percentage of Cracked Panels MP 169.25 to MP 173.44
Percentage of Cracked Panels
Mile Post
0
10
20
30
40
50
60
70
80
90
100
169.25 - 169.35
169.35 - 169.45
169.45 - 169.55
169.55 - 169.65
169.65 - 169.75
169.75 - 169.85
169.85 - 169.95
169.95 - 170.05
170.05 - 170.15
170.15 - 170.25
Bridge -
170.59 - 170.69
170.69 - 170.79
170.79 - 170.89
170.89 - 170.99
170.99 - 171.09
171.09 - 171.19
171.19 - 171.29
171.29 - 171.39
171.39 - 171.49
171.49 - 171.59
171.59 - 171.69
171.69 - 171.79
171.79 - 171.89
171.89 - 171.92
171.92 - 172.02
172.02 - 172.12
172.12 - 172.22
172.22 - 172.32
172.32 - 172.42
172.42 - 172.52
172.52 - 172.54
172.54 - 172.64
172.64 - 172.74
Bridge -
172.84 - 172.94
172.94 - 173.04
173.04 - 173.14
173.14 - 173.24
173.24 - 173.34
173.34 - 173.44

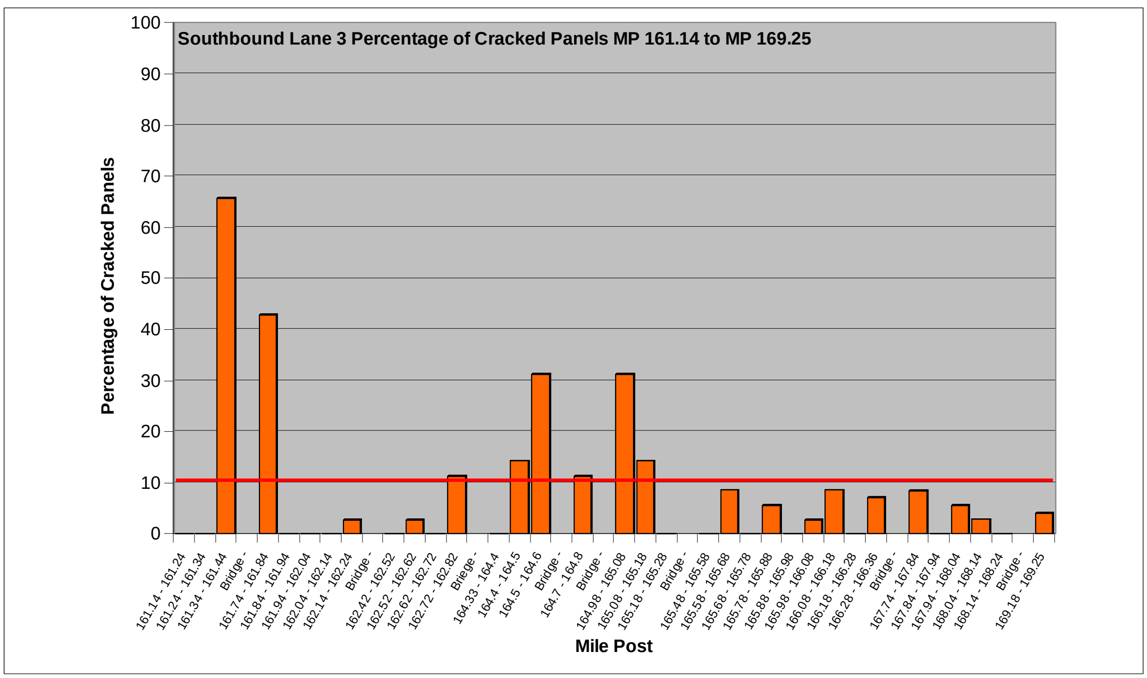

Southbound Lane 2 Percentage of Cracked Panels MP 173.44 to MP 177.65
Percentage of Cracked Panels
Mile Post
0
10
20
30
40
50
60
70
80
90
100
173.44 - 173.54
173.54 - 173.64
173.64 - 173.74
173.74 - 173.84
173.84 - 173.94
173.94 - 174.04
174.04 - 174.14
174.14 - 174.21
174.21 - 174.31
174.31 - 174.41
174.41 - 174.51
174.51 - 174.61
174.61 - 174.71
174.71 - 174.81
174.81 - 174.91
174.91 - 175.01
Bridge -
175.23 - 175.33
175.33 - 175.43
Bridge -
175.53 - 175.63
175.63 - 175.73
175.73 - 175.83
175.83 - 175.93
175.93 - 176.03
Bridge -
176.16 - 176.16
Bridge -
176.26 - 176.36
176.36 - 176.46
176.46 - 176.56
176.56 - 176.66
176.66 - 176.76
176.76 - 176.86
176.86 - 176.96
176.96 - 177.05
177.05 - 177.15
177.15 - 177.25
177.25 - 177.35
177.35 - 177.45
177.45 - 177.55
177.55 - 177.65

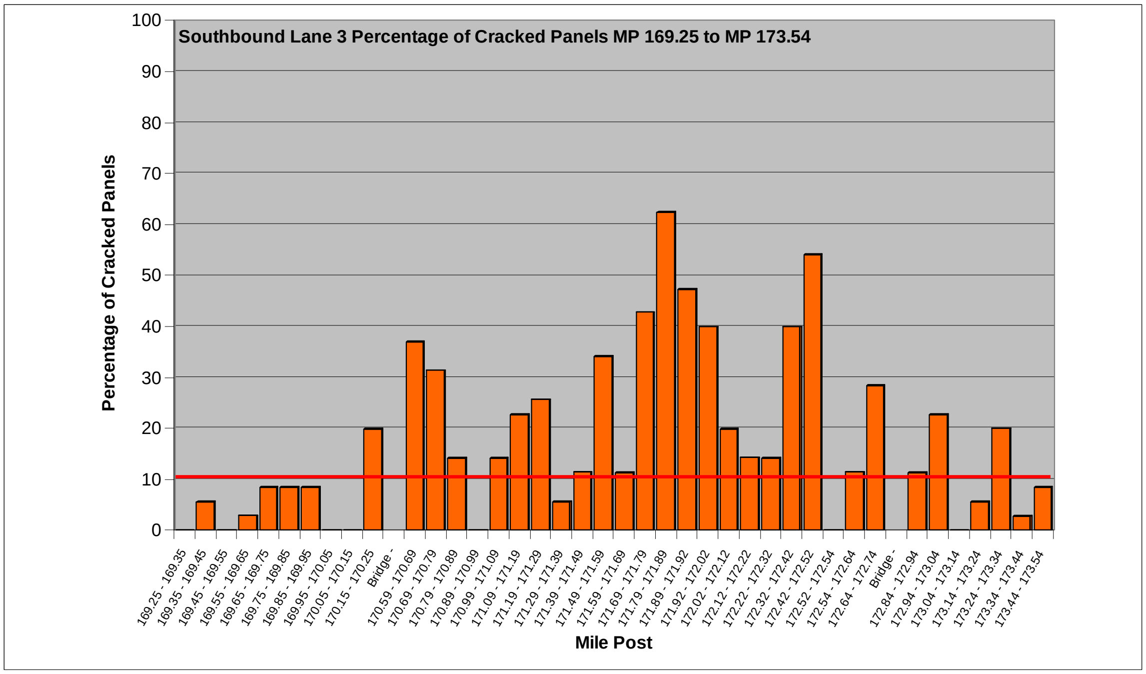
<u>Southbound Lane 3 Percentage of Cracked Panels Plots</u>

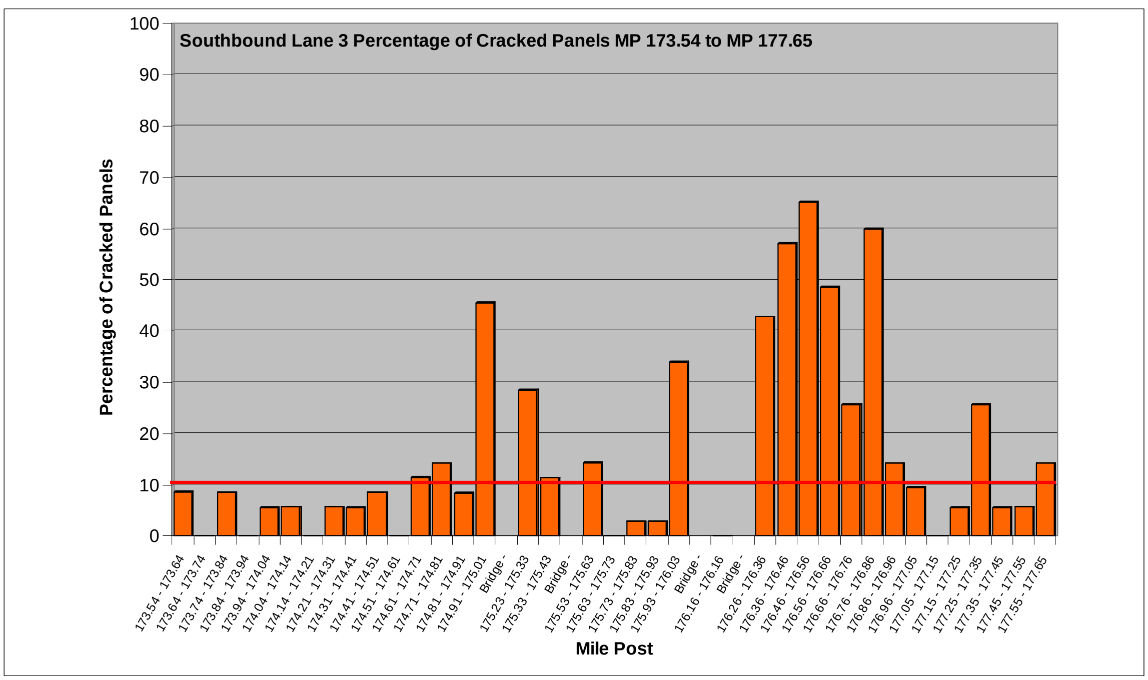




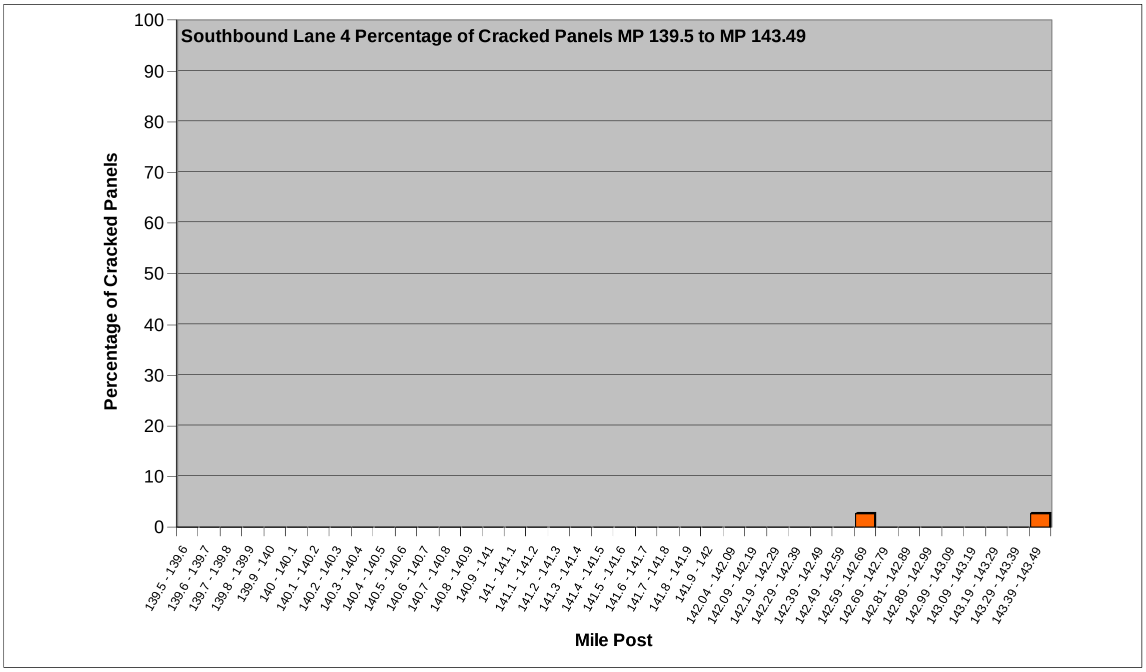

Southbound Lane 3 Percentage of Cracked Panels MP 151.74 to MP 161.14
Percentage of Cracked Panels
100
90
80
70
60
50
40
30
20
10
0
151.74 - 151.84
151.84 - 151.94
151.94 - 152.04
152.04 - 152.14
152.14 - 152.15
152.15 - 152.25
Bridge -
152.35 - 152.45
152.45 - 152.55
152.55 - 152.65
152.65 - 152.75
152.75 - 152.85
152.85 - 152.95
152.95 - 153.05
153.05 - 153.15
Diamond Ground -
158.5 - 158.6
158.6 - 158.7
158.7 - 158.8
158.8 - 158.9
158.9 - 159
159 - 159.1
159.1 - 159.17
159.17 - 159.27
159.27 - 159.37
159.37 - 159.47
159.47 - 159.57
159.57 - 159.67
Bridge -
159.75 - 159.85
159.85 - 159.95
159.95 - 160.05
Bridge -
160.25 - 160.35
160.35 - 160.45
160.45 - 160.55
160.55 - 160.65
160.65 - 160.75
160.75 - 160.85
160.85 - 160.94
160.94 - 161.04
161.04 - 161.14
Mile Post

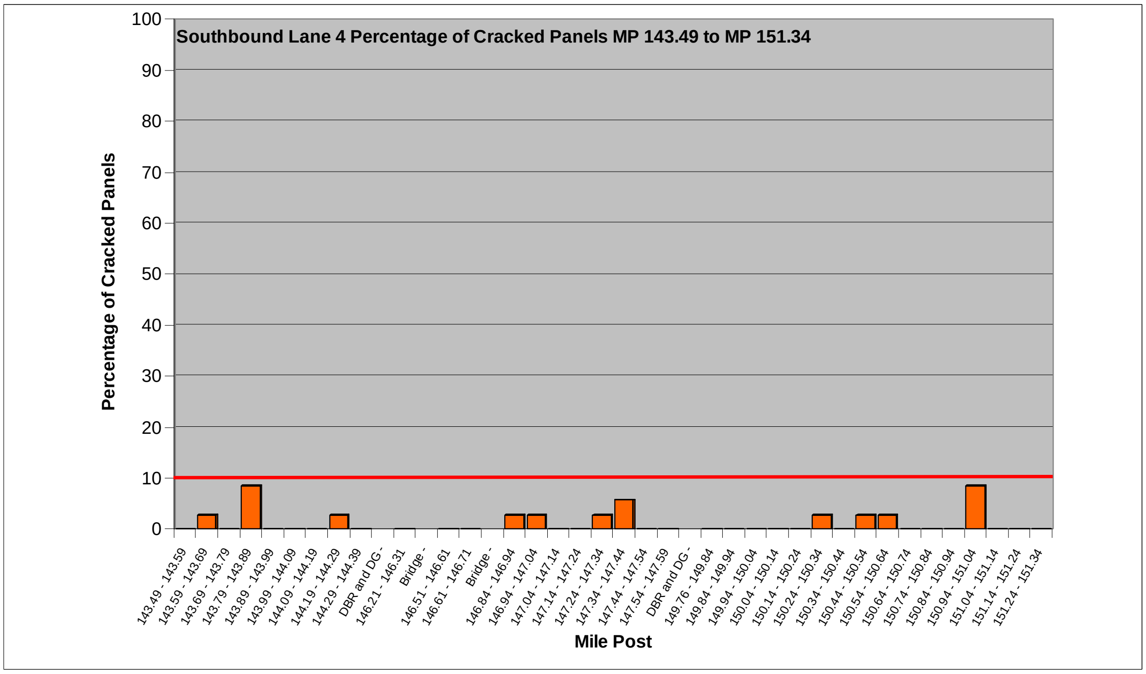

Southbound Lane 3 Percentage of Cracked Panels MP 161.14 to MP 169.25
Percentage of Cracked Panels
100
90
80
70
60
50
40
30
20
10
0
161.14 - 161.24
161.24 - 161.34
161.34 - 161.44
Bridge -
161.74 - 161.84
161.84 - 161.94
161.94 - 162.04
162.04 - 162.14
162.14 - 162.24
Bridge -
162.42 - 162.52
162.52 - 162.62
162.62 - 162.72
162.72 - 162.82
Briege -
164.33 - 164.4
164.4 - 164.5
164.5 - 164.6
Bridge -
164.7 - 164.8
Bridge -
164.98 - 165.08
165.08 - 165.18
165.18 - 165.28
Bridge -
165.48 - 165.58
165.58 - 165.68
165.68 - 165.78
165.78 - 165.88
165.88 - 165.98
165.98 - 166.08
166.08 - 166.18
166.18 - 166.28
166.28 - 166.36
Bridge -
167.74 - 167.84
167.84 - 167.94
167.94 - 168.04
168.04 - 168.14
168.14 - 168.24
Bridge -
169.18 - 169.25
Mile Post

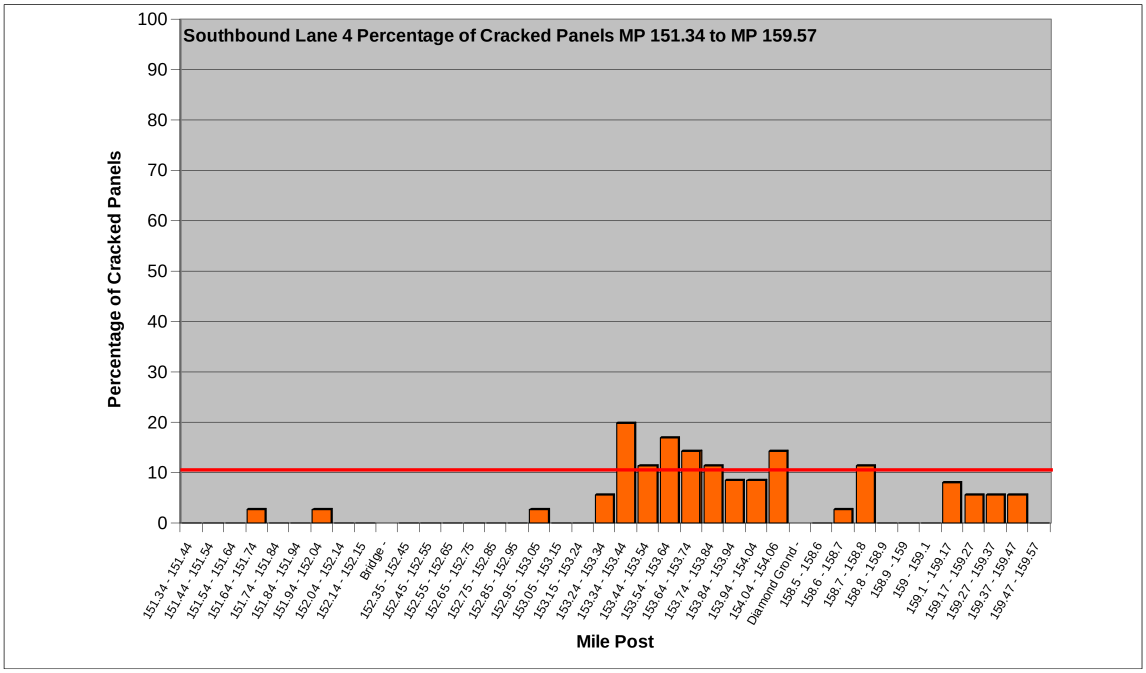

Southbound Lane 3 Percentage of Cracked Panels MP 169.25 to MP 173.54
Percentage of Cracked Panels
Mile Post

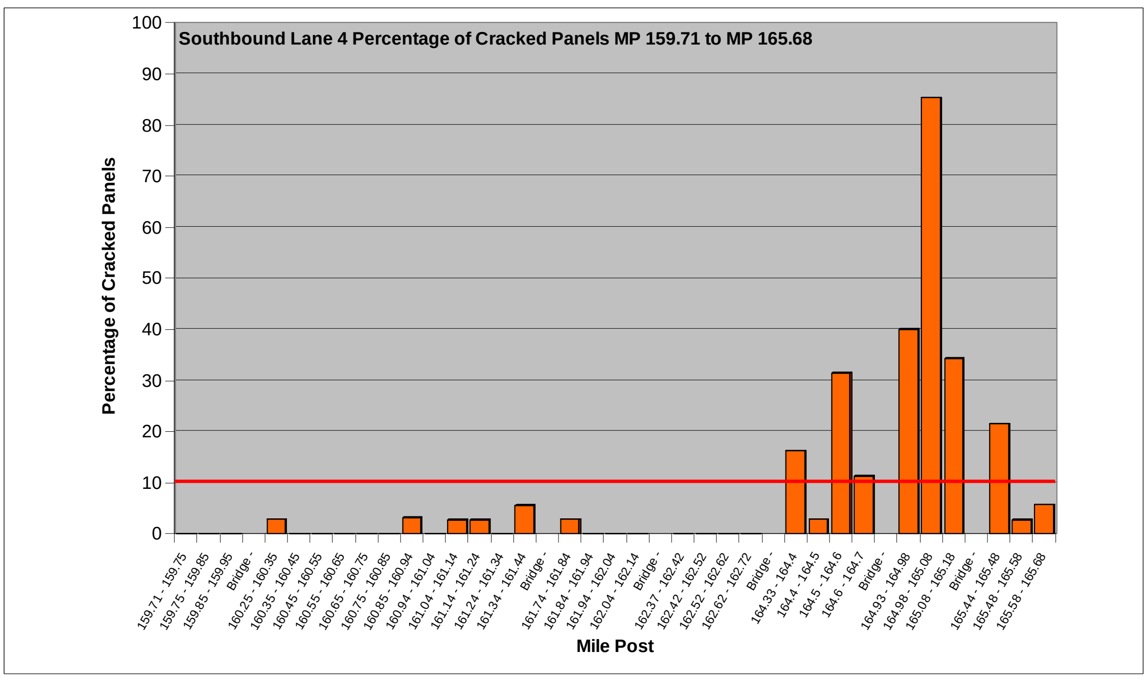

Southbound Lane 3 Percentage of Cracked Panels MP 173.54 to MP 177.65
Percentage of Cracked Panels
Mile Post

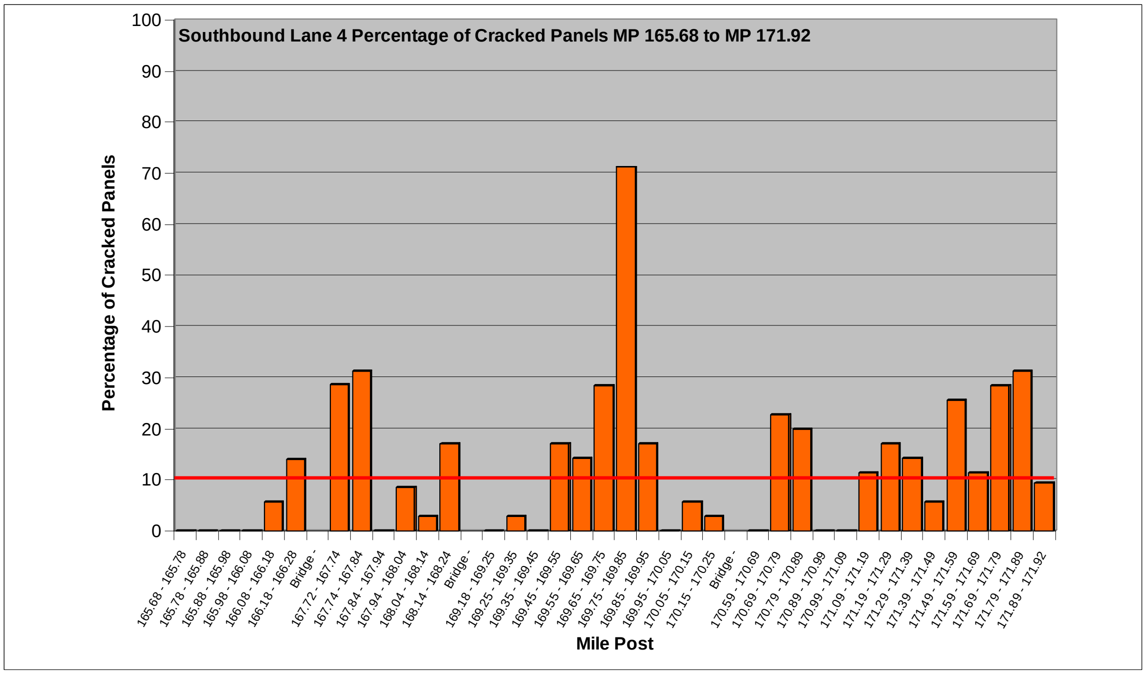
Southbound Lane 4 Percentage of Cracked Panels Plots

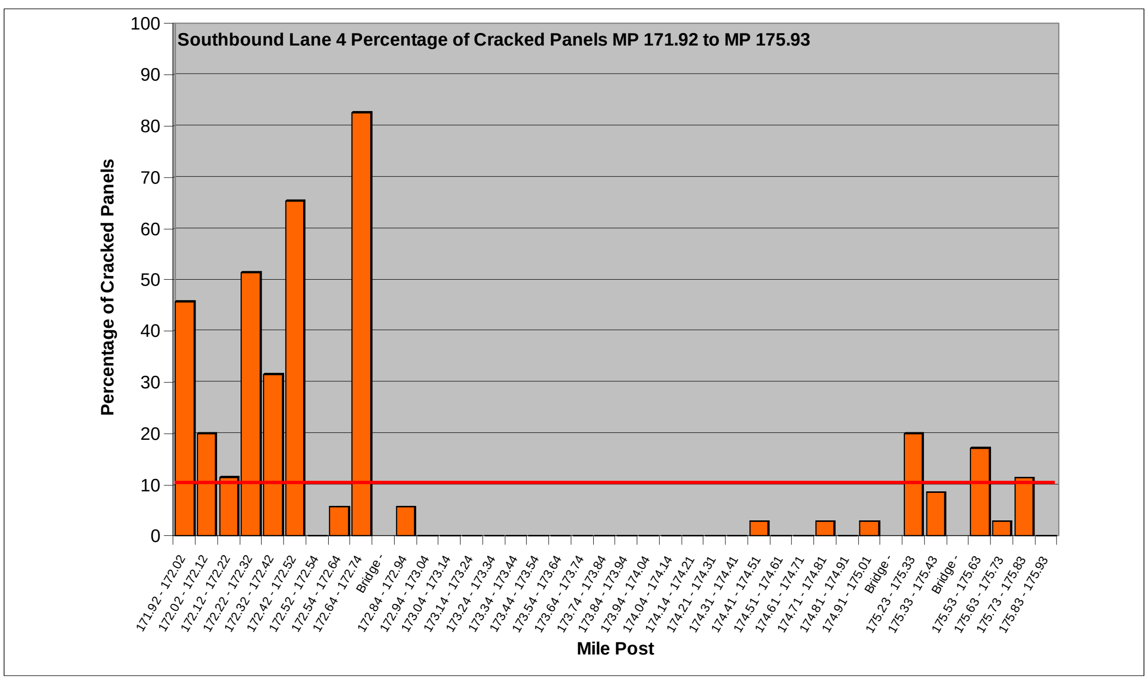


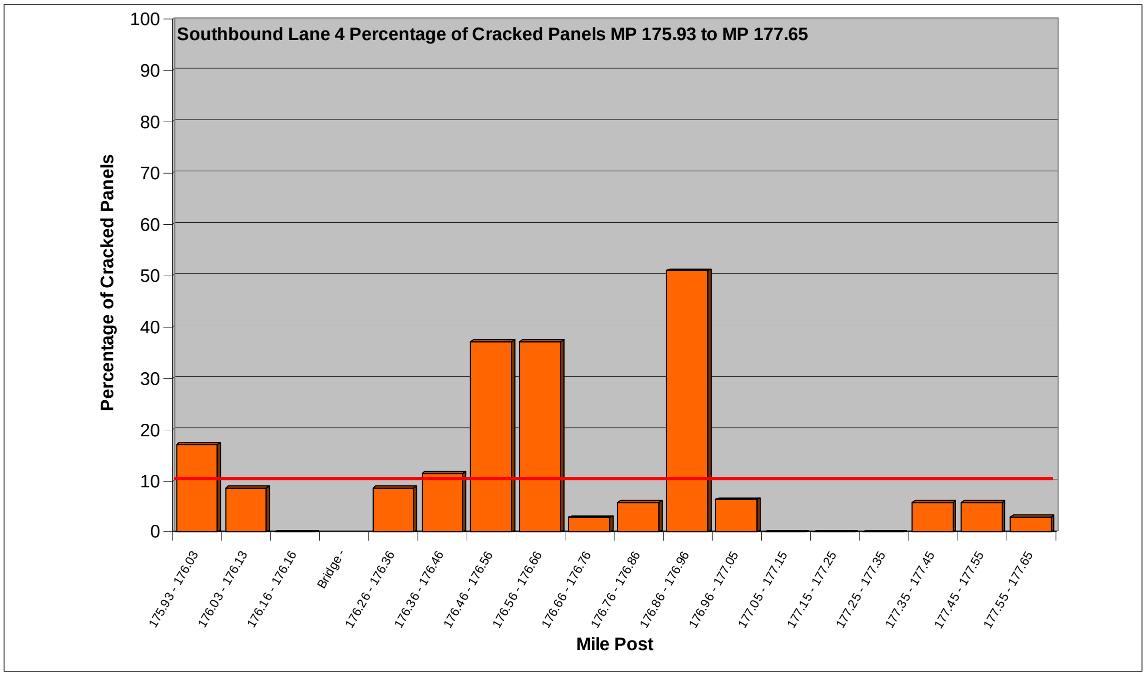



Southbound Lane 4 Percentage of Cracked Panels MP 151.34 to MP 159.57
Percentage of Cracked Panels
Mile Post


Southbound Lane 4 Percentage of Cracked Panels MP 159.71 to MP 165.68
Percentage of Cracked Panels
Mile Post

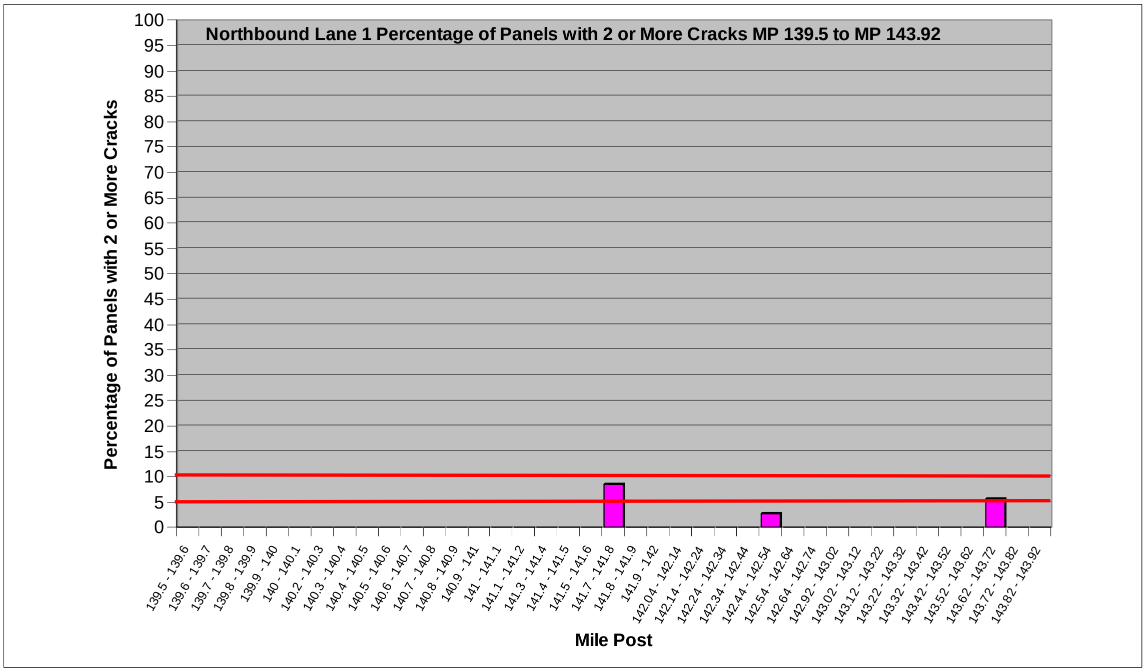

Southbound Lane 4 Percentage of Cracked Panels MP 165.68 to MP 171.92
Percentage of Cracked Panels
Mile Post

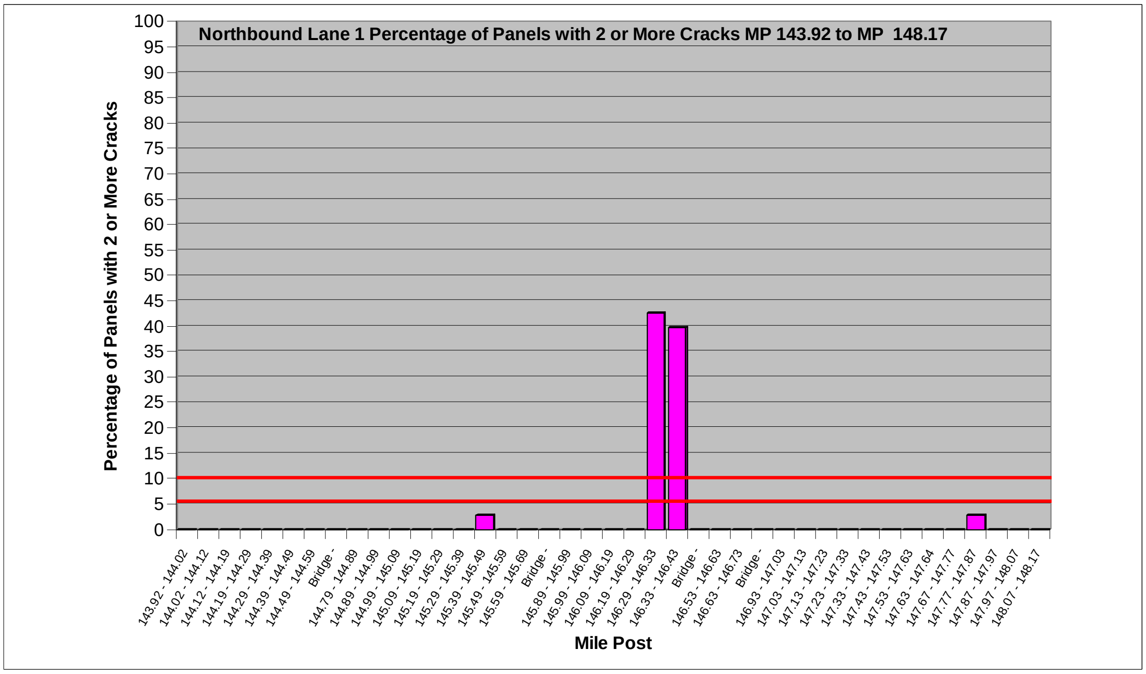

Southbound Lane 4 Percentage of Cracked Panels MP 171.92 to MP 175.93
Percentage of Cracked Panels
Mile Post

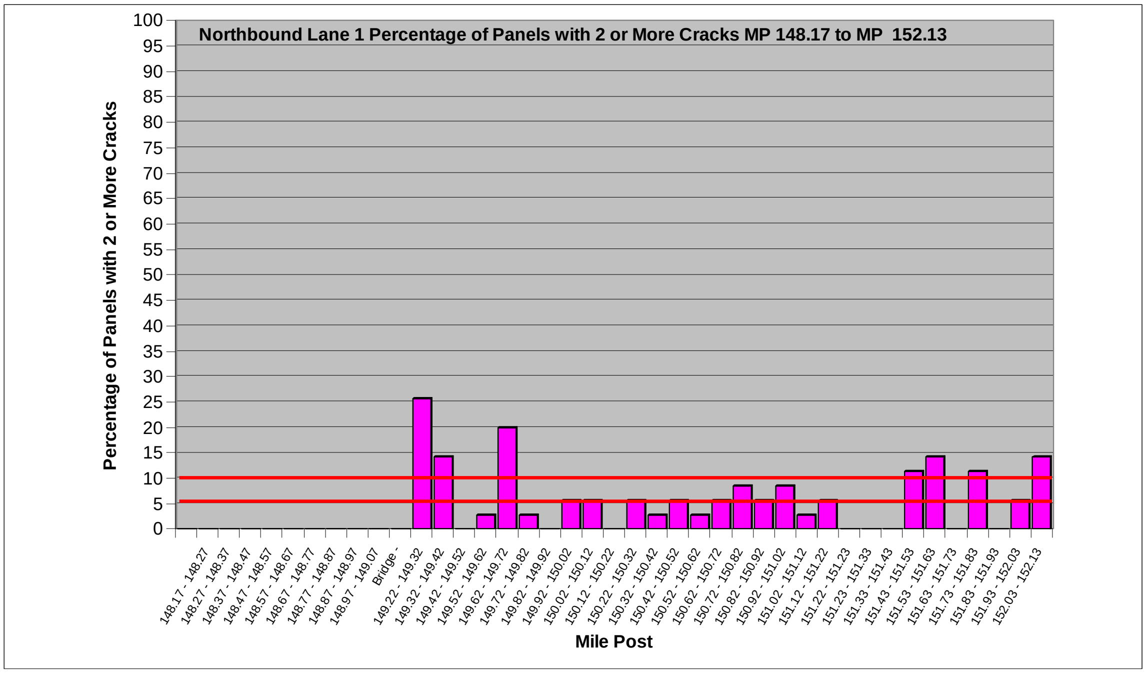

Southbound Lane 4 Percentage of Cracked Panels MP 175.93 to MP 177.65
Percentage of Cracked Panels
100
90
80
70
60
50
40
30
20
10
0
175.93 - 176.03
176.03 - 176.13
176.16 - 176.16
Bridge -
176.26 - 176.36
176.36 - 176.46
176.46 - 176.56
176.56 - 176.66
176.66 - 176.76
176.76 - 176.86
176.86 - 176.96
176.96 - 177.05
177.05 - 177.15
177.15 - 177.25
177.25 - 177.35
177.35 - 177.45
177.45 - 177.55
177.55 - 177.65
Mile Post

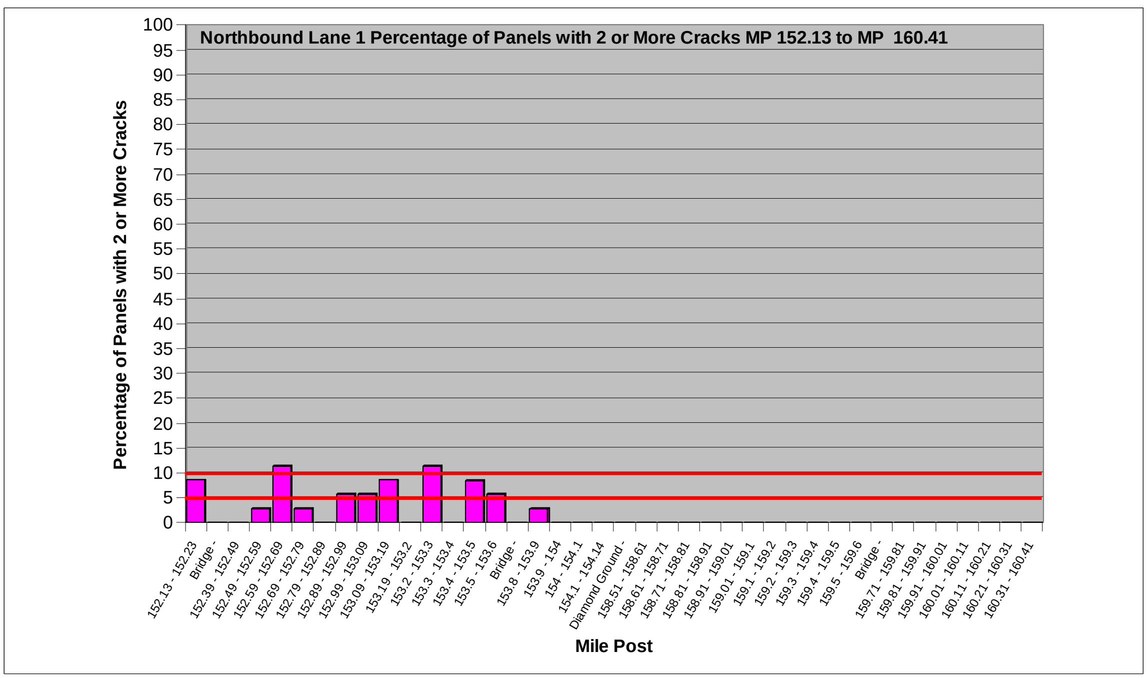
Appendix M –
Percentage of Panels with Two or More Cracks Distress Plots

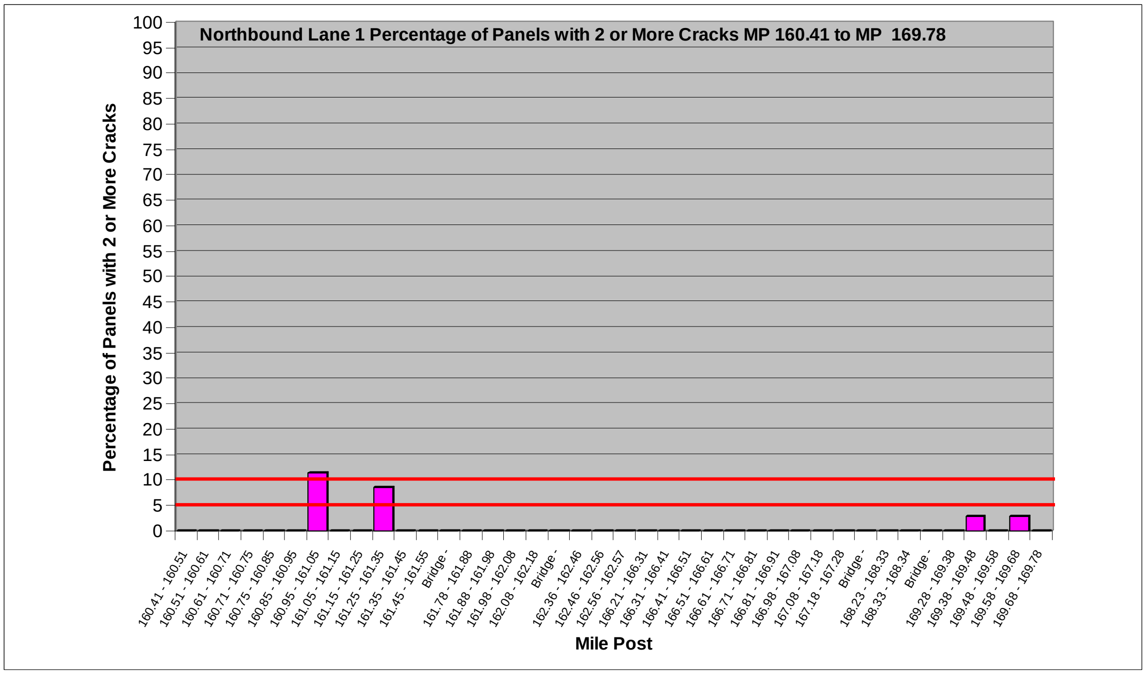
Northbound Lane 1 Percentage of Panels with 2 or More Cracks Plots

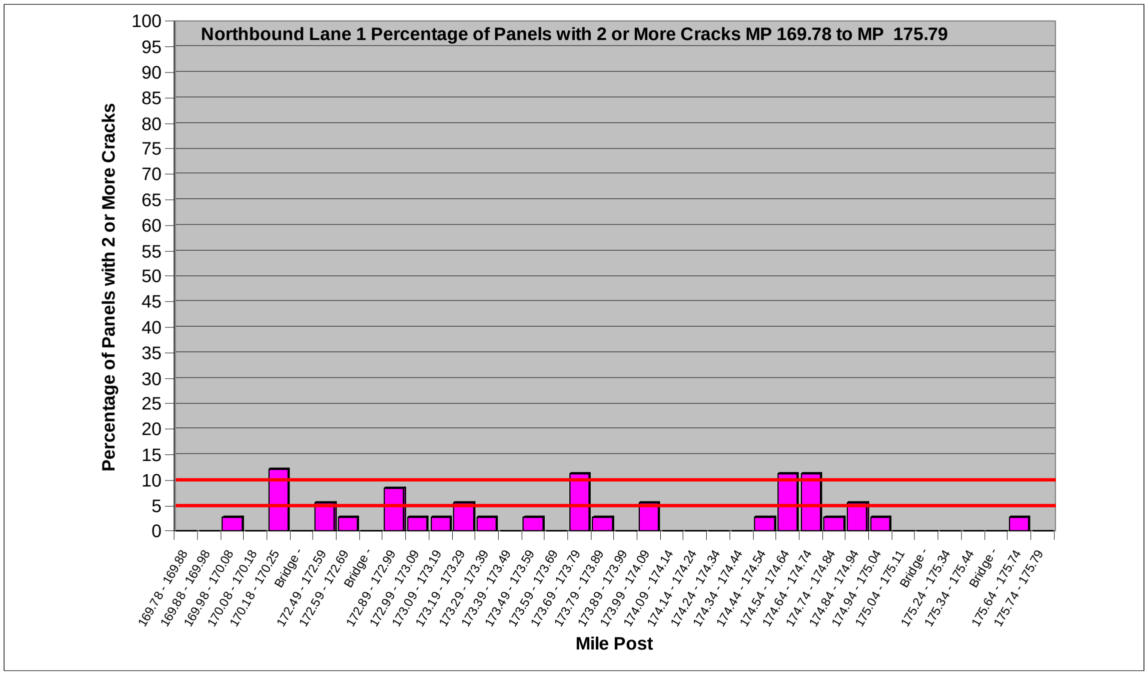




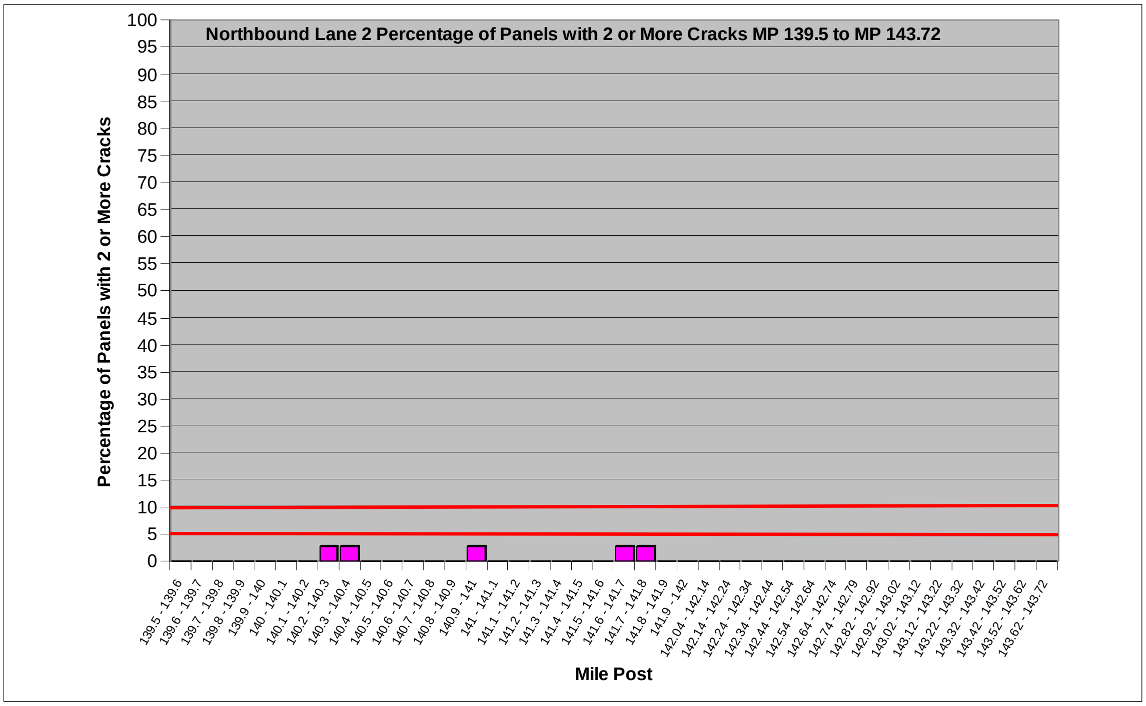

Northbound Lane 1 Percentage of Panels with 2 or More Cracks MP 148.17 to MP 152.13
Percentage of Panels with 2 or More Cracks
100 95 90 85 80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0
148.17 - 148.27
148.27 - 148.37
148.37 - 148.47
148.47 - 148.57
148.57 - 148.67
148.67 - 148.77
148.77 - 148.87
148.87 - 148.97
148.97 - 149.07
Bridge -
149.22 - 149.32
149.32 - 149.42
149.42 - 149.52
149.52 - 149.62
149.62 - 149.72
149.72 - 149.82
149.82 - 149.92
149.92 - 150.02
150.02 - 150.12
150.12 - 150.22
150.22 - 150.32
150.32 - 150.42
150.42 - 150.52
150.52 - 150.62
150.62 - 150.72
150.72 - 150.82
150.82 - 150.92
150.92 - 151.02
151.02 - 151.12
151.12 - 151.22
151.22 - 151.23
151.23 - 151.33
151.33 - 151.43
151.43 - 151.53
151.53 - 151.63
151.63 - 151.73
151.73 - 151.83
151.83 - 151.93
151.93 - 152.03
152.03 - 152.13
Mile Post

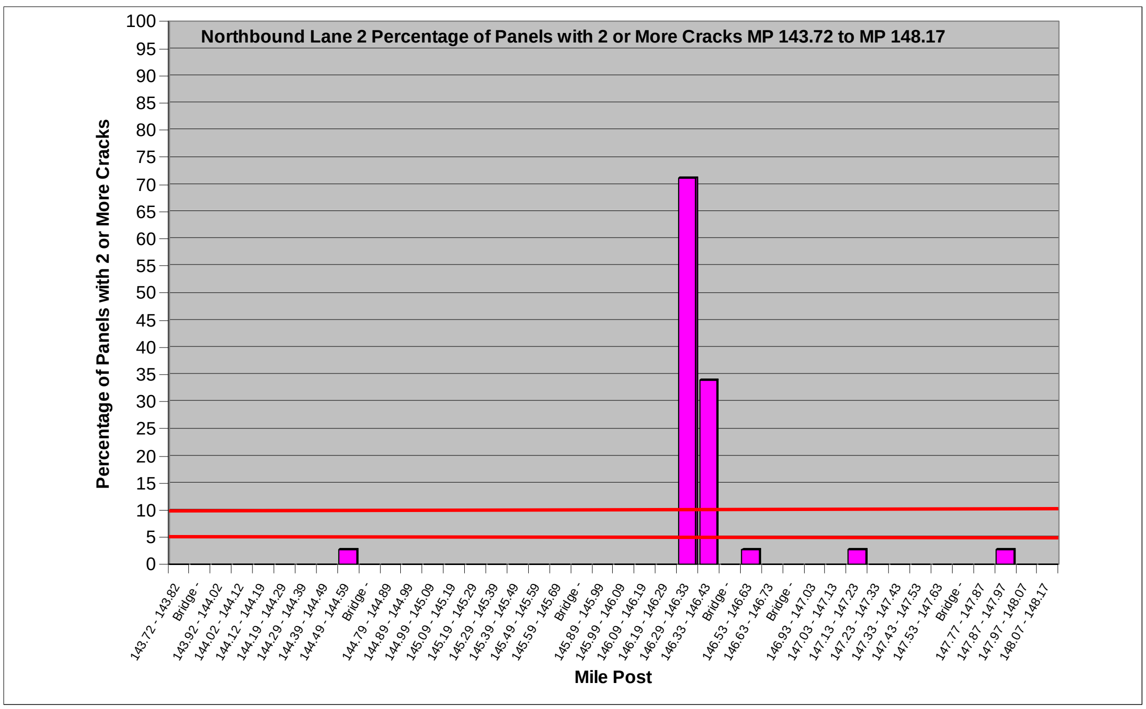

Northbound Lane 1 Percentage of Panels with 2 or More Cracks MP 152.13 to MP 160.41
Percentage of Panels with 2 or More Cracks
100 95 90 85 80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0
152.13 - 152.23
Bridge -
152.39 - 152.49
152.49 - 152.59
152.59 - 152.69
152.69 - 152.79
152.79 - 152.89
152.89 - 152.99
152.99 - 153.09
153.09 - 153.19
153.19 - 153.2
153.2 - 153.3
153.3 - 153.4
153.4 - 153.5
153.5 - 153.6
Bridge -
153.8 - 153.9
153.9 - 154
154 - 154.1
154.1 - 154.14
Diamond Ground -
158.51 - 158.61
158.61 - 158.71
158.71 - 158.81
158.81 - 158.91
158.91 - 159.01
159.01 - 159.1
159.1 - 159.2
159.2 - 159.3
159.3 - 159.4
159.4 - 159.5
159.5 - 159.6
Bridge -
159.71 - 159.81
159.81 - 159.91
159.91 - 160.01
160.01 - 160.11
160.11 - 160.21
160.21 - 160.31
160.31 - 160.41
Mile Post

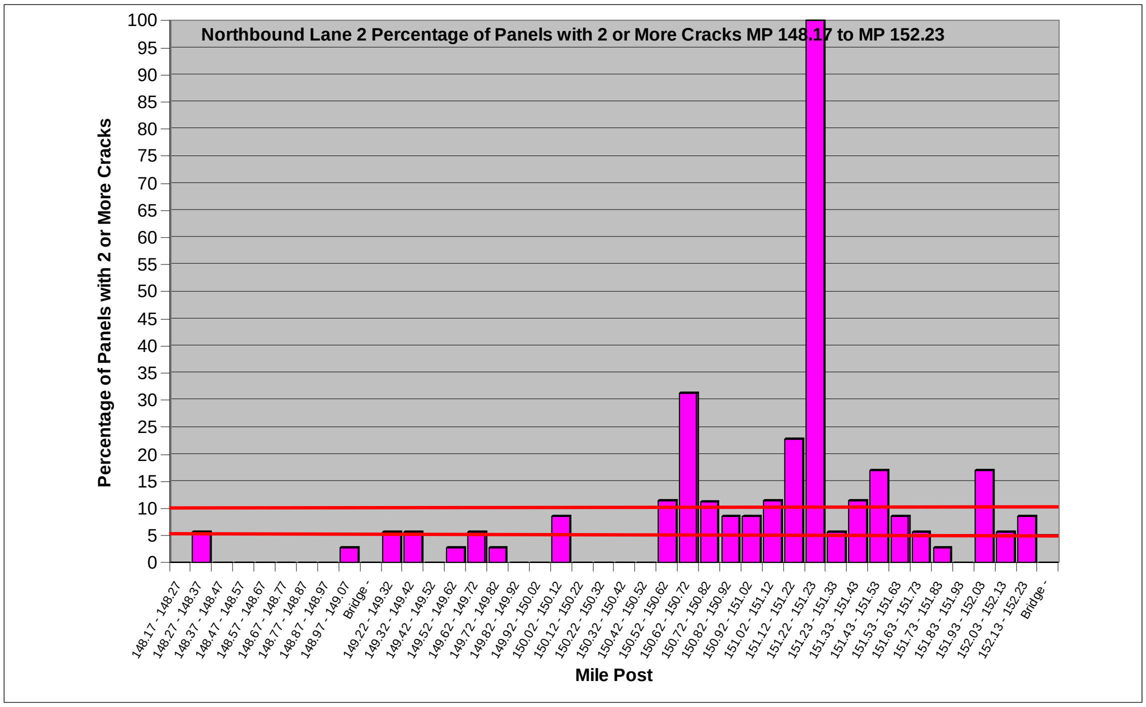

Northbound Lane 1 Percentage of Panels with 2 or More Cracks MP 160.41 to MP 169.78
Percentage of Panels with 2 or More Cracks
Mile Post


Northbound Lane 1 Percentage of Panels with 2 or More Cracks MP 169.78 to MP 175.79
Percentage of Panels with 2 or More Cracks
Mile Post

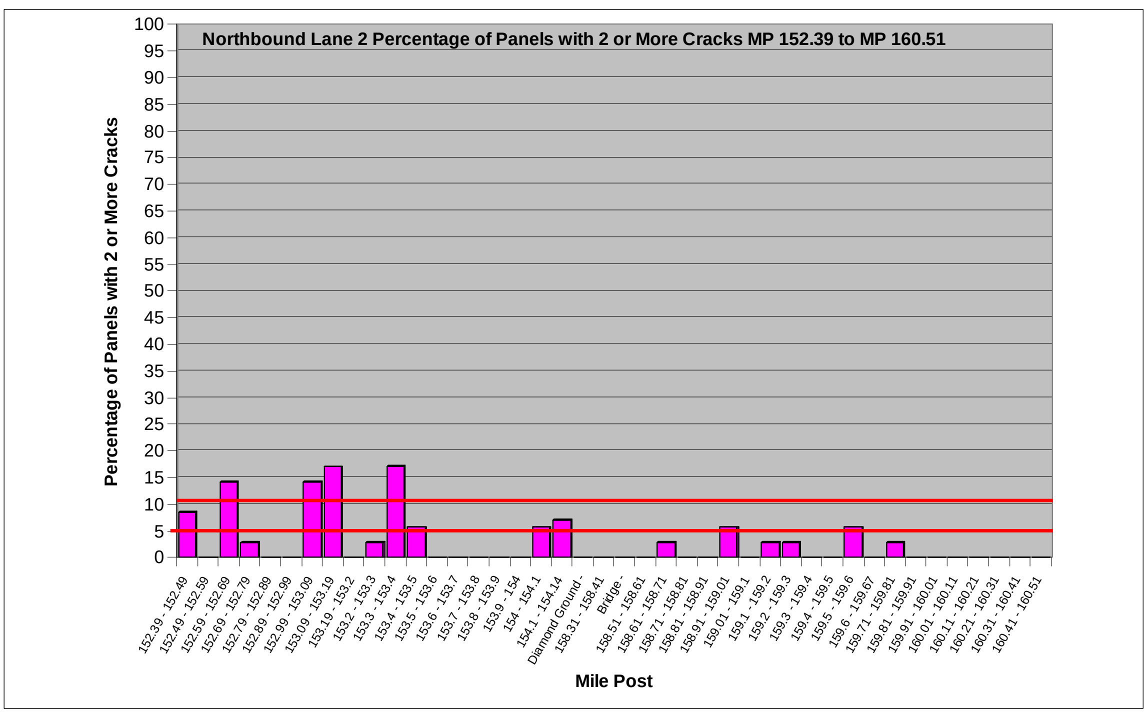
Northbound Lane 2 Percentage of Panels with 2 or More Cracks Plots



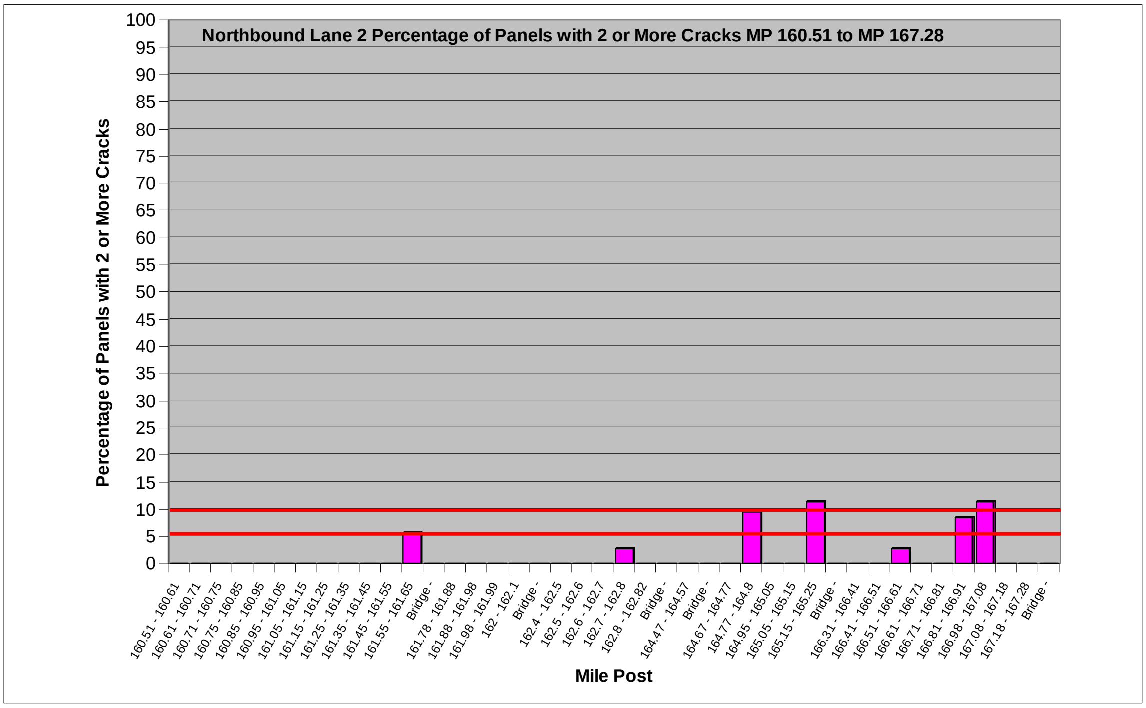


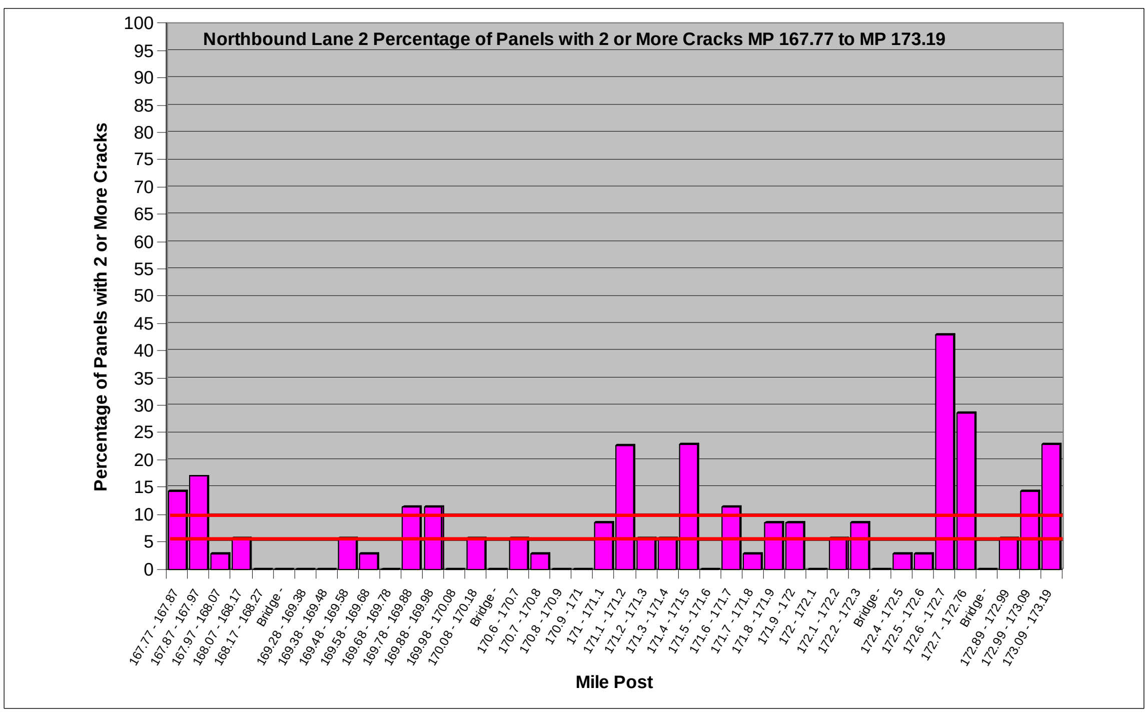


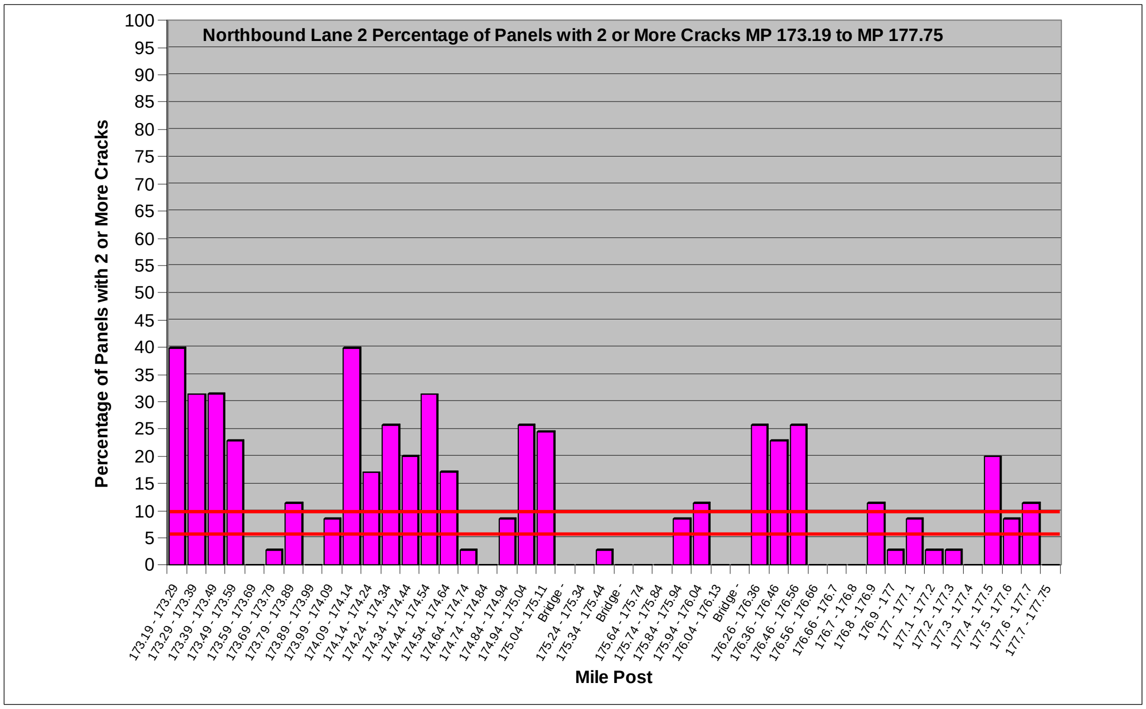
Northbound Lane 2 Percentage of Panels with 2 or More Cracks MP 148.17 to MP 152.23
Percentage of Panels with 2 or More Cracks
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
148.17 - 148.27
148.27 - 148.37
148.37 - 148.47
148.47 - 148.57
148.57 - 148.67
148.67 - 148.77
148.77 - 148.87
148.87 - 148.97
148.97 - 149.07
Bridge -
149.22 - 149.32
149.32 - 149.42
149.42 - 149.52
149.52 - 149.62
149.62 - 149.72
149.72 - 149.82
149.82 - 149.92
149.92 - 150.02
150.02 - 150.12
150.12 - 150.22
150.22 - 150.32
150.32 - 150.42
150.42 - 150.52
150.52 - 150.62
150.62 - 150.72
150.72 - 150.82
150.82 - 150.92
150.92 - 151.02
151.02 - 151.12
151.12 - 151.22
151.22 - 151.23
151.23 - 151.33
151.33 - 151.43
151.43 - 151.53
151.53 - 151.63
151.63 - 151.73
151.73 - 151.83
151.83 - 151.93
151.93 - 152.03
152.03 - 152.13
152.13 - 152.23
Bridge -
Mile Post



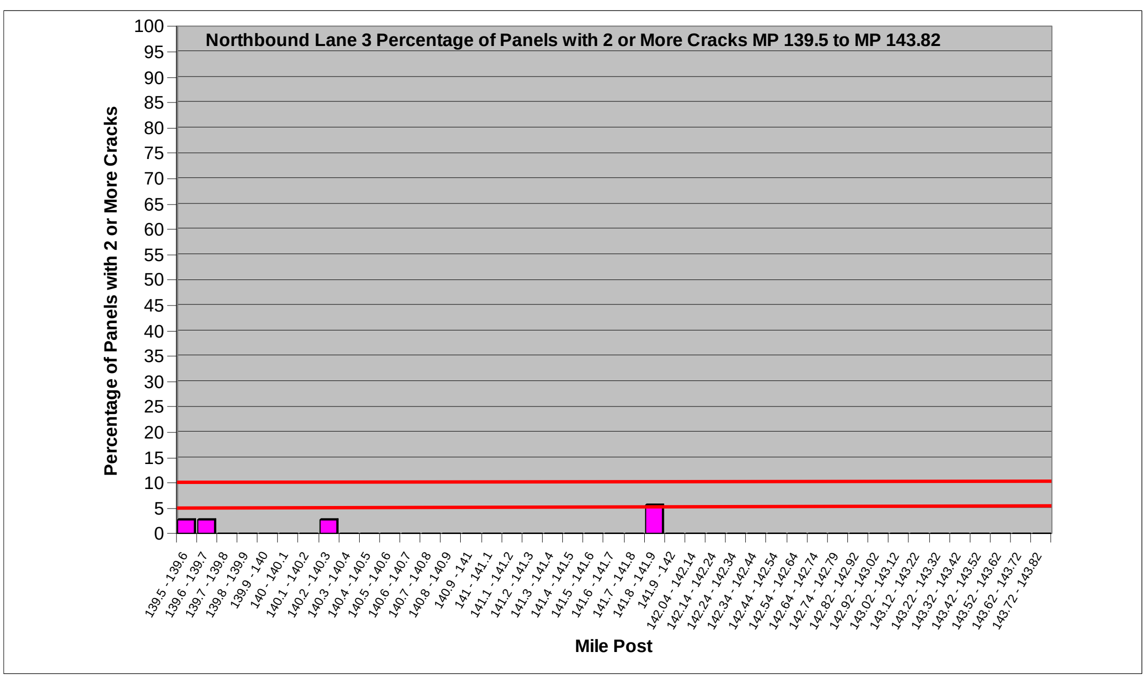
Northbound Lane 2 Percentage of Panels with 2 or More Cracks MP 152.39 to MP 160.51
Percentage of Panels with 2 or More Cracks
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
152.39 - 152.49
152.49 - 152.59
152.59 - 152.69
152.69 - 152.79
152.79 - 152.89
152.89 - 152.99
152.99 - 153.09
153.09 - 153.19
153.19 - 153.2
153.2 - 153.3
153.3 - 153.4
153.4 - 153.5
153.5 - 153.6
153.6 - 153.7
153.7 - 153.8
153.8 - 153.9
153.9 - 154
154 - 154.1
154.1 - 154.14
Diamond Ground -
158.31 - 158.41
Bridge -
158.51 - 158.61
158.61 - 158.71
158.71 - 158.81
158.81 - 158.91
158.91 - 159.01
159.01 - 159.1
159.1 - 159.2
159.2 - 159.3
159.3 - 159.4
159.4 - 159.5
159.5 - 159.6
159.6 - 159.67
159.71 - 159.81
159.81 - 159.91
159.91 - 160.01
160.01 - 160.11
160.11 - 160.21
160.21 - 160.31
160.31 - 160.41
160.41 - 160.51
Mile Post

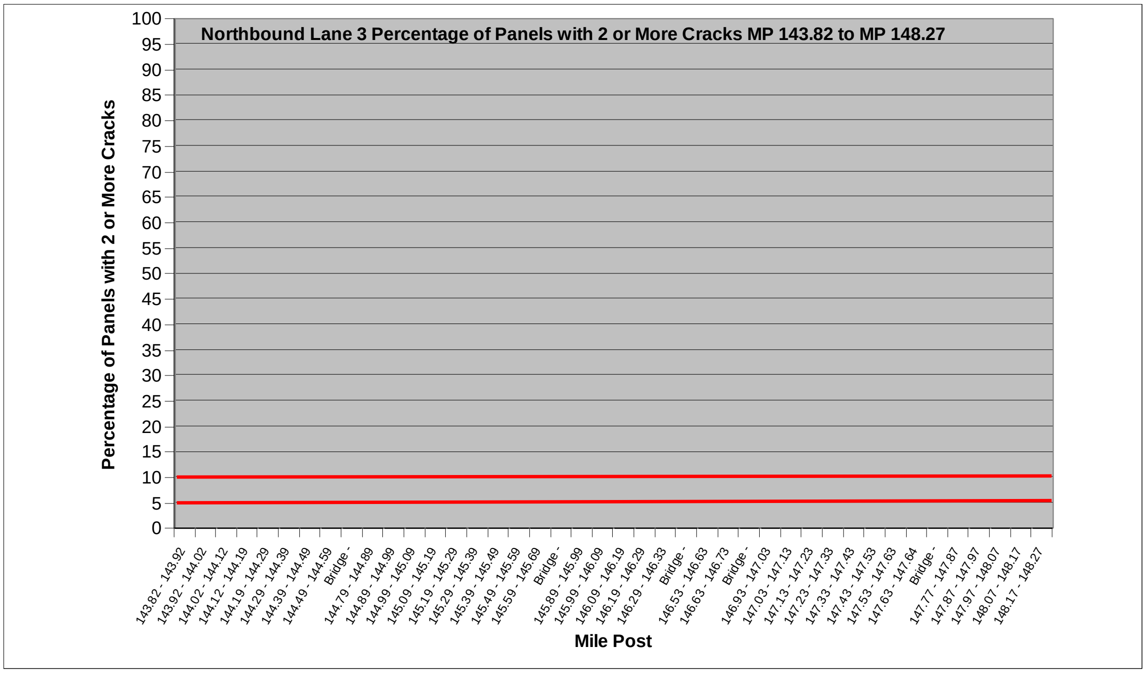

Northbound Lane 2 Percentage of Panels with 2 or More Cracks MP 160.51 to MP 167.28
Percentage of Panels with 2 or More Cracks
Mile Post

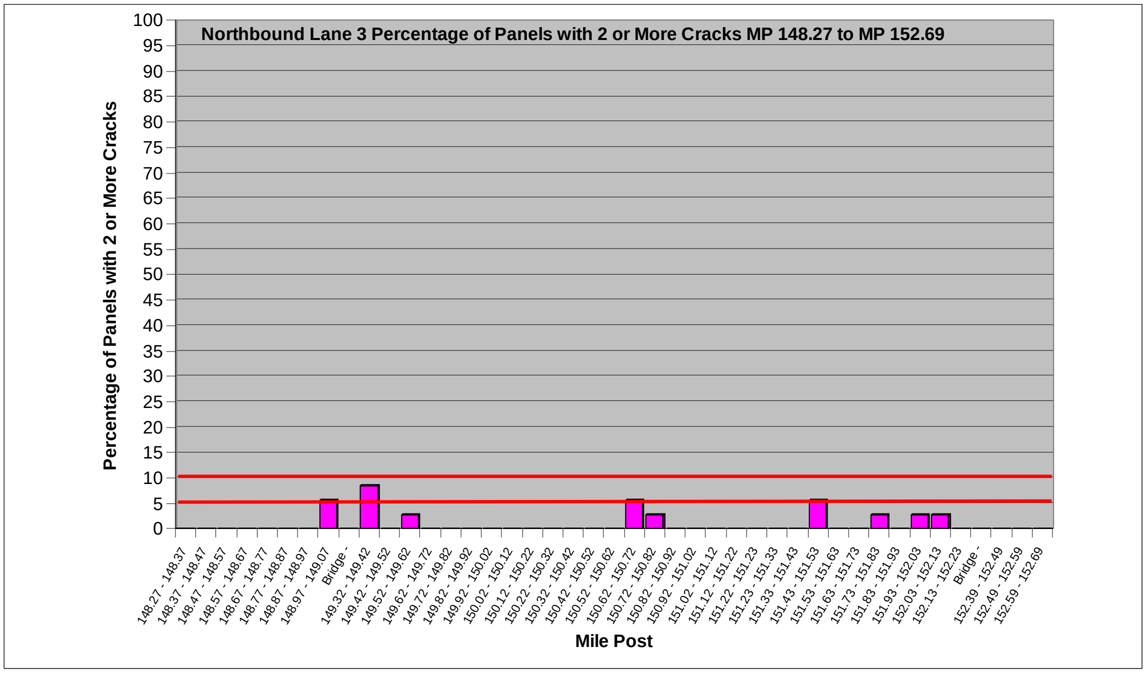

Northbound Lane 2 Percentage of Panels with 2 or More Cracks MP 167.77 to MP 173.19
Percentage of Panels with 2 or More Cracks
Mile Post

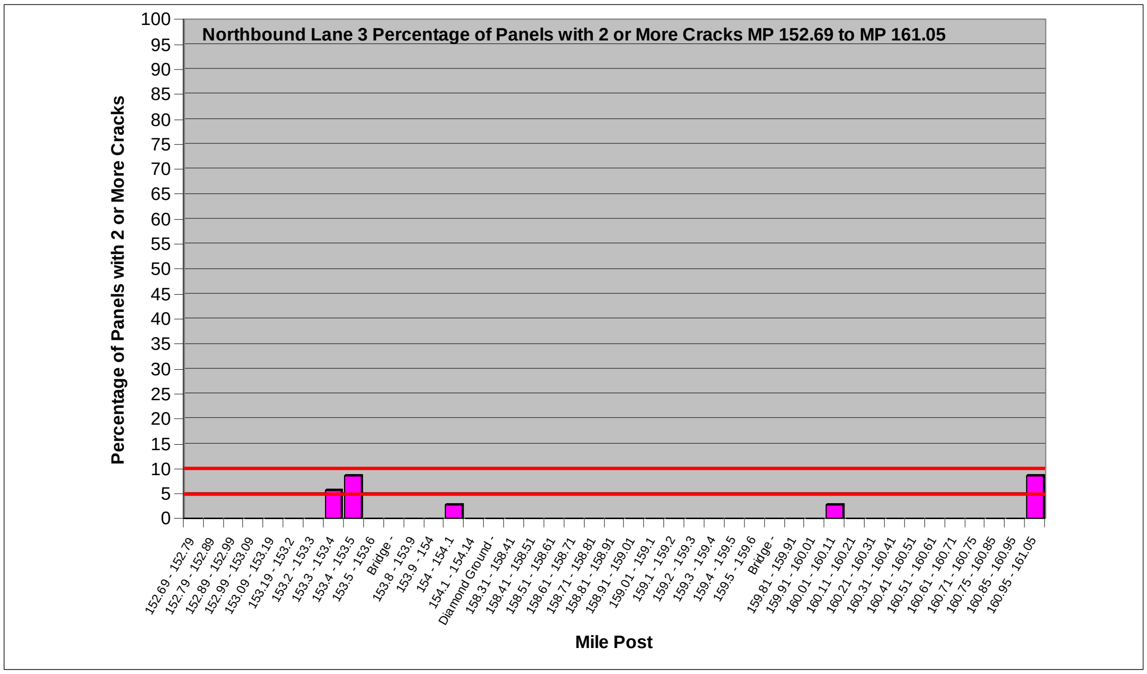


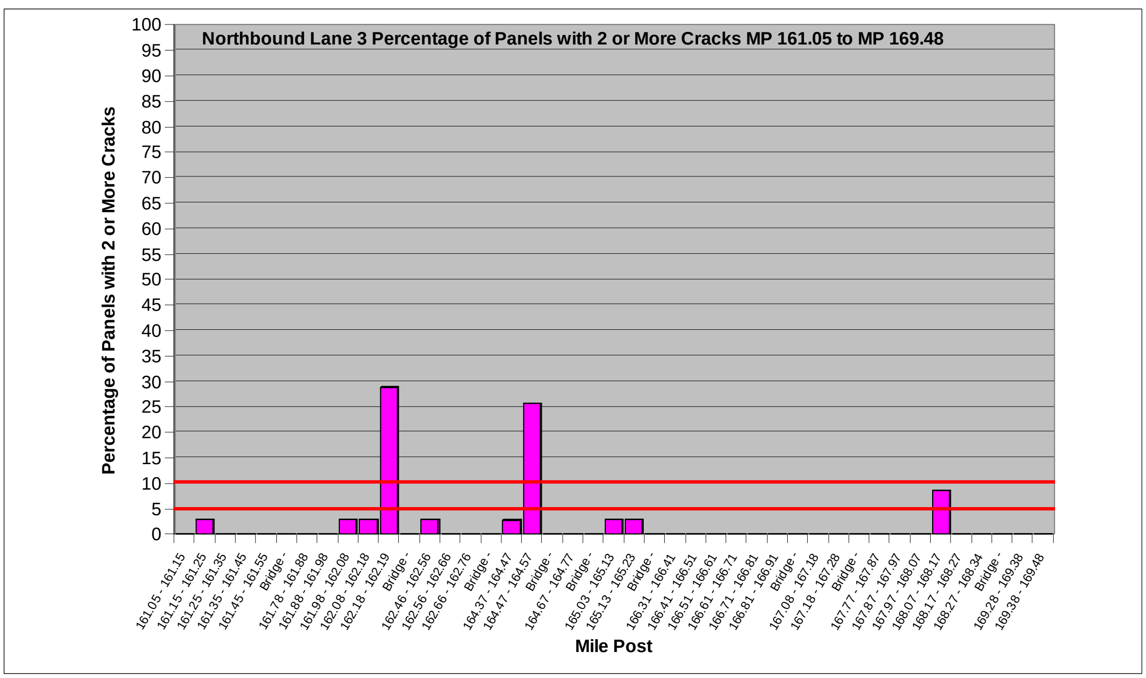
Northbound Lane 3 Percentage of Panels with 2 or More Cracks Plots

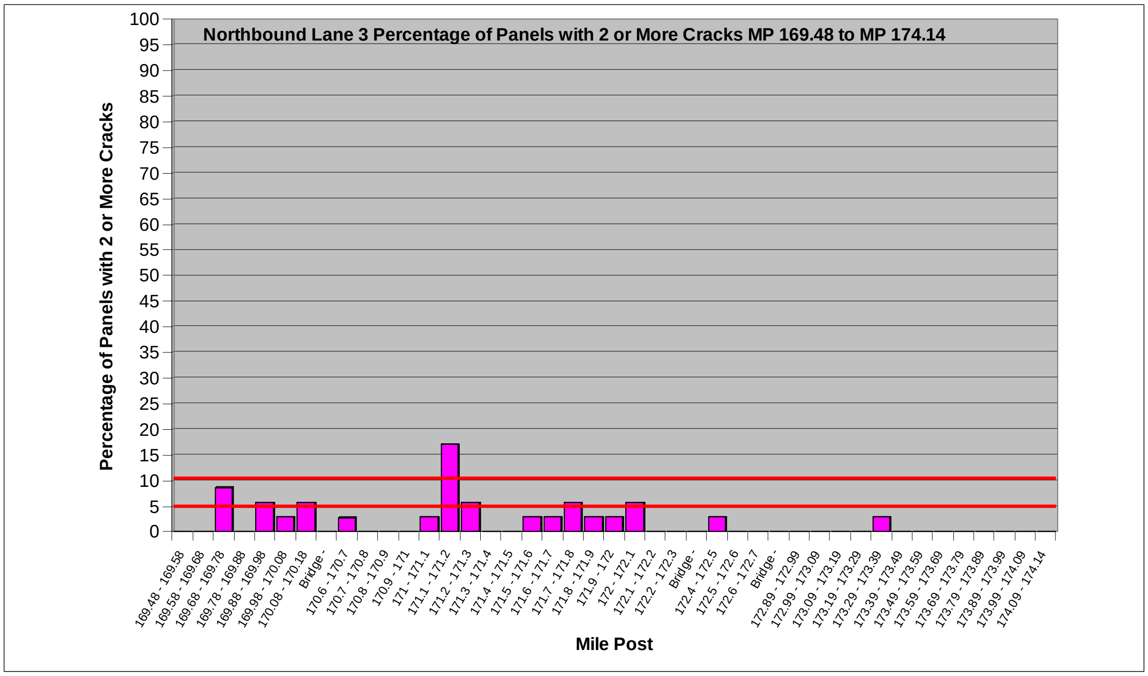


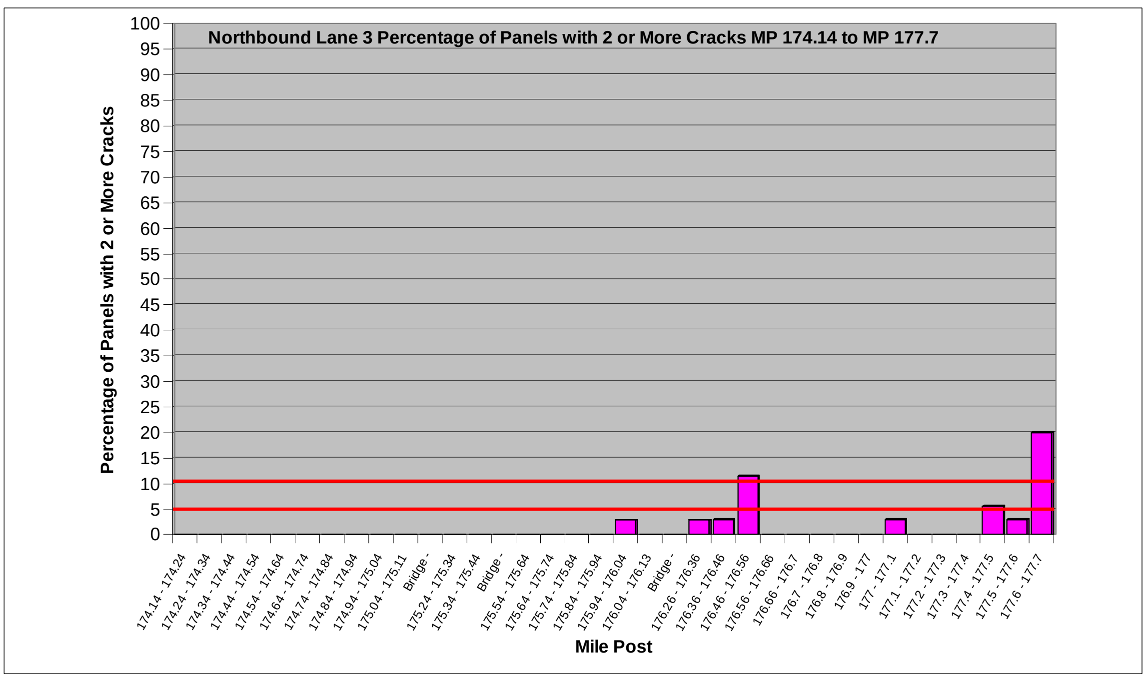

Northbound Lane 3 Percentage of Panels with 2 or More Cracks MP 143.82 to MP 148.27
Percentage of Panels with 2 or More Cracks
Mile Post


Northbound Lane 3 Percentage of Panels with 2 or More Cracks MP 148.27 to MP 152.69
Percentage of Panels with 2 or More Cracks
Mile Post

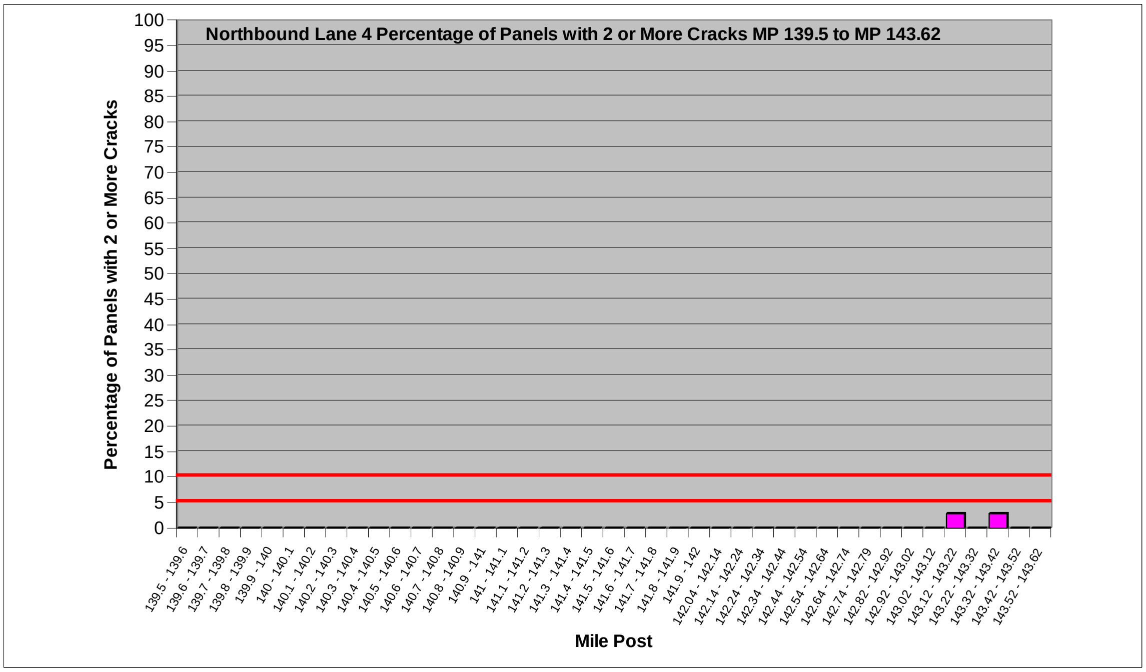

Northbound Lane 3 Percentage of Panels with 2 or More Cracks MP 152.69 to MP 161.05
Percentage of Panels with 2 or More Cracks
Mile Post

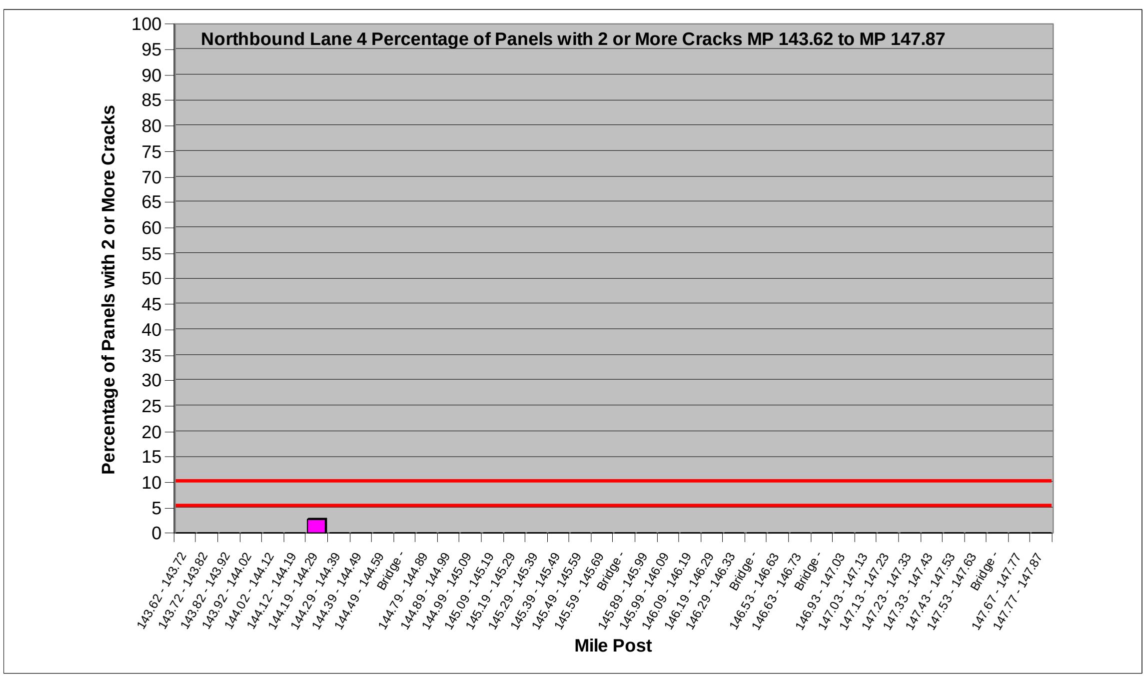

Northbound Lane 3 Percentage of Panels with 2 or More Cracks MP 161.05 to MP 169.48
Percentage of Panels with 2 or More Cracks
Mile Post

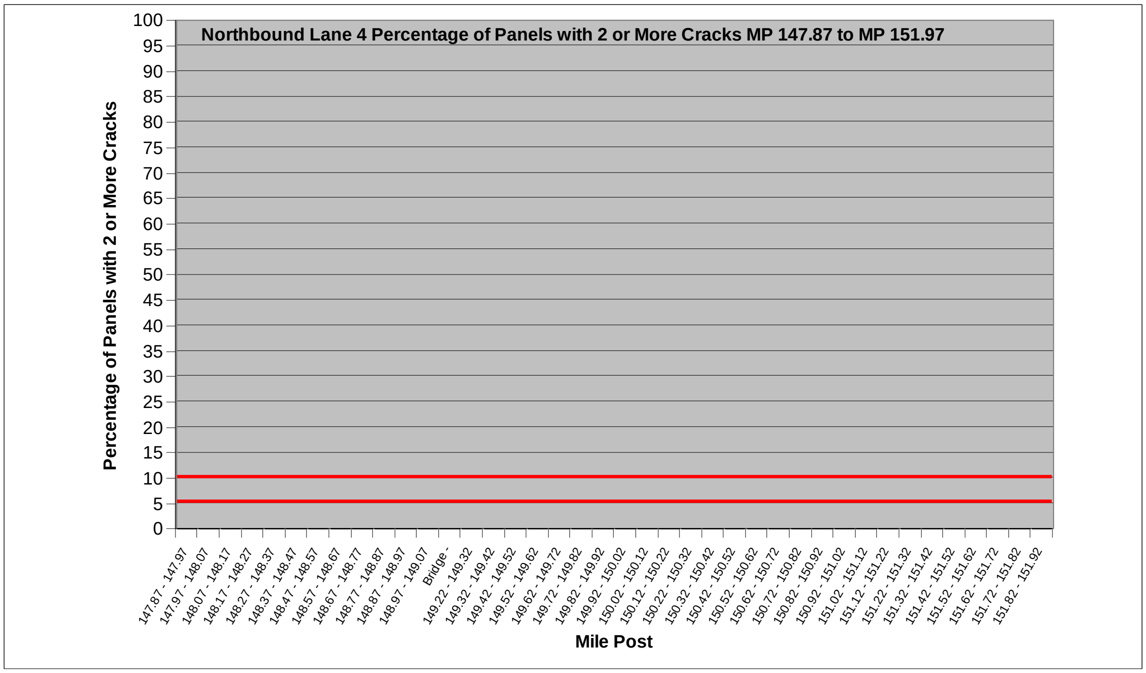

Northbound Lane 3 Percentage of Panels with 2 or More Cracks MP 169.48 to MP 174.14
Percentage of Panels with 2 or More Cracks
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100
169.48 - 169.58
169.58 - 169.68
169.68 - 169.78
169.78 - 169.88
169.88 - 169.98
169.98 - 170.08
170.08 - 170.18
Bridge -
170.6 - 170.7
170.7 - 170.8
170.8 - 170.9
170.9 - 171
171 - 171.1
171.1 - 171.2
171.2 - 171.3
171.3 - 171.4
171.4 - 171.5
171.5 - 171.6
171.6 - 171.7
171.7 - 171.8
171.8 - 171.9
171.9 - 172
172 - 172.1
172.1 - 172.2
172.2 - 172.3
Bridge -
172.4 - 172.5
172.5 - 172.6
172.6 - 172.7
Bridge -
172.89 - 172.99
172.99 - 173.09
173.09 - 173.19
173.19 - 173.29
173.29 - 173.39
173.39 - 173.49
173.49 - 173.59
173.59 - 173.69
173.69 - 173.79
173.79 - 173.89
173.89 - 173.99
173.99 - 174.09
174.09 - 174.14
Mile Post

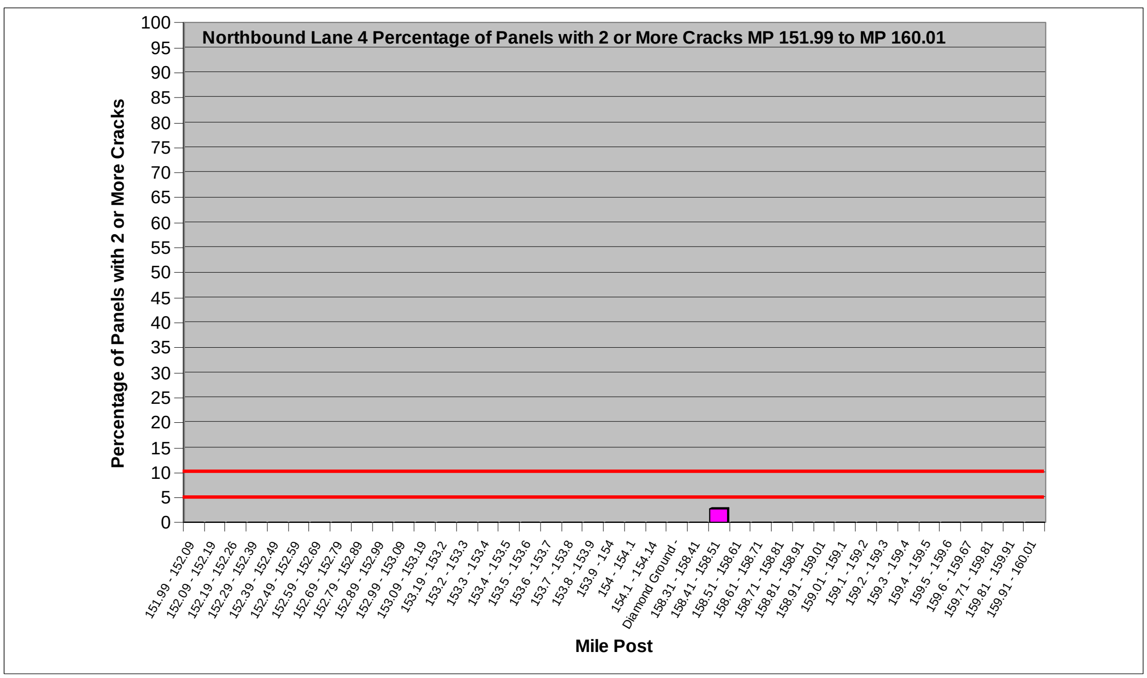

Northbound Lane 3 Percentage of Panels with 2 or More Cracks MP 174.14 to MP 177.7
Percentage of Panels with 2 or More Cracks
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100
174.14 - 174.24
174.24 - 174.34
174.34 - 174.44
174.44 - 174.54
174.54 - 174.64
174.64 - 174.74
174.74 - 174.84
174.84 - 174.94
174.94 - 175.04
175.04 - 175.11
Bridge -
175.24 - 175.34
175.34 - 175.44
Bridge -
175.54 - 175.64
175.64 - 175.74
175.74 - 175.84
175.84 - 175.94
175.94 - 176.04
176.04 - 176.13
Bridge -
176.26 - 176.36
176.36 - 176.46
176.46 - 176.56
176.56 - 176.66
176.66 - 176.7
176.7 - 176.8
176.8 - 176.9
176.9 - 177
177 - 177.1
177.1 - 177.2
177.2 - 177.3
177.3 - 177.4
177.4 - 177.5
177.5 - 177.6
177.6 - 177.7
Mile Post

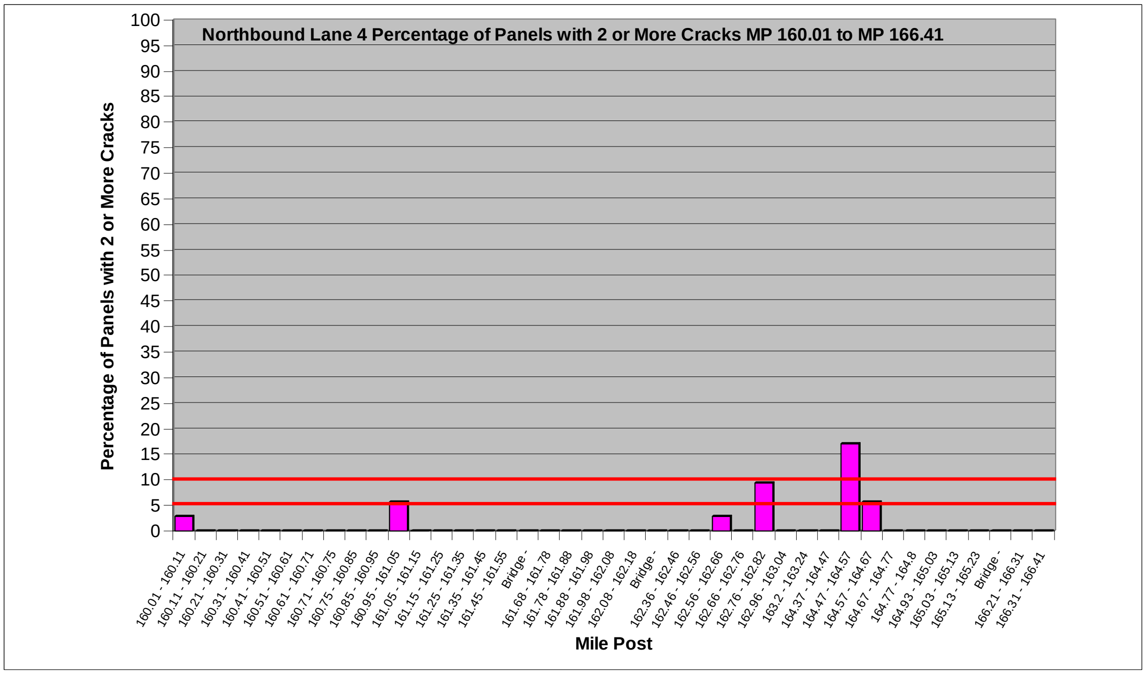
Northbound Lane 4 Percentage of Panels with 2 or More Cracks Plots

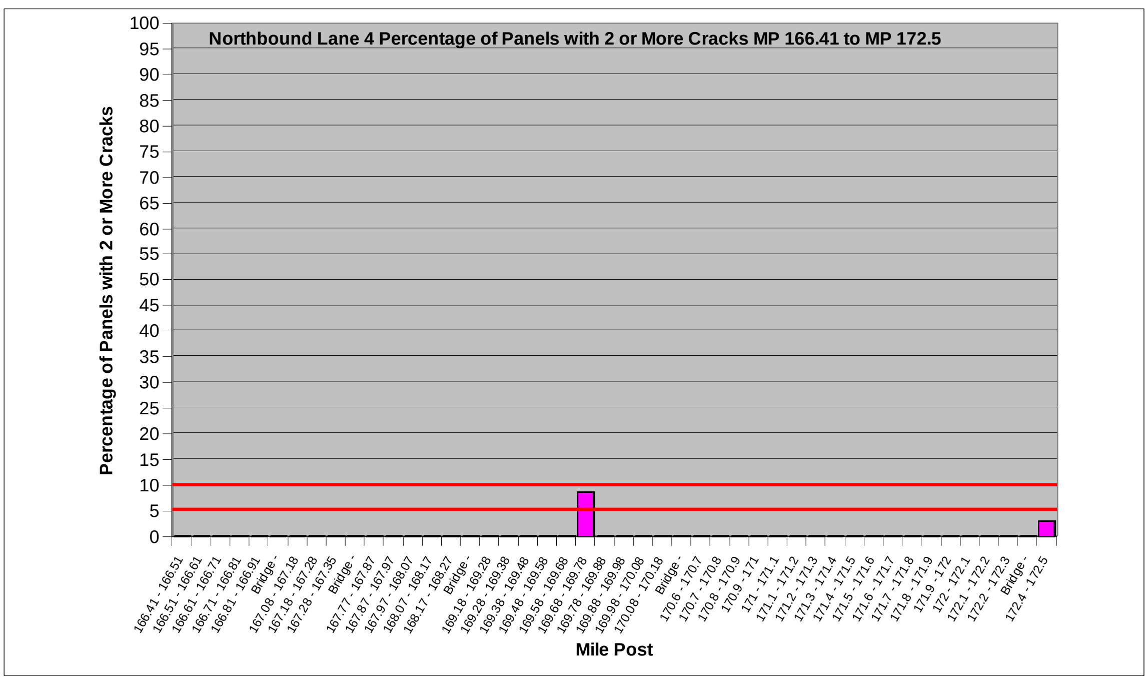


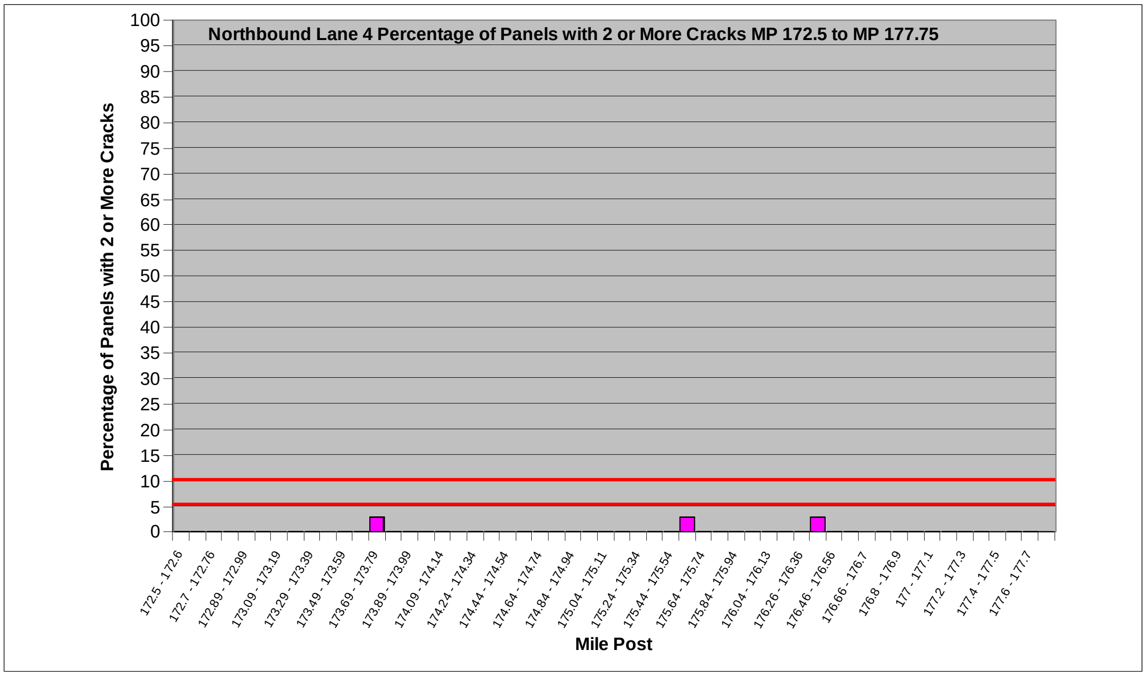



Northbound Lane 4 Percentage of Panels with 2 or More Cracks MP 147.87 to MP 151.97
Percentage of Panels with 2 or More Cracks
Mile Post
147.87 - 147.97
147.97 - 148.07
148.07 - 148.17
148.17 - 148.27
148.27 - 148.37
148.37 - 148.47
148.47 - 148.57
148.57 - 148.67
148.67 - 148.77
148.77 - 148.87
148.87 - 148.97
148.97 - 149.07
Bridge -
149.22 - 149.32
149.32 - 149.42
149.42 - 149.52
149.52 - 149.62
149.62 - 149.72
149.72 - 149.82
149.82 - 149.92
149.92 - 150.02
150.02 - 150.12
150.12 - 150.22
150.22 - 150.32
150.32 - 150.42
150.42 - 150.52
150.52 - 150.62
150.62 - 150.72
150.72 - 150.82
150.82 - 150.92
150.92 - 151.02
151.02 - 151.12
151.12 - 151.22
151.22 - 151.32
151.32 - 151.42
151.42 - 151.52
151.52 - 151.62
151.62 - 151.72
151.72 - 151.82
151.82 - 151.92

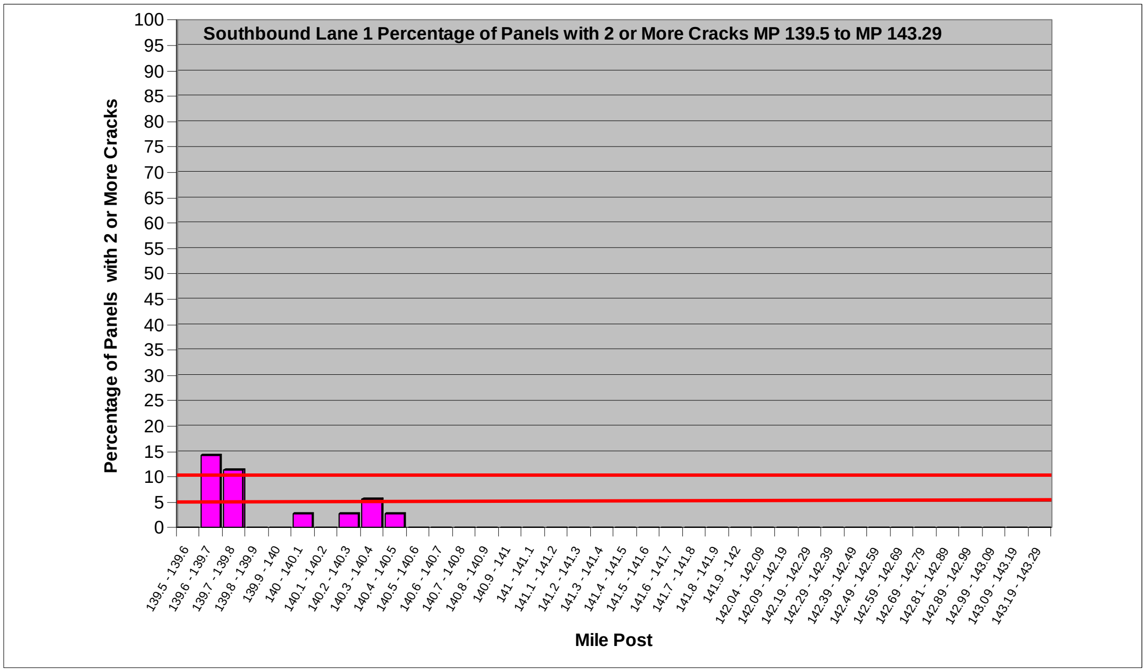

Northbound Lane 4 Percentage of Panels with 2 or More Cracks MP 151.99 to MP 160.01
Percentage of Panels with 2 or More Cracks
Mile Post
151.99 - 152.09
152.09 - 152.19
152.19 - 152.26
152.29 - 152.39
152.39 - 152.49
152.49 - 152.59
152.59 - 152.69
152.69 - 152.79
152.79 - 152.89
152.89 - 152.99
152.99 - 153.09
153.09 - 153.19
153.19 - 153.2
153.2 - 153.3
153.3 - 153.4
153.4 - 153.5
153.5 - 153.6
153.6 - 153.7
153.7 - 153.8
153.8 - 153.9
153.9 - 154
154 - 154.1
154.1 - 154.14
Diamond Ground -
158.31 - 158.41
158.41 - 158.51
158.51 - 158.61
158.61 - 158.71
158.71 - 158.81
158.81 - 158.91
158.91 - 159.01
159.01 - 159.1
159.1 - 159.2
159.2 - 159.3
159.3 - 159.4
159.4 - 159.5
159.5 - 159.6
159.6 - 159.67
159.71 - 159.81
159.81 - 159.91
159.91 - 160.01

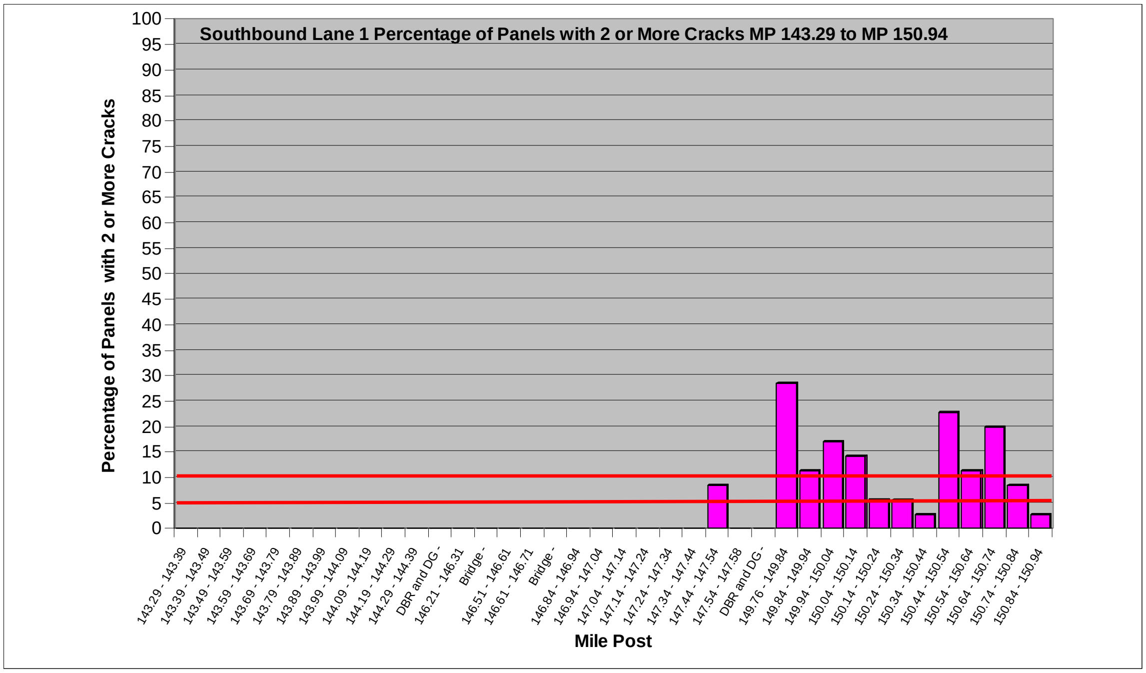

Northbound Lane 4 Percentage of Panels with 2 or More Cracks MP 160.01 to MP 166.41
Percentage of Panels with 2 or More Cracks
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
160.01 - 160.11
160.11 - 160.21
160.21 - 160.31
160.31 - 160.41
160.41 - 160.51
160.51 - 160.61
160.61 - 160.71
160.71 - 160.75
160.75 - 160.85
160.85 - 160.95
160.95 - 161.05
161.05 - 161.15
161.15 - 161.25
161.25 - 161.35
161.35 - 161.45
161.45 - 161.55
Bridge -
161.68 - 161.78
161.78 - 161.88
161.88 - 161.98
161.98 - 162.08
162.08 - 162.18
Bridge -
162.36 - 162.46
162.46 - 162.56
162.56 - 162.66
162.66 - 162.76
162.76 - 162.82
162.96 - 163.04
163.2 - 163.24
164.37 - 164.47
164.47 - 164.57
164.57 - 164.67
164.67 - 164.77
164.77 - 164.8
164.93 - 165.03
165.03 - 165.13
165.13 - 165.23
Bridge -
166.21 - 166.31
166.31 - 166.41
Mile Post

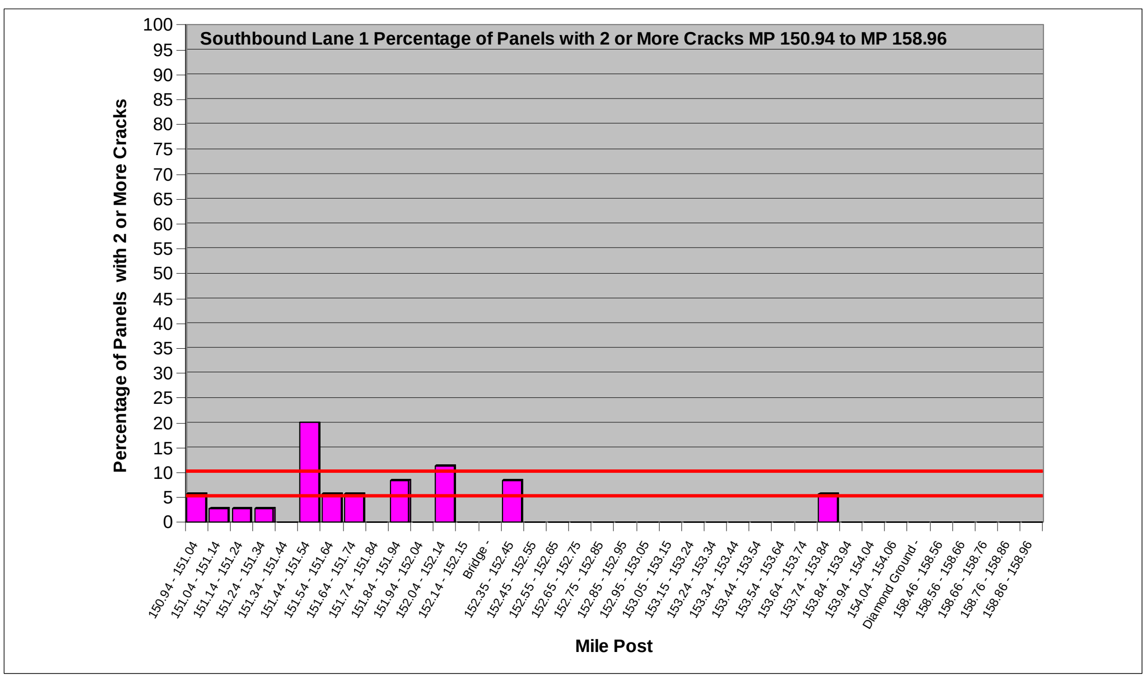

Northbound Lane 4 Percentage of Panels with 2 or More Cracks MP 166.41 to MP 172.5
Percentage of Panels with 2 or More Cracks
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
166.41 - 166.51
166.51 - 166.61
166.61 - 166.71
166.71 - 166.81
166.81 - 166.91
Bridge -
167.08 - 167.18
167.18 - 167.28
167.28 - 167.35
Bridge -
167.77 - 167.87
167.87 - 167.97
167.97 - 168.07
168.07 - 168.17
168.17 - 168.27
Bridge -
169.18 - 169.28
169.28 - 169.38
169.38 - 169.48
169.48 - 169.58
169.58 - 169.68
169.68 - 169.78
169.78 - 169.88
169.88 - 169.98
169.98 - 170.08
170.08 - 170.18
Bridge -
170.6 - 170.7
170.7 - 170.8
170.8 - 170.9
170.9 - 171
171 - 171.1
171.1 - 171.2
171.2 - 171.3
171.3 - 171.4
171.4 - 171.5
171.5 - 171.6
171.6 - 171.7
171.7 - 171.8
171.8 - 171.9
171.9 - 172
172 - 172.1
172.1 - 172.2
172.2 - 172.3
Bridge -
172.4 - 172.5
Mile Post

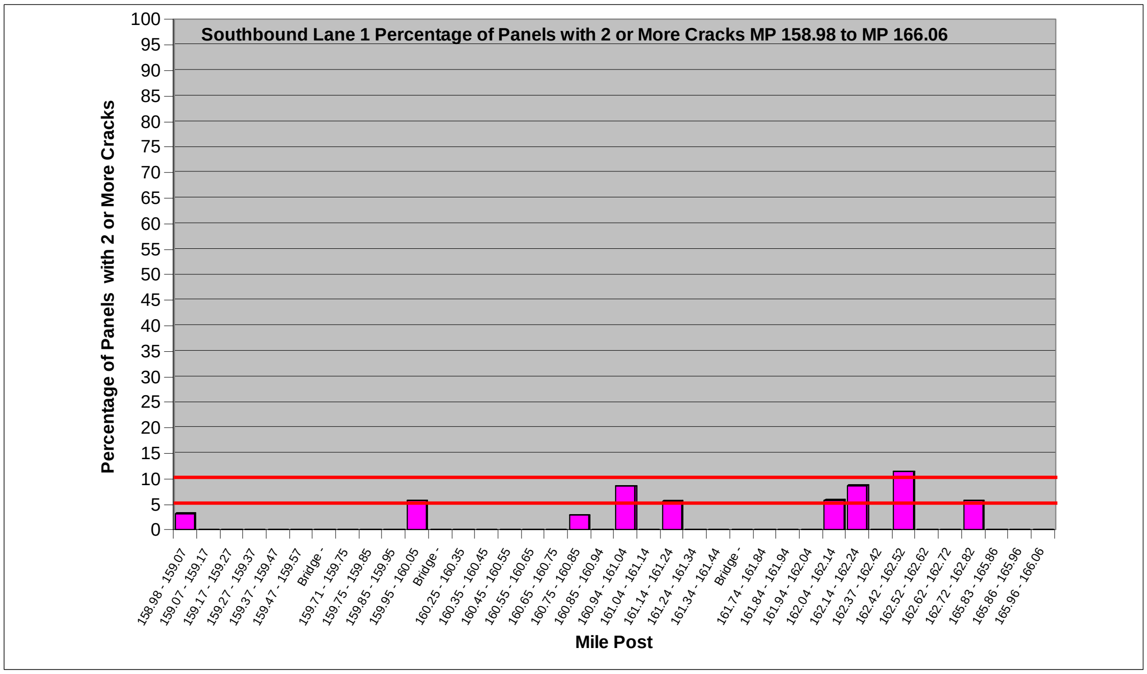


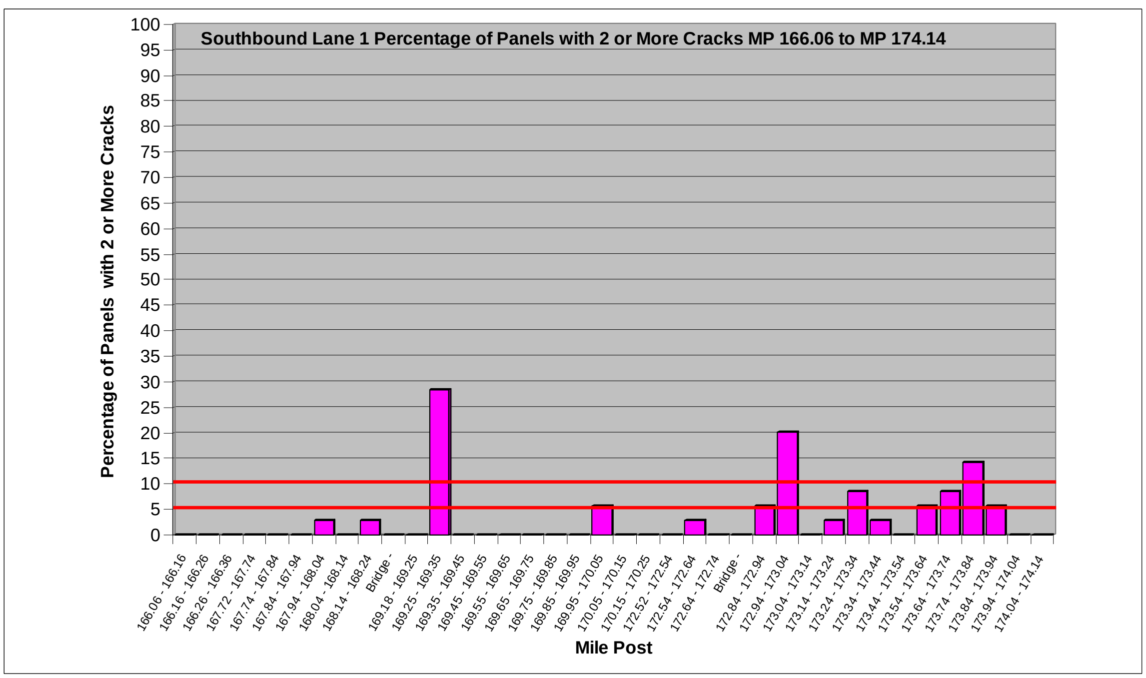
Southbound Lane 1 Percentage of Panels with 2 or More Cracks Plots



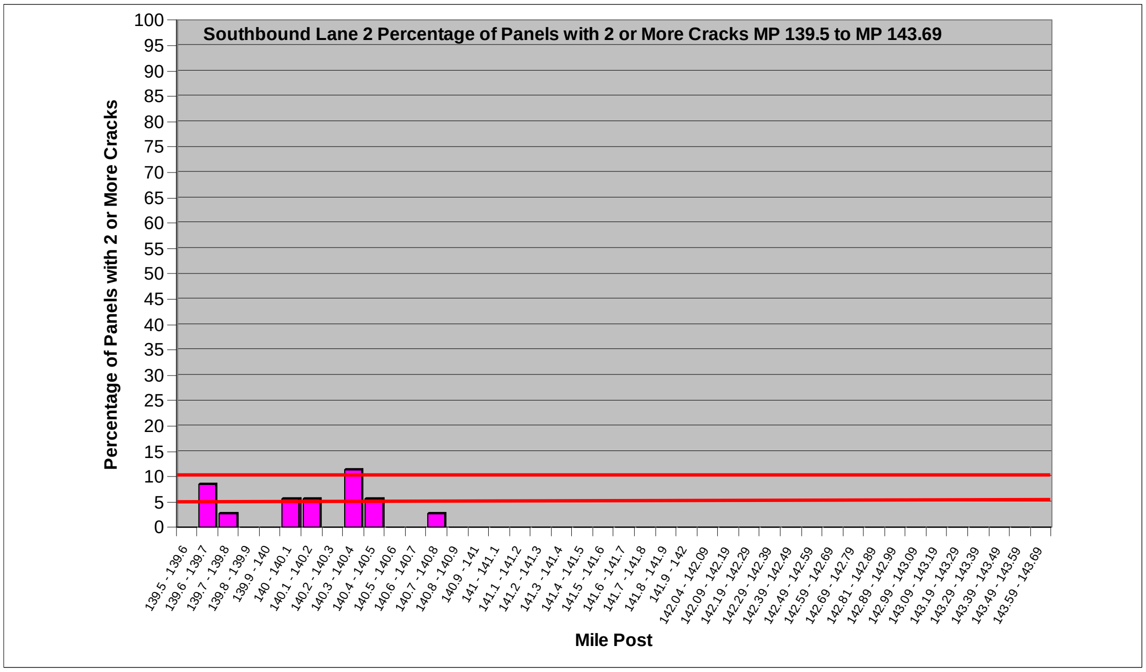

Southbound Lane 1 Percentage of Panels with 2 or More Cracks MP 143.29 to MP 150.94
Percentage of Panels with 2 or More Cracks
100 95 90 85 80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0
143.29 - 143.39
143.39 - 143.49
143.49 - 143.59
143.59 - 143.69
143.69 - 143.79
143.79 - 143.89
143.89 - 143.99
143.99 - 144.09
144.09 - 144.19
144.19 - 144.29
144.29 - 144.39
DBR and DG -
146.21 - 146.31
Bridge -
146.51 - 146.61
146.61 - 146.71
Bridge -
146.84 - 146.94
146.94 - 147.04
147.04 - 147.14
147.14 - 147.24
147.24 - 147.34
147.34 - 147.44
147.44 - 147.54
147.54 - 147.58
DBR and DG -
149.76 - 149.84
149.84 - 149.94
149.94 - 150.04
150.04 - 150.14
150.14 - 150.24
150.24 - 150.34
150.34 - 150.44
150.44 - 150.54
150.54 - 150.64
150.64 - 150.74
150.74 - 150.84
150.84 - 150.94
Mile Post

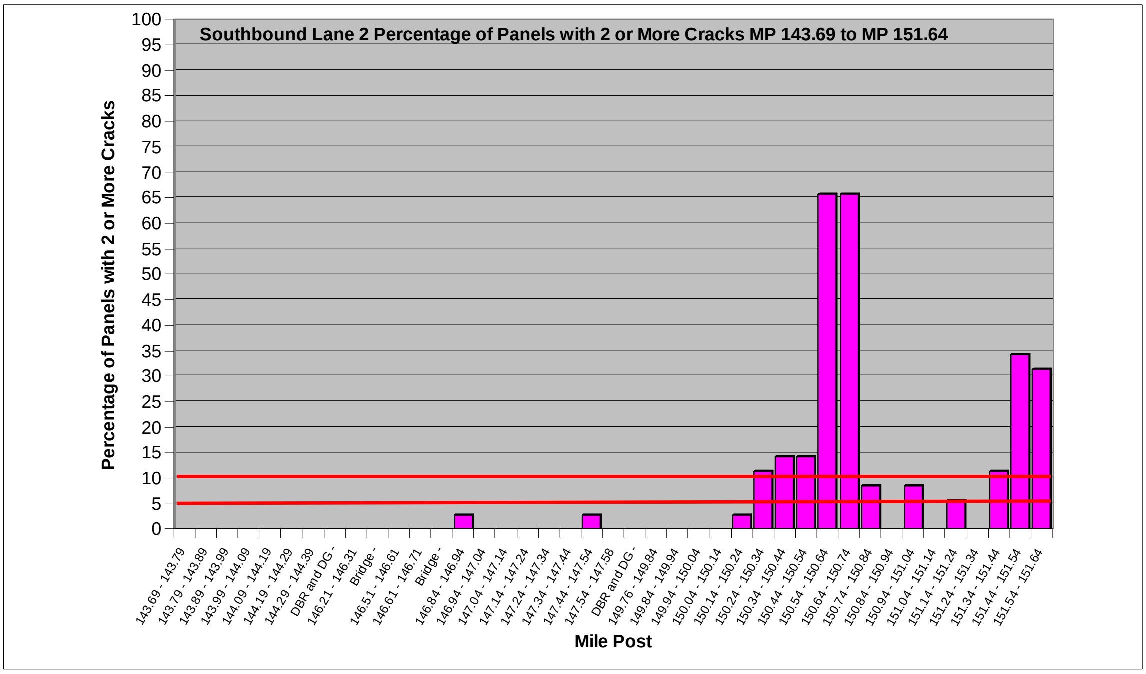

Southbound Lane 1 Percentage of Panels with 2 or More Cracks MP 150.94 to MP 158.96
Percentage of Panels with 2 or More Cracks
100 95 90 85 80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0
150.94 - 151.04
151.04 - 151.14
151.14 - 151.24
151.24 - 151.34
151.34 - 151.44
151.44 - 151.54
151.54 - 151.64
151.64 - 151.74
151.74 - 151.84
151.84 - 151.94
151.94 - 152.04
152.04 - 152.14
152.14 - 152.15
Bridge -
152.35 - 152.45
152.45 - 152.55
152.55 - 152.65
152.65 - 152.75
152.75 - 152.85
152.85 - 152.95
152.95 - 153.05
153.05 - 153.15
153.15 - 153.24
153.24 - 153.34
153.34 - 153.44
153.44 - 153.54
153.54 - 153.64
153.64 - 153.74
153.74 - 153.84
153.84 - 153.94
153.94 - 154.04
154.04 - 154.06
Diamond Ground -
158.46 - 158.56
158.56 - 158.66
158.66 - 158.76
158.76 - 158.86
158.86 - 158.96
Mile Post

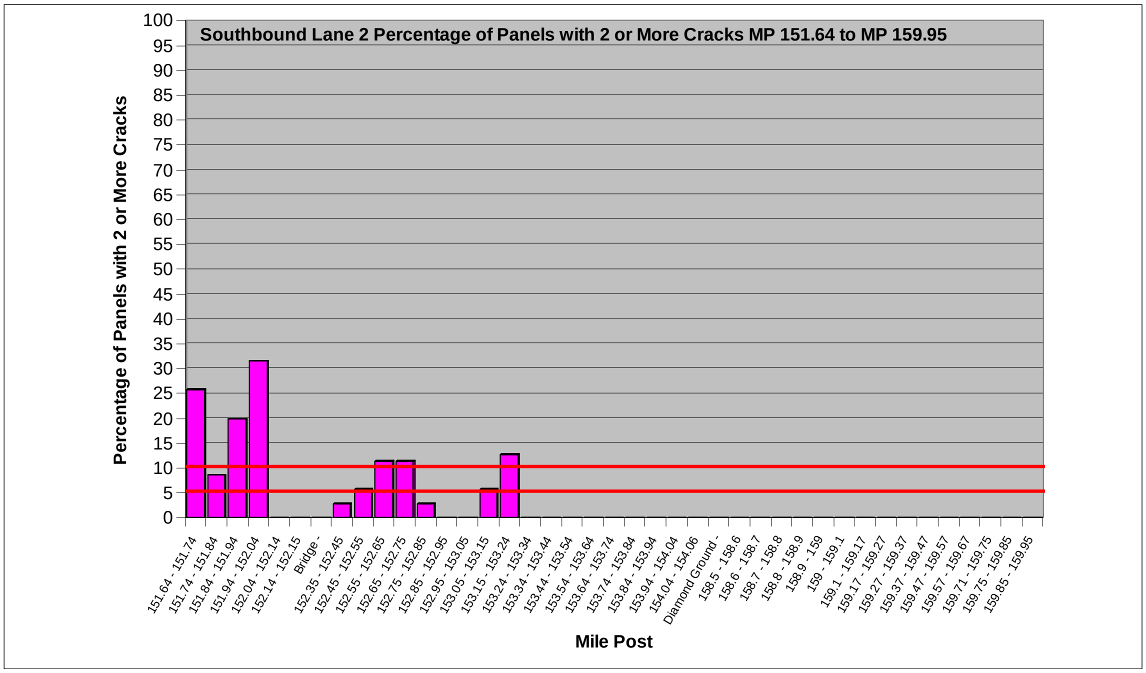

Southbound Lane 1 Percentage of Panels with 2 or More Cracks MP 158.98 to MP 166.06
Percentage of Panels with 2 or More Cracks
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
158.98 - 159.07
159.07 - 159.17
159.17 - 159.27
159.27 - 159.37
159.37 - 159.47
159.47 - 159.57
Bridge -
159.71 - 159.75
159.75 - 159.85
159.85 - 159.95
159.95 - 160.05
Bridge -
160.25 - 160.35
160.35 - 160.45
160.45 - 160.55
160.55 - 160.65
160.65 - 160.75
160.75 - 160.85
160.85 - 160.94
160.94 - 161.04
161.04 - 161.14
161.14 - 161.24
161.24 - 161.34
161.34 - 161.44
Bridge -
161.74 - 161.84
161.84 - 161.94
161.94 - 162.04
162.04 - 162.14
162.14 - 162.24
162.37 - 162.42
162.42 - 162.52
162.52 - 162.62
162.62 - 162.72
162.72 - 162.82
165.83 - 165.86
165.86 - 165.96
165.96 - 166.06
Mile Post

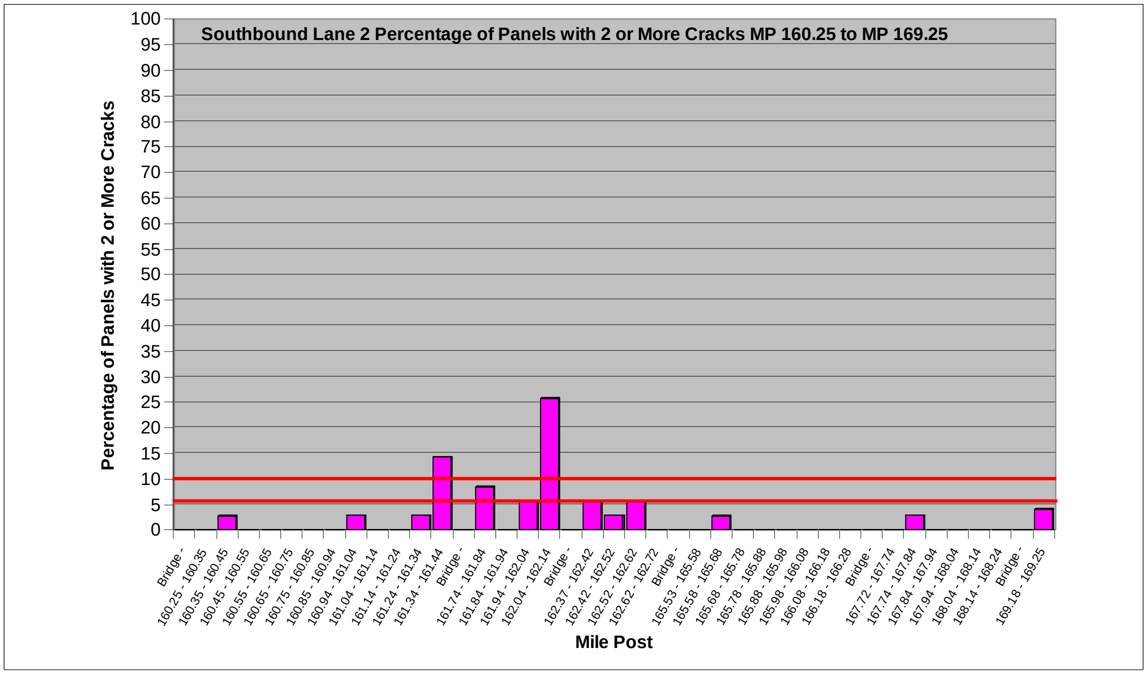

Southbound Lane 1 Percentage of Panels with 2 or More Cracks MP 166.06 to MP 174.14
Percentage of Panels with 2 or More Cracks
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
166.06 - 166.16
166.16 - 166.26
166.26 - 166.36
167.72 - 167.74
167.74 - 167.84
167.84 - 167.94
167.94 - 168.04
168.04 - 168.14
168.14 - 168.24
Bridge -
169.18 - 169.25
169.25 - 169.35
169.35 - 169.45
169.45 - 169.55
169.55 - 169.65
169.65 - 169.75
169.75 - 169.85
169.85 - 169.95
169.95 - 170.05
170.05 - 170.15
170.15 - 170.25
172.52 - 172.54
172.54 - 172.64
172.64 - 172.74
Bridge -
172.84 - 172.94
172.94 - 173.04
173.04 - 173.14
173.14 - 173.24
173.24 - 173.34
173.34 - 173.44
173.44 - 173.54
173.54 - 173.64
173.64 - 173.74
173.74 - 173.84
173.84 - 173.94
173.94 - 174.04
174.04 - 174.14
Mile Post

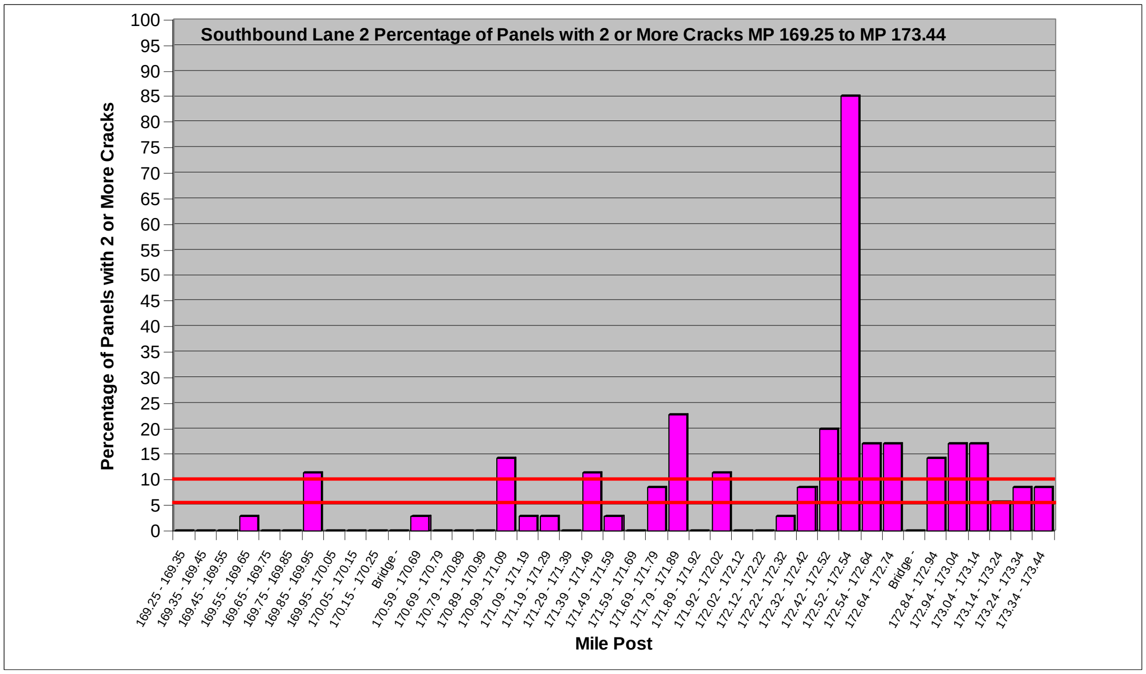
Southbound Lane 2 Percentage of Panels with 2 or More Cracks Plots

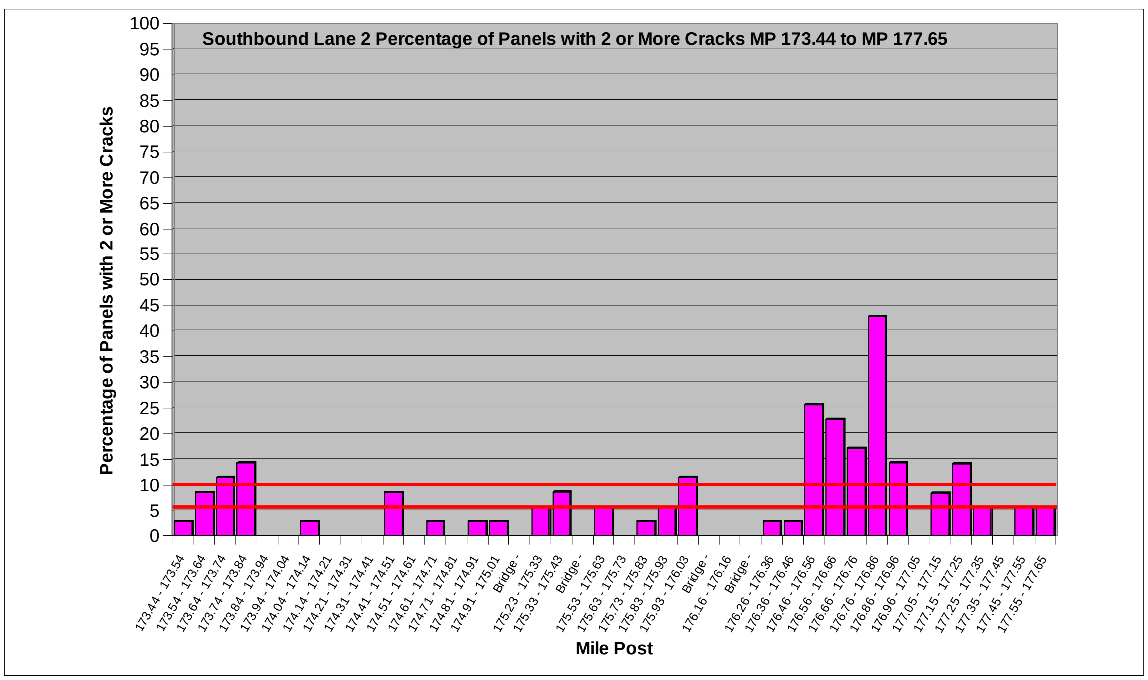




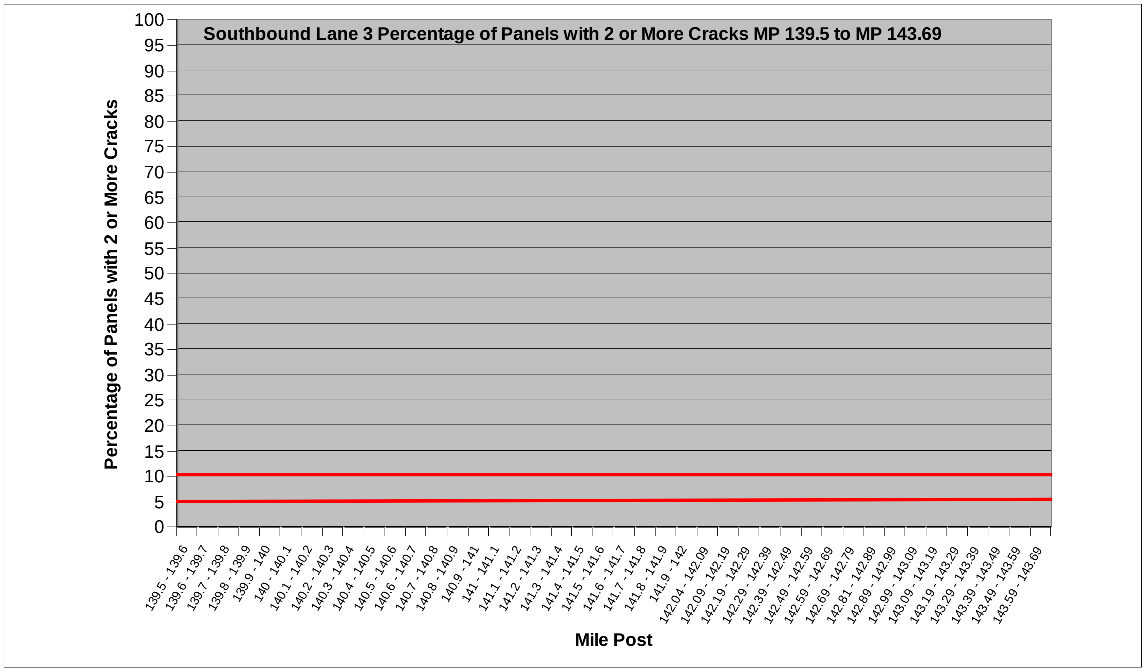

Southbound Lane 2 Percentage of Panels with 2 or More Cracks MP 151.64 to MP 159.95
Percentage of Panels with 2 or More Cracks
Mile Post

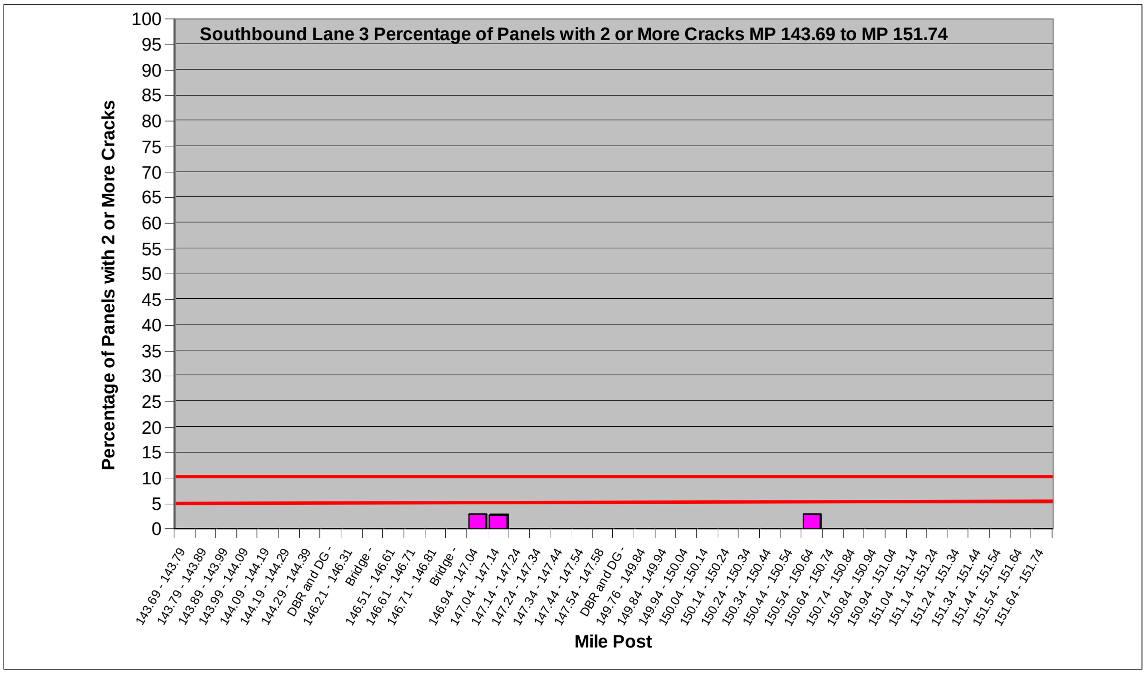

Southbound Lane 2 Percentage of Panels with 2 or More Cracks MP 160.25 to MP 169.25
Percentage of Panels with 2 or More Cracks
Mile Post

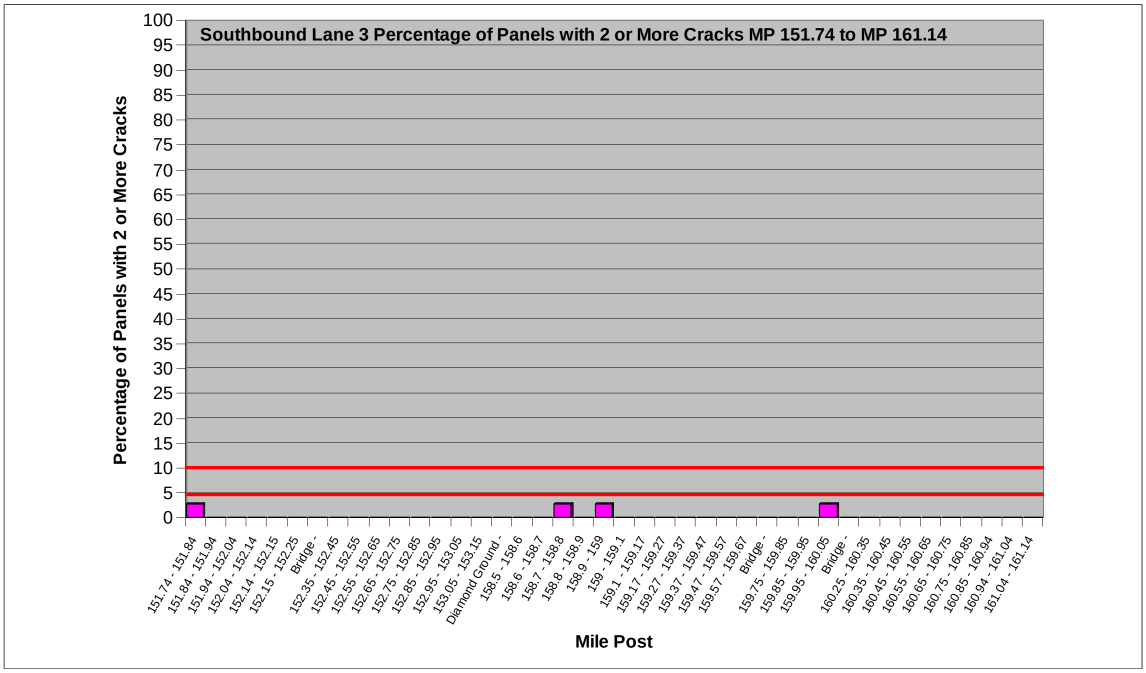

Southbound Lane 2 Percentage of Panels with 2 or More Cracks MP 169.25 to MP 173.44
Percentage of Panels with 2 or More Cracks
Mile Post

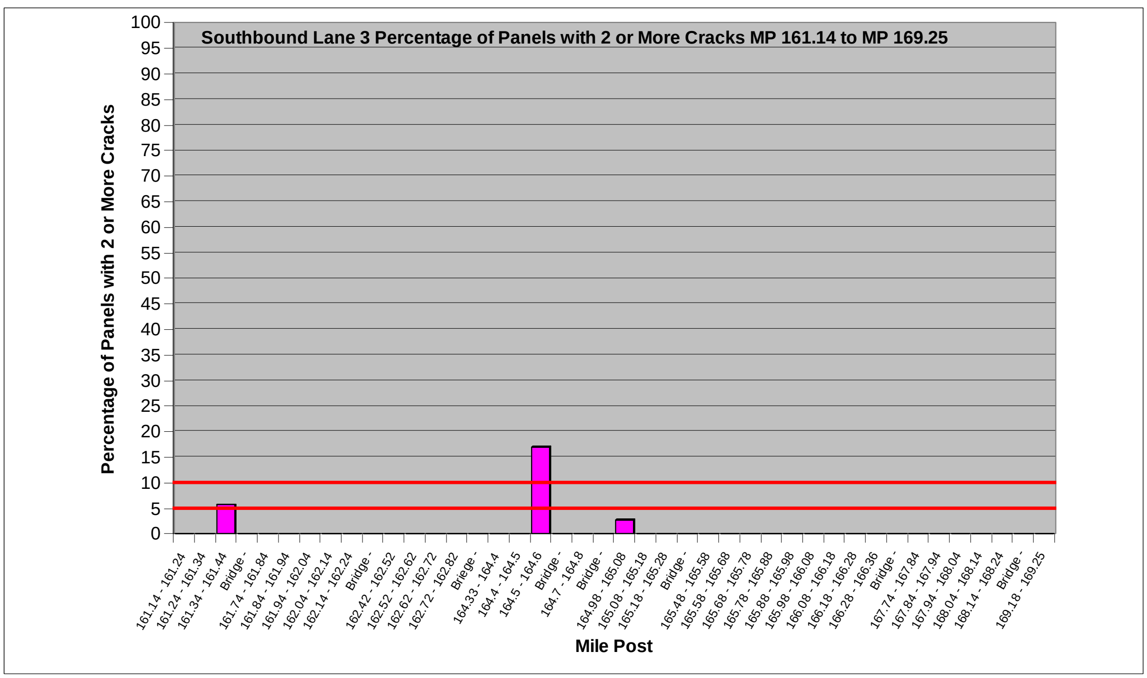

Southbound Lane 2 Percentage of Panels with 2 or More Cracks MP 173.44 to MP 177.65
Percentage of Panels with 2 or More Cracks
Mile Post

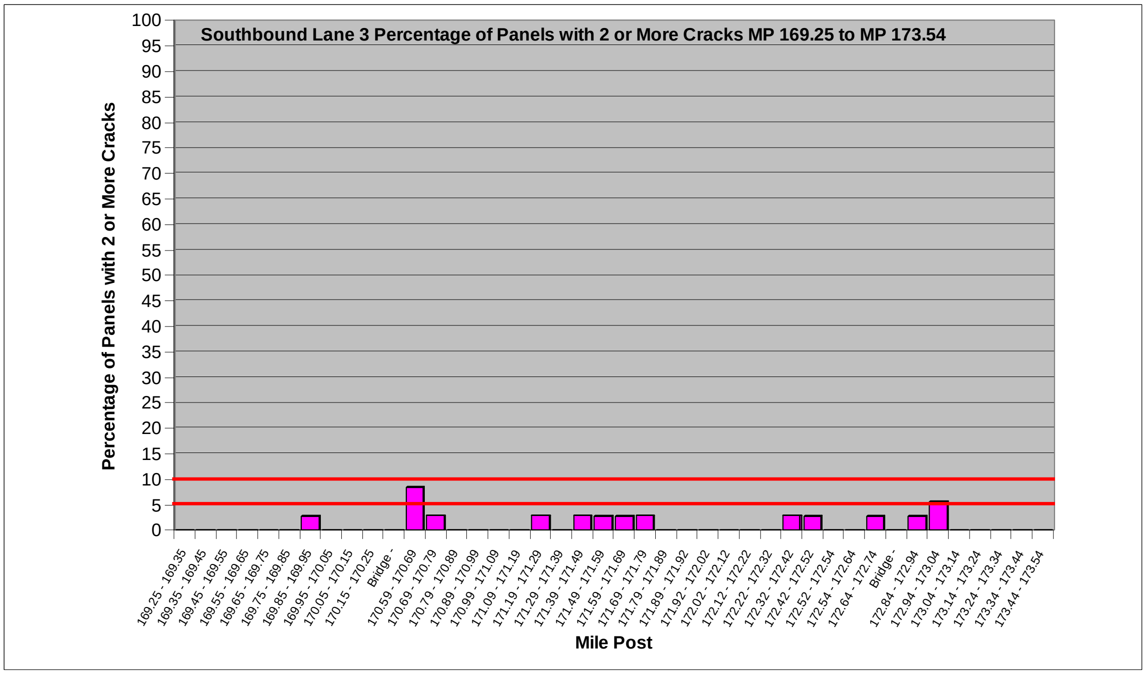
Southbound Lane 3 Percentage of Panels with 2 or More Cracks Plots

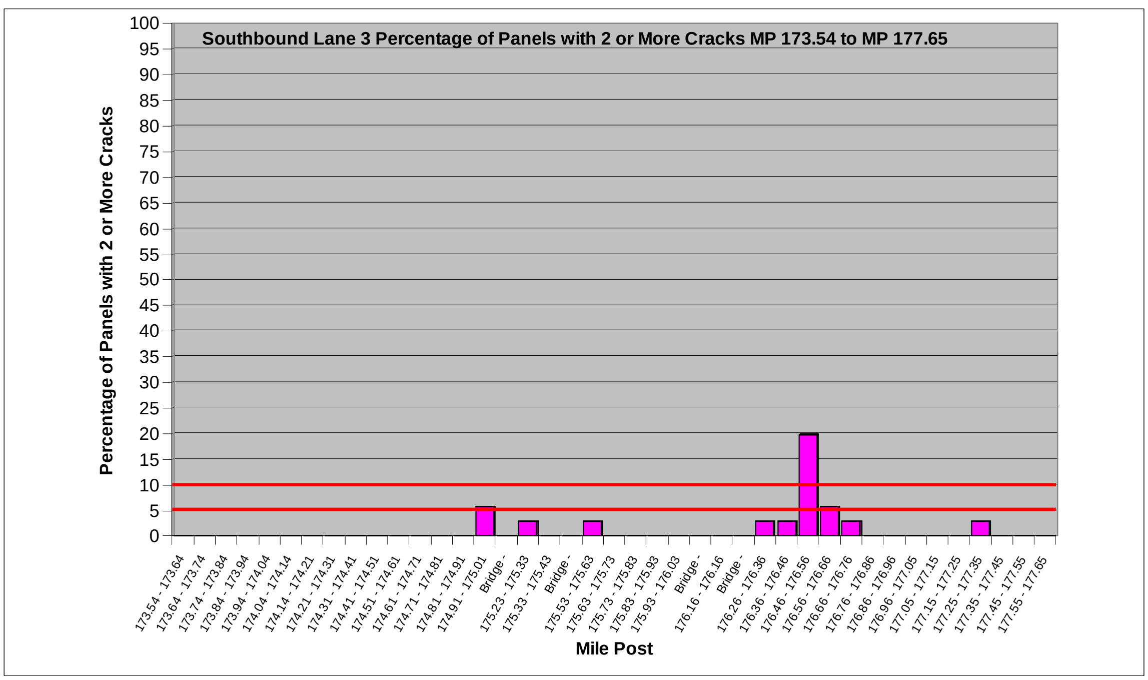




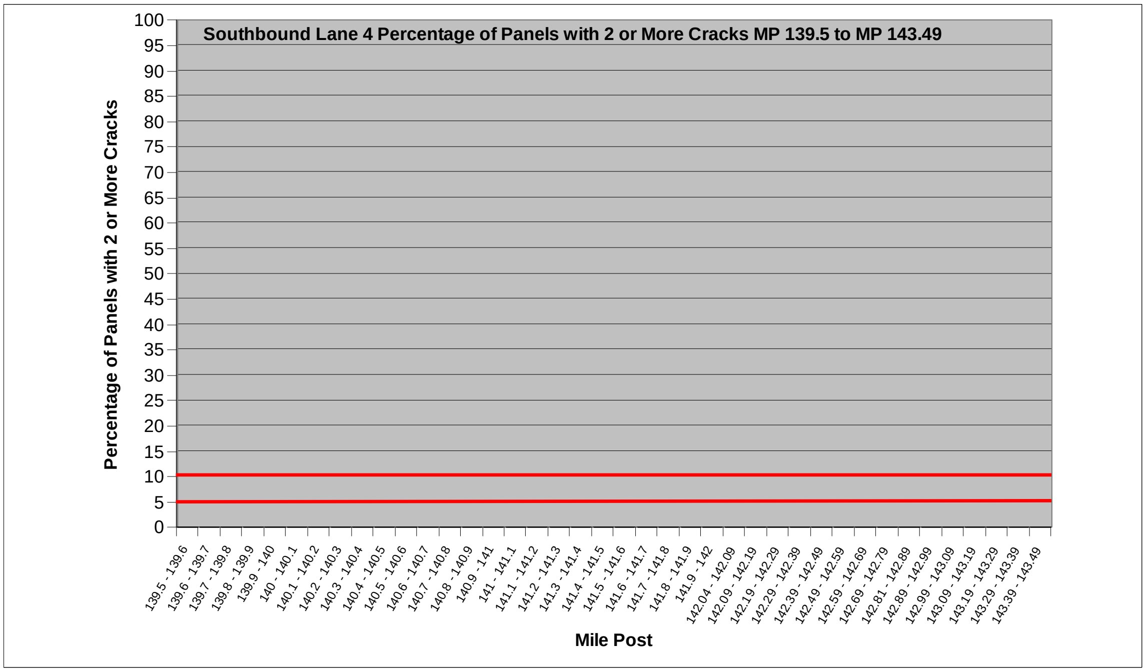

Southbound Lane 3 Percentage of Panels with 2 or More Cracks MP 151.74 to MP 161.14
Percentage of Panels with 2 or More Cracks
Mile Post

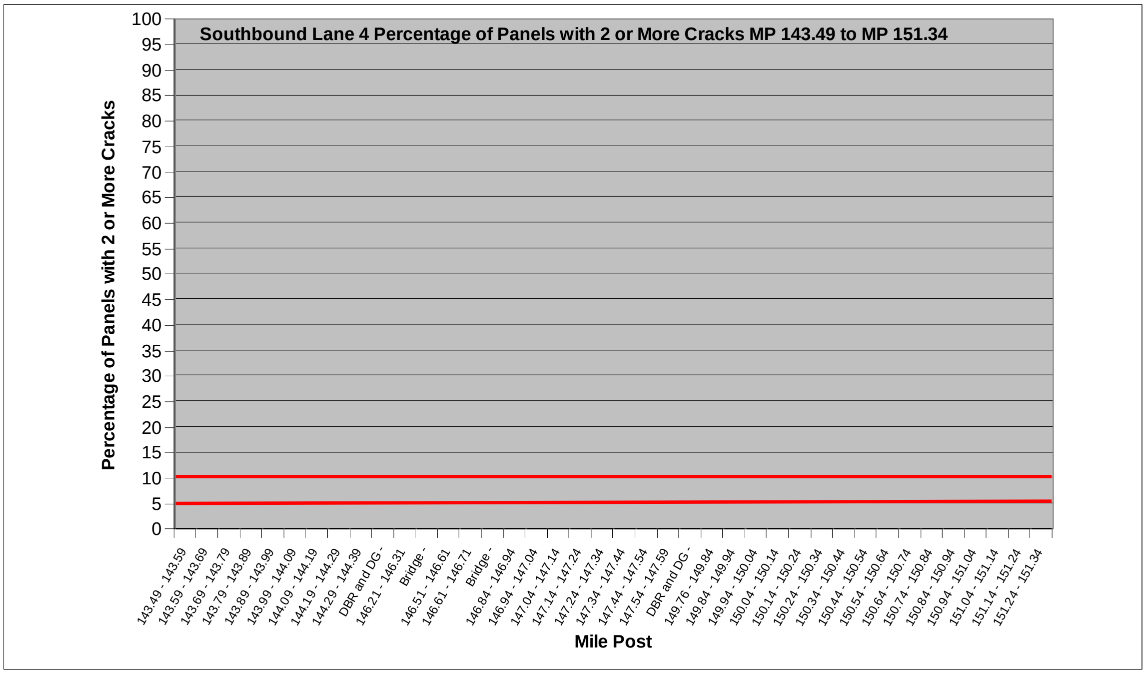

Southbound Lane 3 Percentage of Panels with 2 or More Cracks MP 161.14 to MP 169.25
Percentage of Panels with 2 or More Cracks
Mile Post

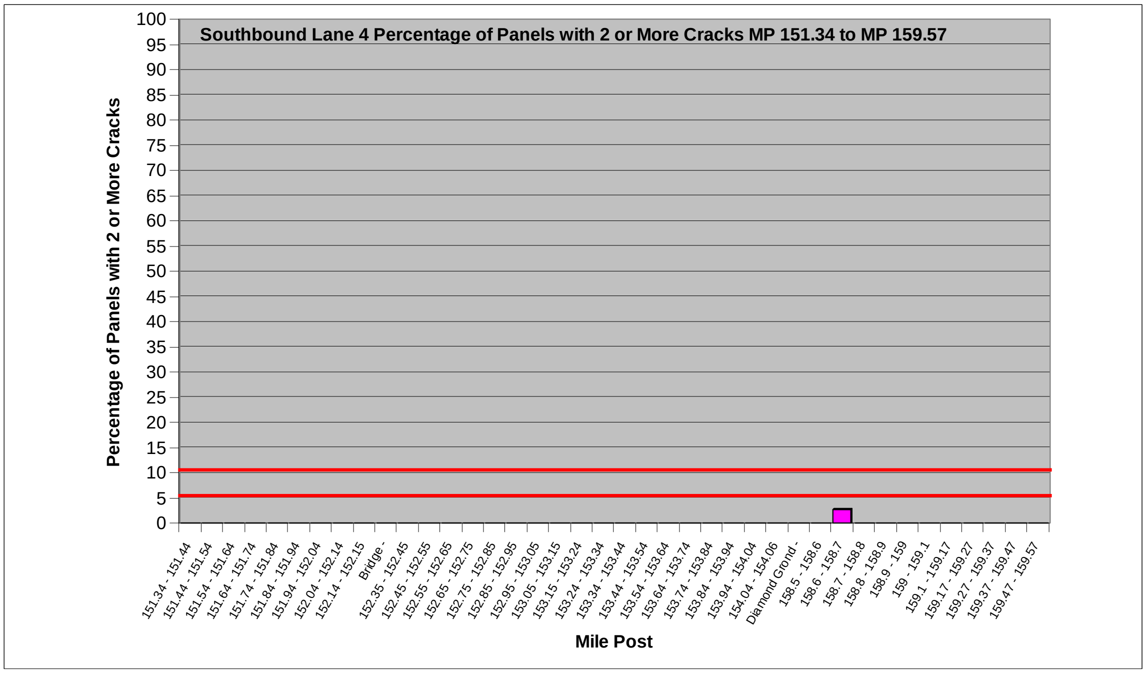

Southbound Lane 3 Percentage of Panels with 2 or More Cracks MP 169.25 to MP 173.54
Percentage of Panels with 2 or More Cracks
Mile Post

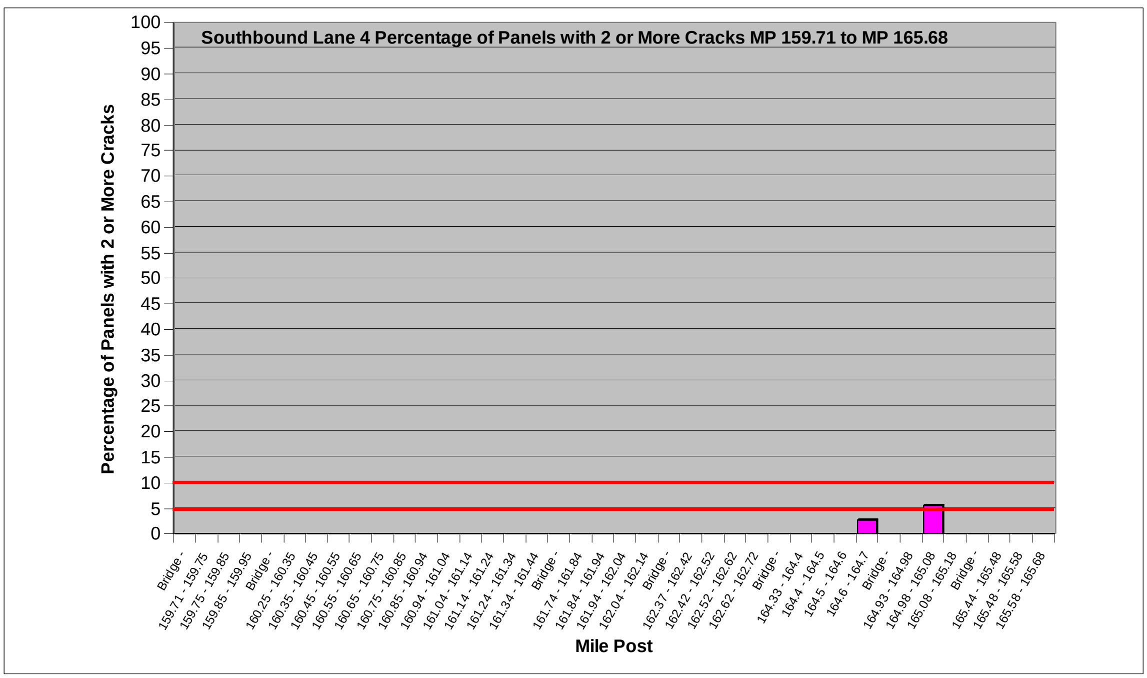

Southbound Lane 3 Percentage of Panels with 2 or More Cracks MP 173.54 to MP 177.65
Percentage of Panels with 2 or More Cracks
Mile Post

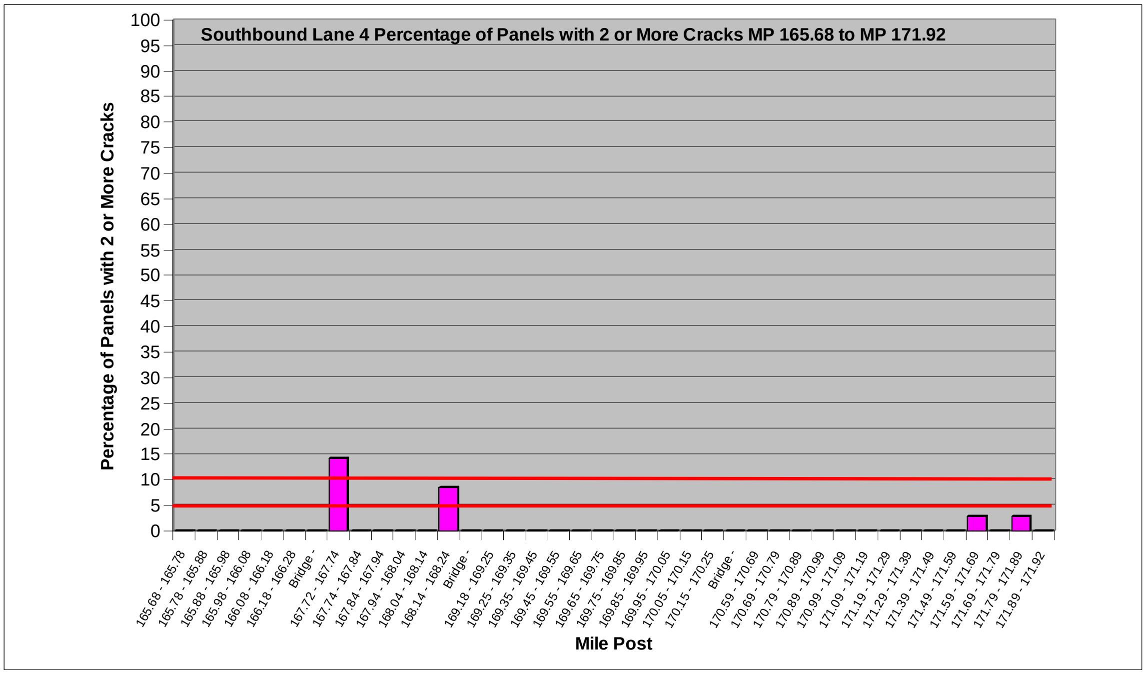
<u>Southbound Lane 4 Percentage of Panels with 2 or More Cracks Plots</u>

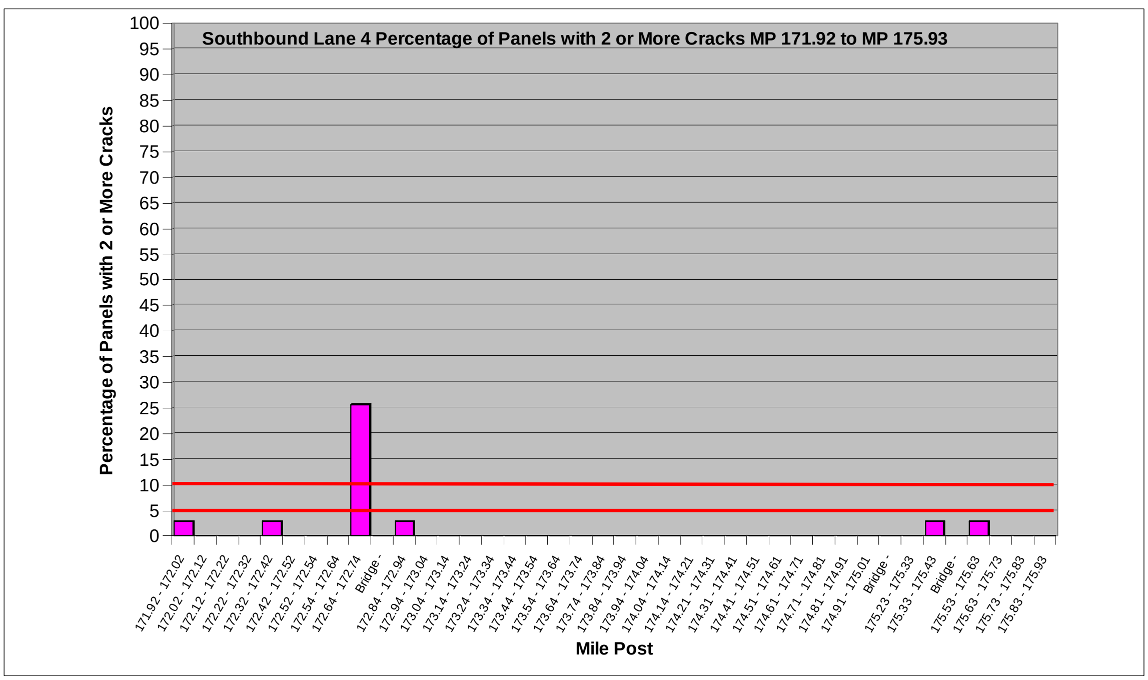


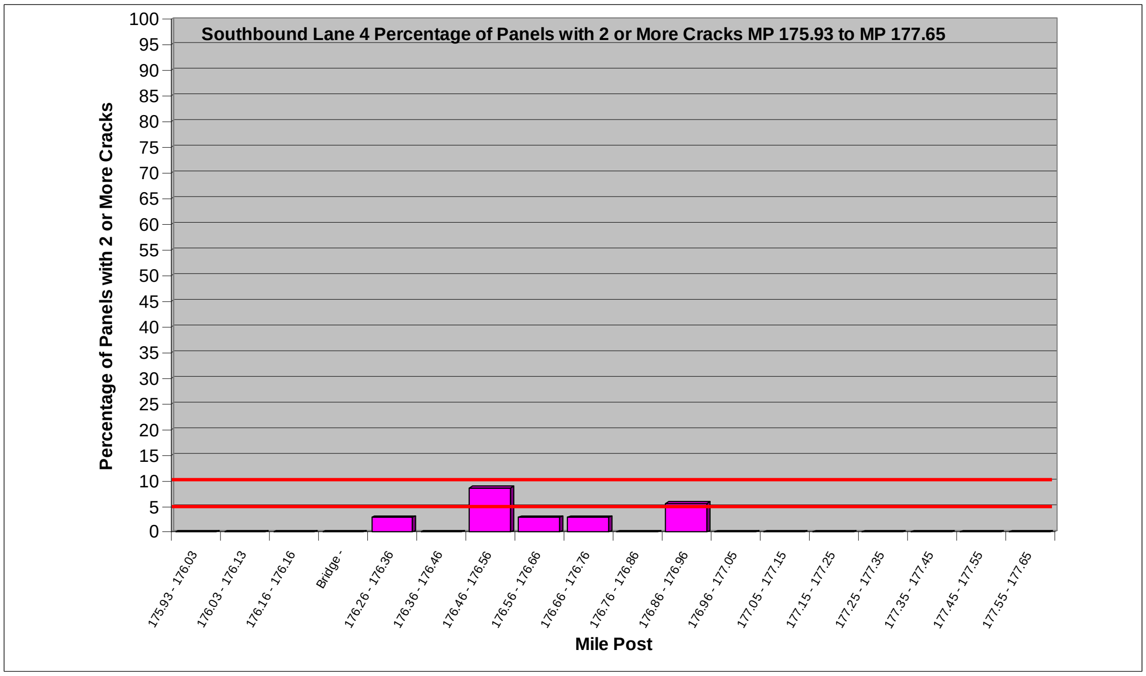



Southbound Lane 4 Percentage of Panels with 2 or More Cracks MP 151.34 to MP 159.57
Percentage of Panels with 2 or More Cracks
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
151.34 - 151.44
151.44 - 151.54
151.54 - 151.64
151.64 - 151.74
151.74 - 151.84
151.84 - 151.94
151.94 - 152.04
152.04 - 152.14
152.14 - 152.15
Bridge -
152.35 - 152.45
152.45 - 152.55
152.55 - 152.65
152.65 - 152.75
152.75 - 152.85
152.85 - 152.95
152.95 - 153.05
153.05 - 153.15
153.15 - 153.24
153.24 - 153.34
153.34 - 153.44
153.44 - 153.54
153.54 - 153.64
153.64 - 153.74
153.74 - 153.84
153.84 - 153.94
153.94 - 154.04
154.04 - 154.06
Diamond Grond -
158.5 - 158.6
158.6 - 158.7
158.7 - 158.8
158.8 - 158.9
158.9 - 159
159 - 159.1
159.1 - 159.17
159.17 - 159.27
159.27 - 159.37
159.37 - 159.47
159.47 - 159.57
Mile Post


Southbound Lane 4 Percentage of Panels with 2 or More Cracks MP 159.71 to MP 165.68
Percentage of Panels with 2 or More Cracks
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
Bridge -
159.71 - 159.75
159.75 - 159.85
159.85 - 159.95
Bridge -
160.25 - 160.35
160.35 - 160.45
160.45 - 160.55
160.55 - 160.65
160.65 - 160.75
160.75 - 160.85
160.85 - 160.94
160.94 - 161.04
161.04 - 161.14
161.14 - 161.24
161.24 - 161.34
161.34 - 161.44
Bridge -
161.74 - 161.84
161.84 - 161.94
161.94 - 162.04
162.04 - 162.14
Bridge -
162.37 - 162.42
162.42 - 162.52
162.52 - 162.62
162.62 - 162.72
Bridge -
164.33 - 164.4
164.4 - 164.5
164.5 - 164.6
164.6 - 164.7
Bridge -
164.93 - 164.98
164.98 - 165.08
165.08 - 165.18
Bridge -
165.44 - 165.48
165.48 - 165.58
165.58 - 165.68
Mile Post

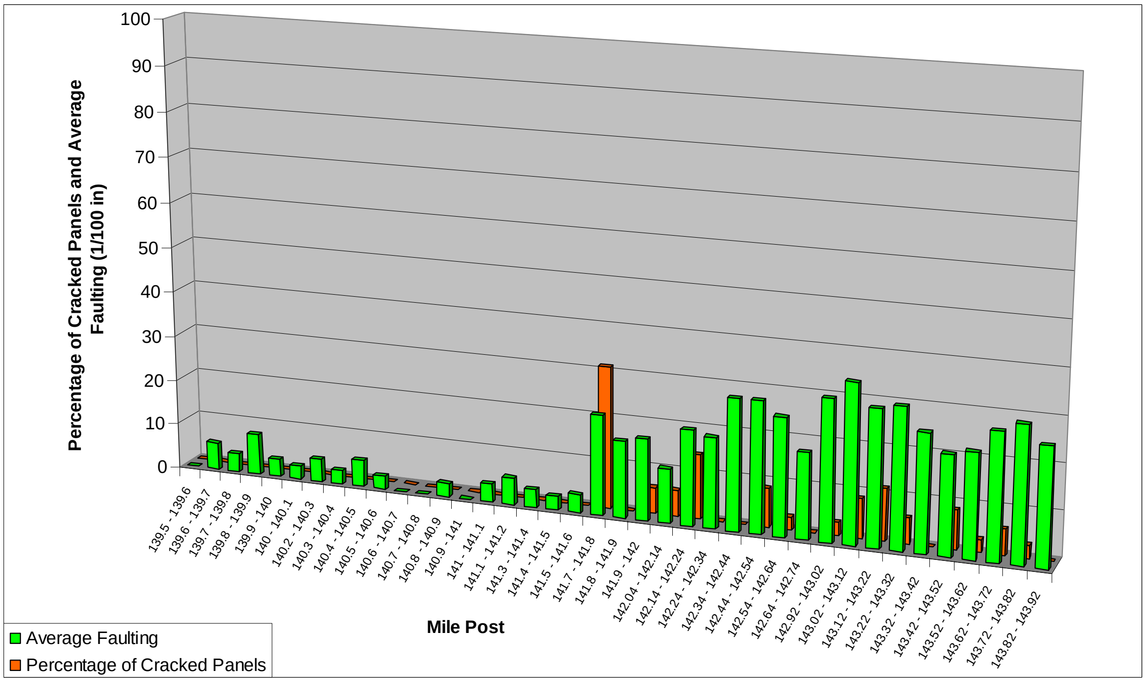

Southbound Lane 4 Percentage of Panels with 2 or More Cracks MP 165.68 to MP 171.92
Percentage of Panels with 2 or More Cracks
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
165.68 - 165.78
165.78 - 165.88
165.88 - 165.98
165.98 - 166.08
166.08 - 166.18
166.18 - 166.28
Bridge -
167.72 - 167.74
167.74 - 167.84
167.84 - 167.94
167.94 - 168.04
168.04 - 168.14
168.14 - 168.24
Bridge -
169.18 - 169.25
169.25 - 169.35
169.35 - 169.45
169.45 - 169.55
169.55 - 169.65
169.65 - 169.75
169.75 - 169.85
169.85 - 169.95
169.95 - 170.05
170.05 - 170.15
170.15 - 170.25
Bridge -
170.59 - 170.69
170.69 - 170.79
170.79 - 170.89
170.89 - 170.99
170.99 - 171.09
171.09 - 171.19
171.19 - 171.29
171.29 - 171.39
171.39 - 171.49
171.49 - 171.59
171.59 - 171.69
171.69 - 171.79
171.79 - 171.89
171.89 - 171.92
Mile Post


Southbound Lane 4 Percentage of Panels with 2 or More Cracks MP 171.92 to MP 175.93
Percentage of Panels with 2 or More Cracks
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
171.92 - 172.02
172.02 - 172.12
172.12 - 172.22
172.22 - 172.32
172.32 - 172.42
172.42 - 172.52
172.52 - 172.54
172.54 - 172.64
172.64 - 172.74
Bridge -
172.84 - 172.94
172.94 - 173.04
173.04 - 173.14
173.14 - 173.24
173.24 - 173.34
173.34 - 173.44
173.44 - 173.54
173.54 - 173.64
173.64 - 173.74
173.74 - 173.84
173.84 - 173.94
173.94 - 174.04
174.04 - 174.14
174.14 - 174.21
174.21 - 174.31
174.31 - 174.41
174.41 - 174.51
174.51 - 174.61
174.61 - 174.71
174.71 - 174.81
174.81 - 174.91
174.91 - 175.01
Bridge -
175.23 - 175.33
175.33 - 175.43
Bridge -
175.53 - 175.63
175.63 - 175.73
175.73 - 175.83
175.83 - 175.93
Mile Post

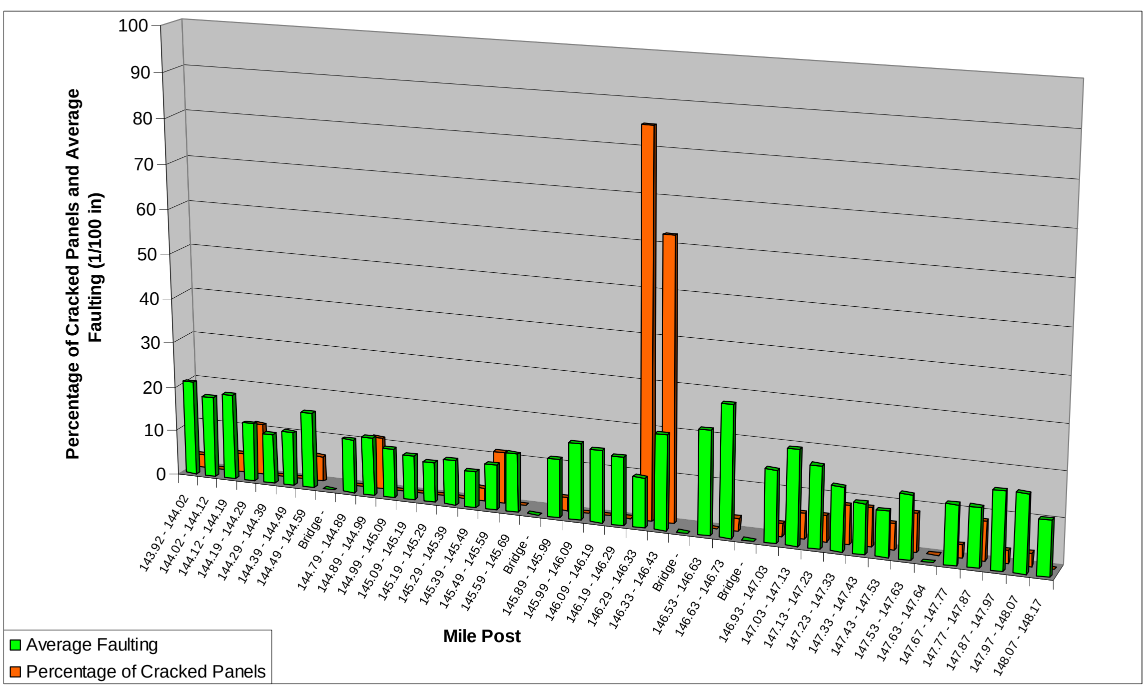

Southbound Lane 4 Percentage of Panels with 2 or More Cracks MP 175.93 to MP 177.65
Percentage of Panels with 2 or More Cracks
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
175.93 - 176.03
176.03 - 176.13
176.16 - 176.16
Bridge -
176.26 - 176.36
176.36 - 176.46
176.46 - 176.56
176.56 - 176.66
176.66 - 176.76
176.76 - 176.86
176.86 - 176.96
176.96 - 177.05
177.05 - 177.15
177.15 - 177.25
177.25 - 177.35
177.35 - 177.45
177.45 - 177.55
177.55 - 177.65
Mile Post

Appendix N –
Percentage of Cracked Panels and Average Faulting

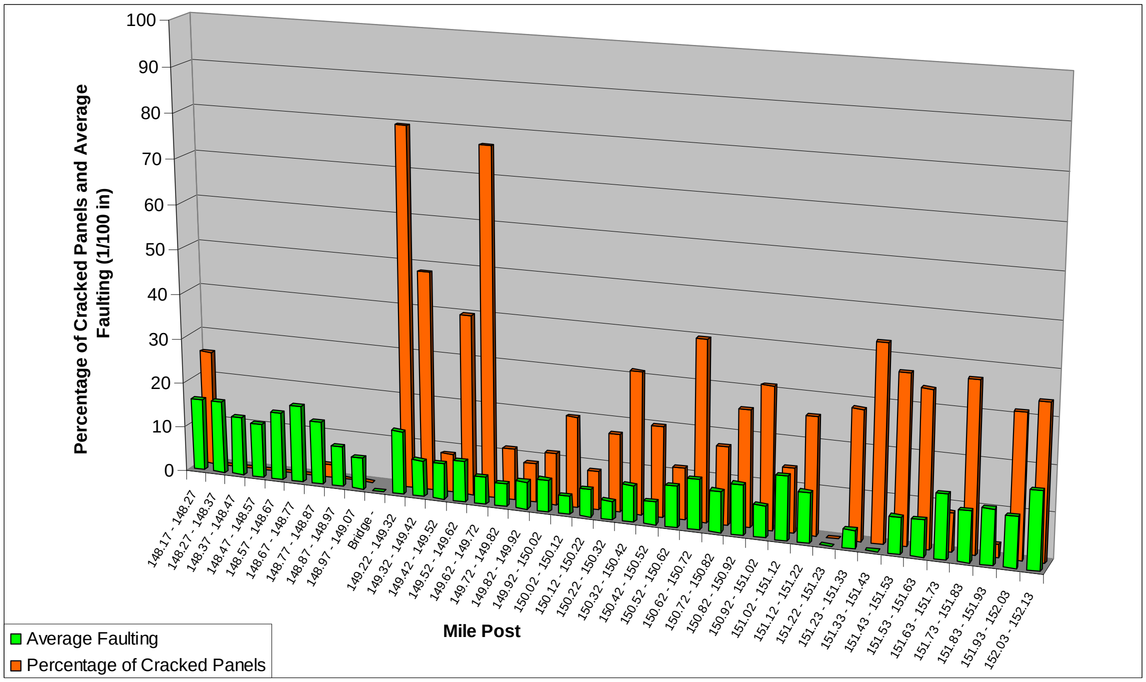
Northbound Lane 1 Percentage of Cracked Panels and Average Faulting MP 139.5 to MP 143.92



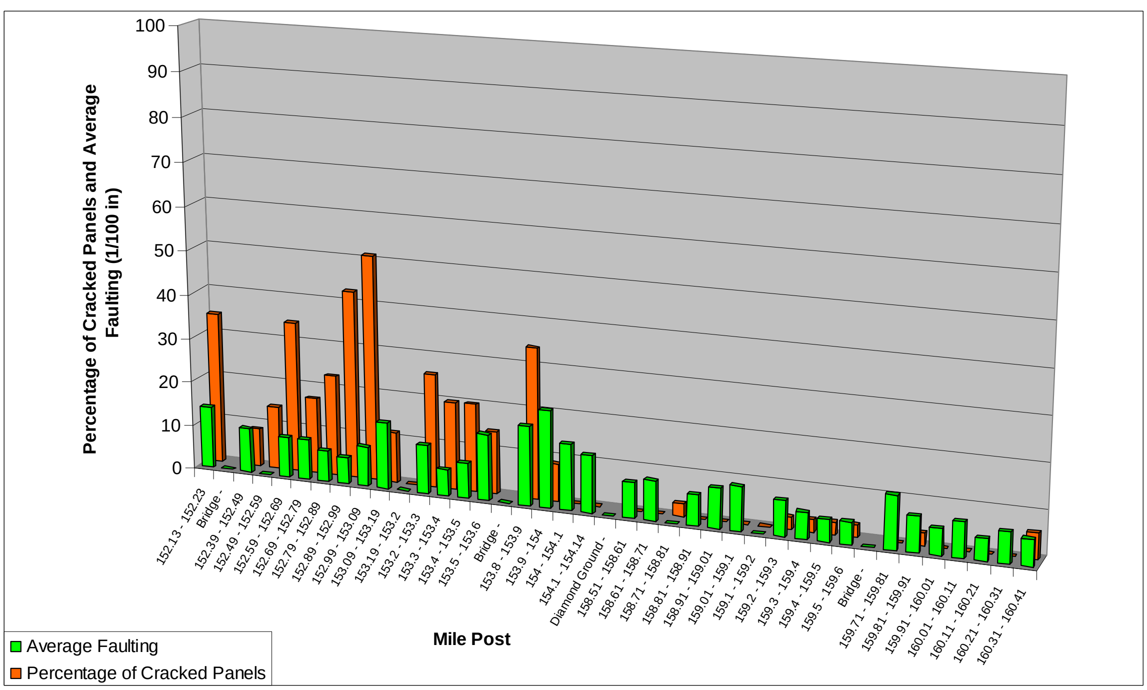
Northbound Lane 1 Percentage of Cracked Panels and Average Faulting MP 143.92 to MP 148.17



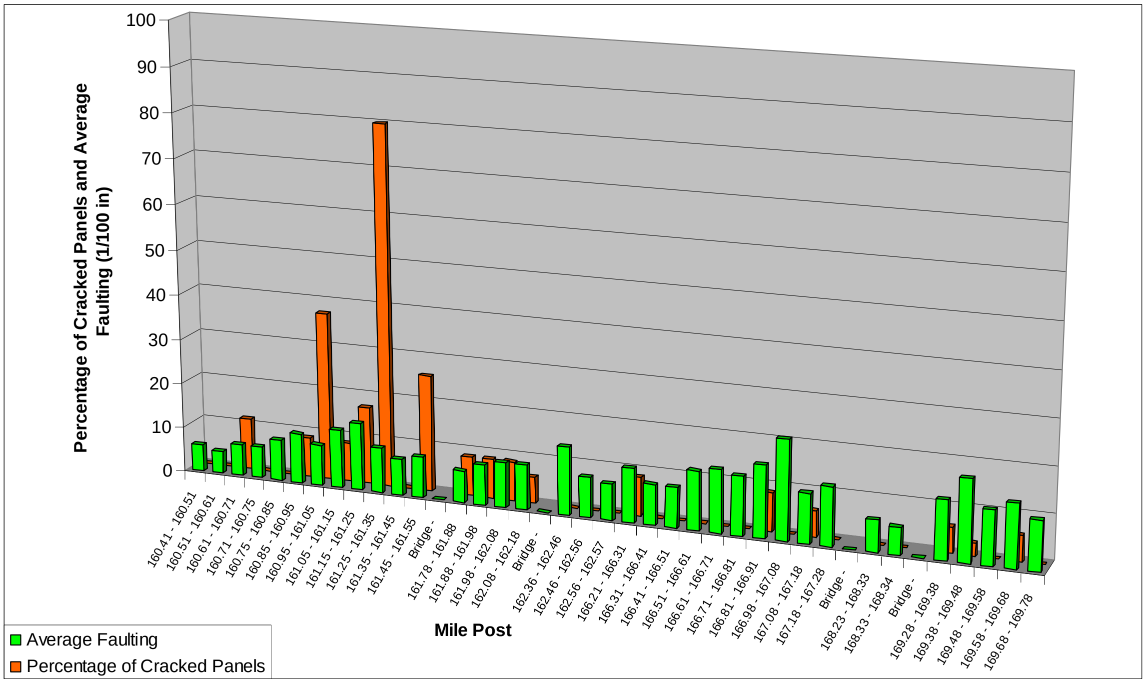
Northbound Lane 1 Percentage of Cracked Panels and Average Faulting MP 148.17 to MP 152.13



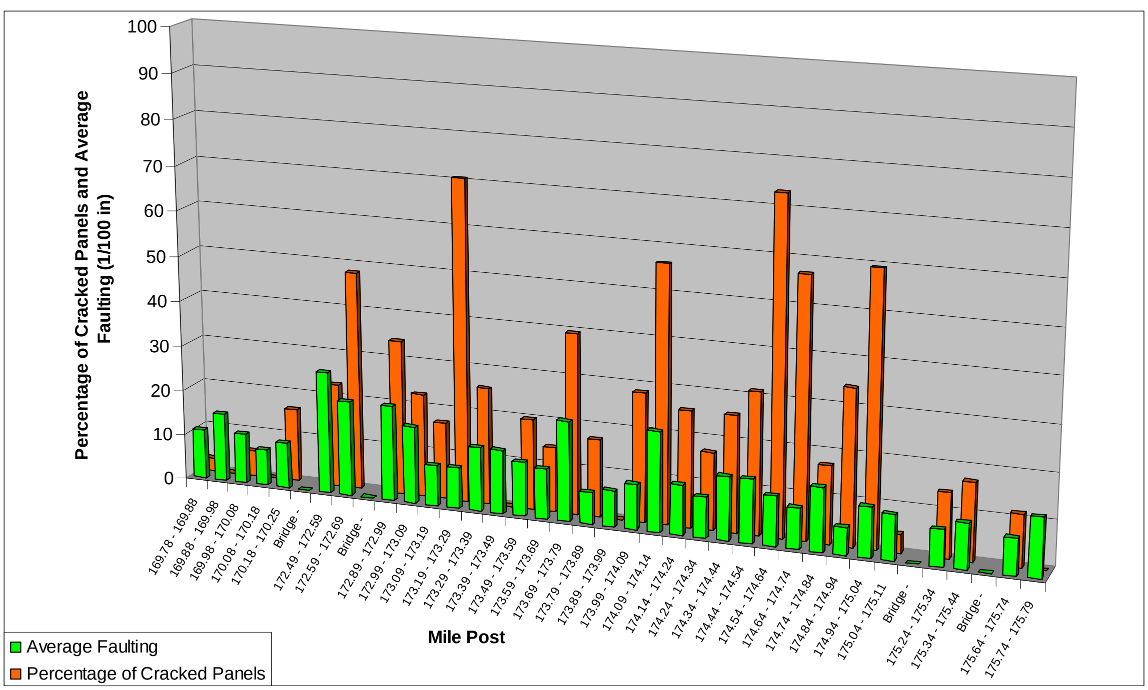
Northbound Lane 1 Percentage of Cracked Panels and Average Faulting MP 152.13 to MP 160.41



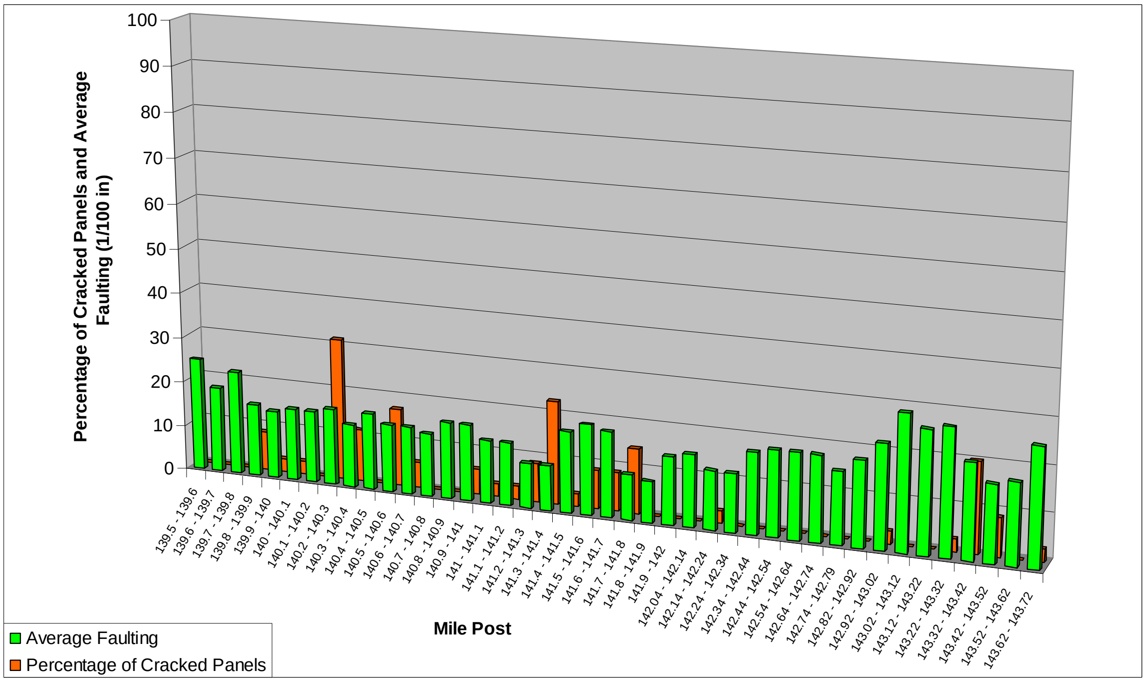
Northbound Lane 1 Percentage of Cracked Panels and Average Faulting MP 160.41 to MP 169.78



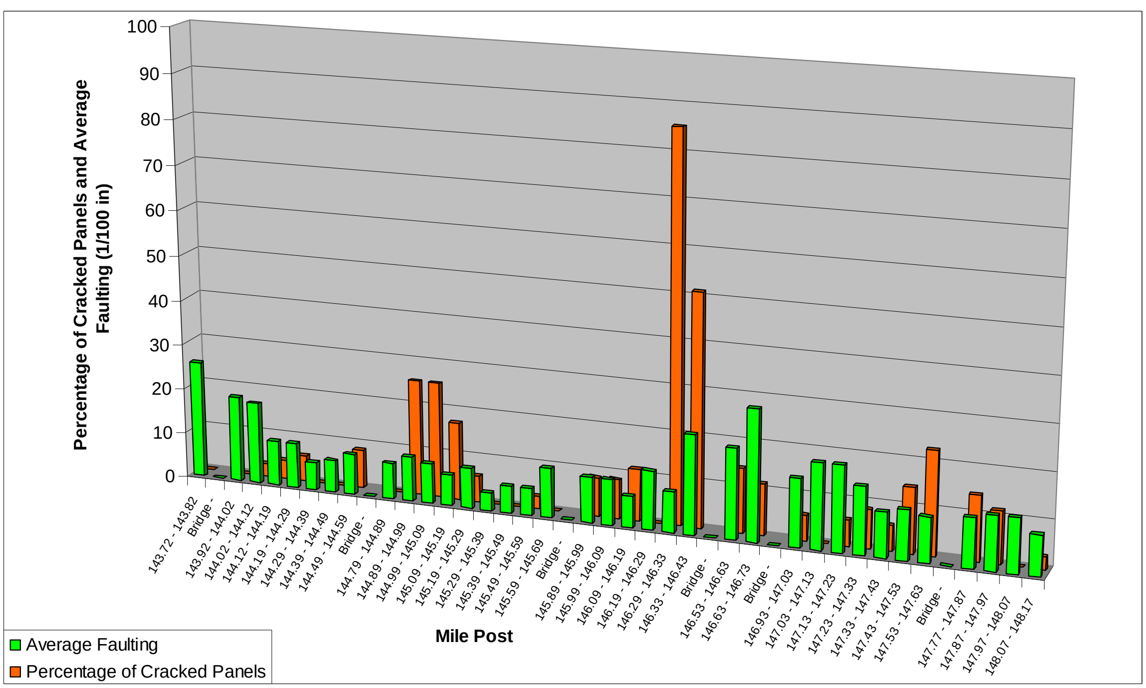
Northbound Lane 1 Percentage of Cracked Panels and Average Faulting MP 169.78 to MP 175.79



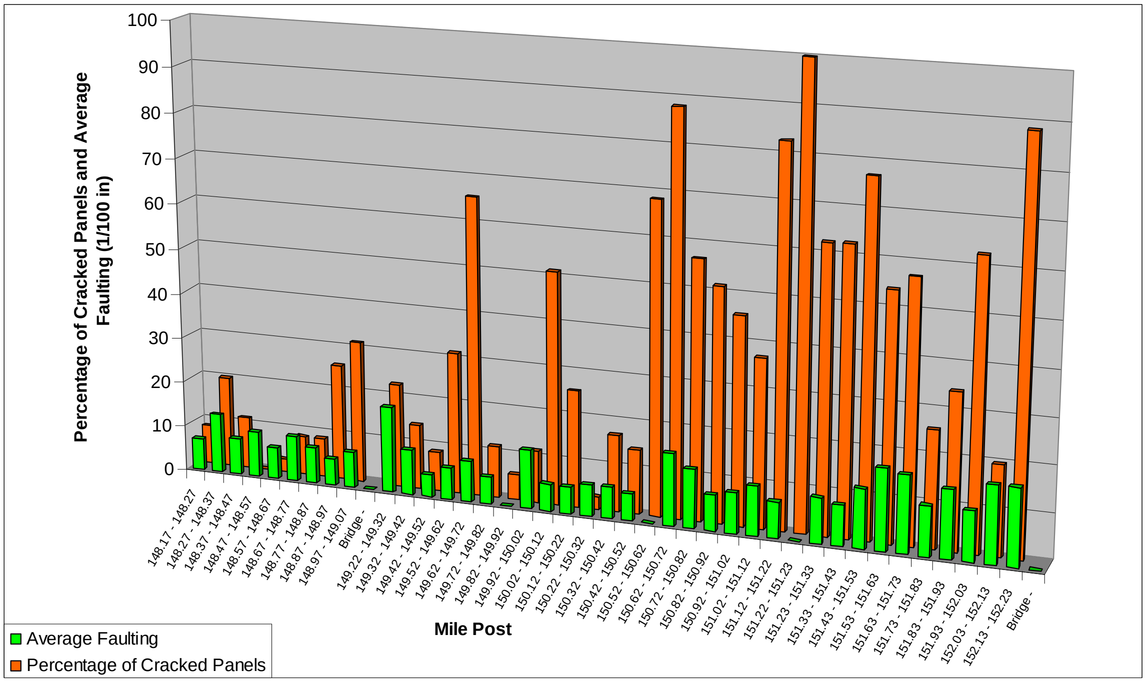
Northbound Lane 2 Percentage of Cracked Panels and Average Faulting MP 139.5 to MP 143.72



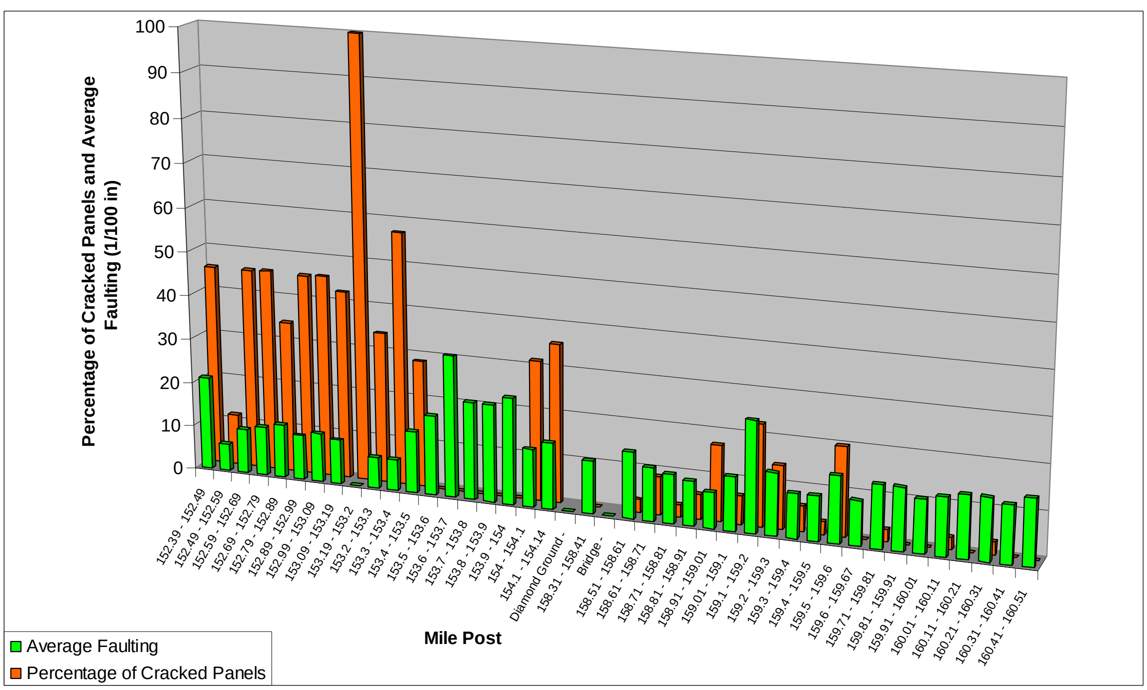
Northbound Lane 2 Percentage of Cracked Panels and Average Faulting MP 143.72 to MP 148.17



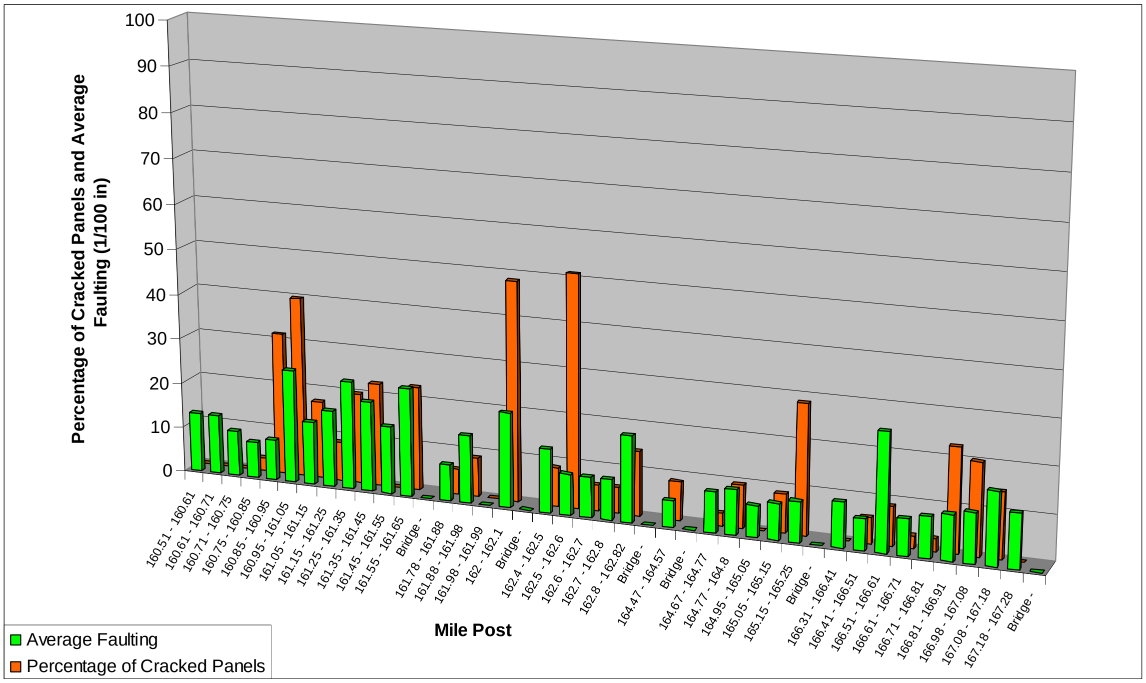
Northbound Lane 2 Percentage of Cracked Panels and Average Faulting MP 148.17 to MP 152.23



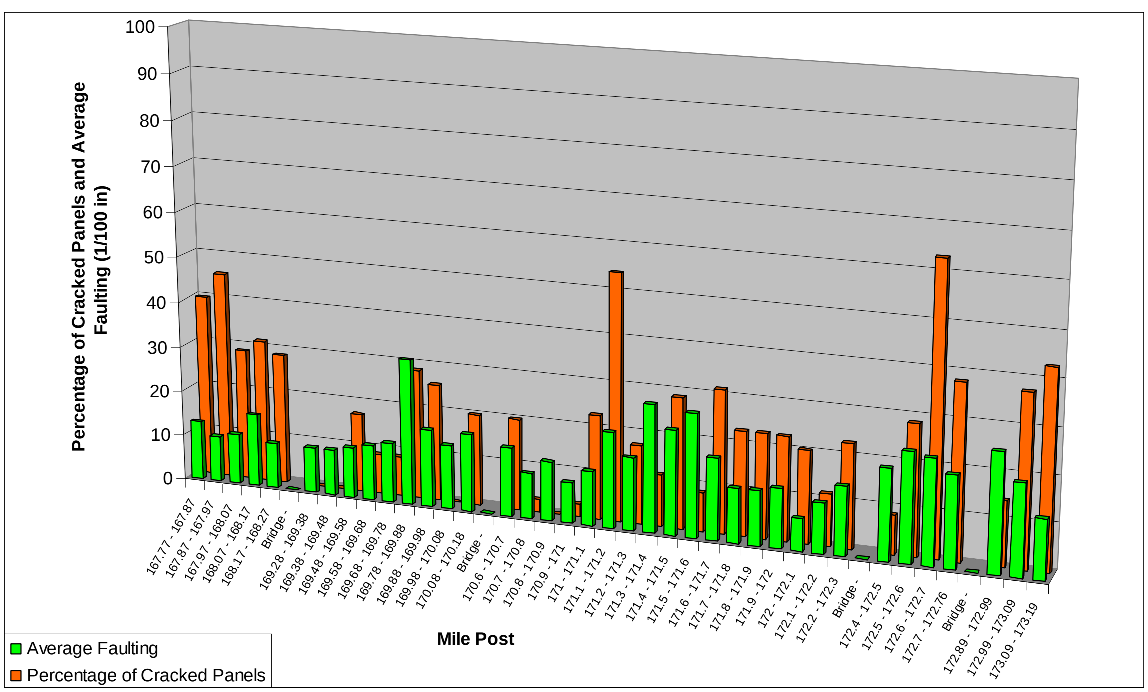
Northbound Lane 2 Percentage of Cracked Panels and Average Faulting MP 152.39 to MP 160.51



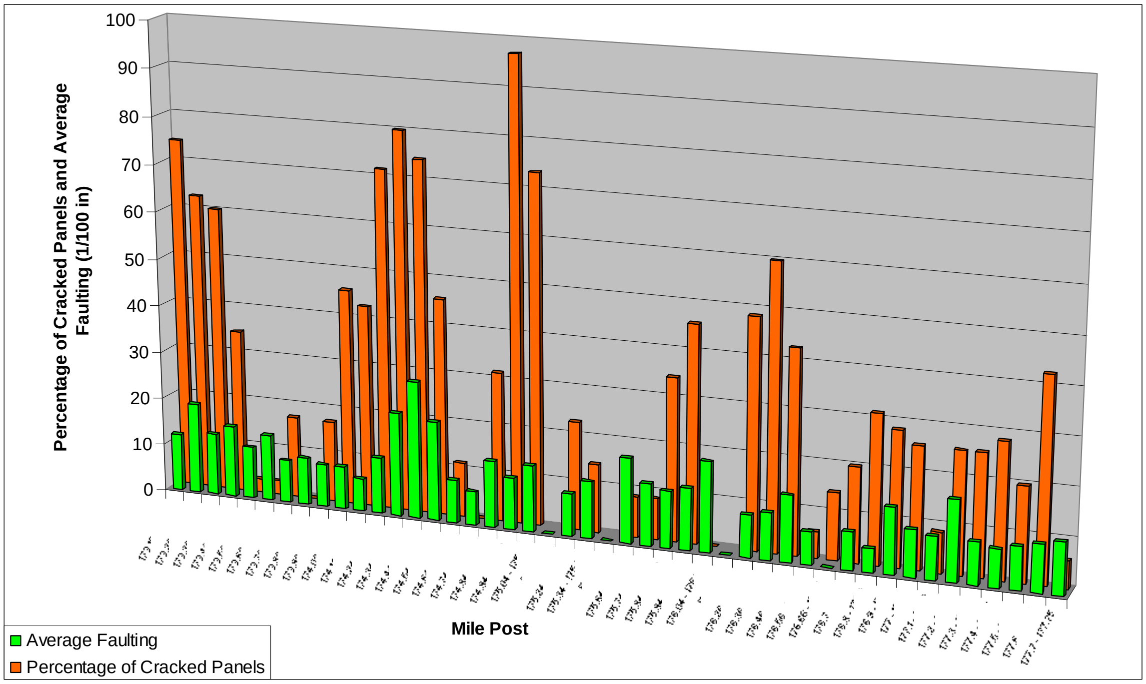
Northbound Lane 2 Percentage of Cracked Panels and Average Faulting MP 160.51 to MP 167.28



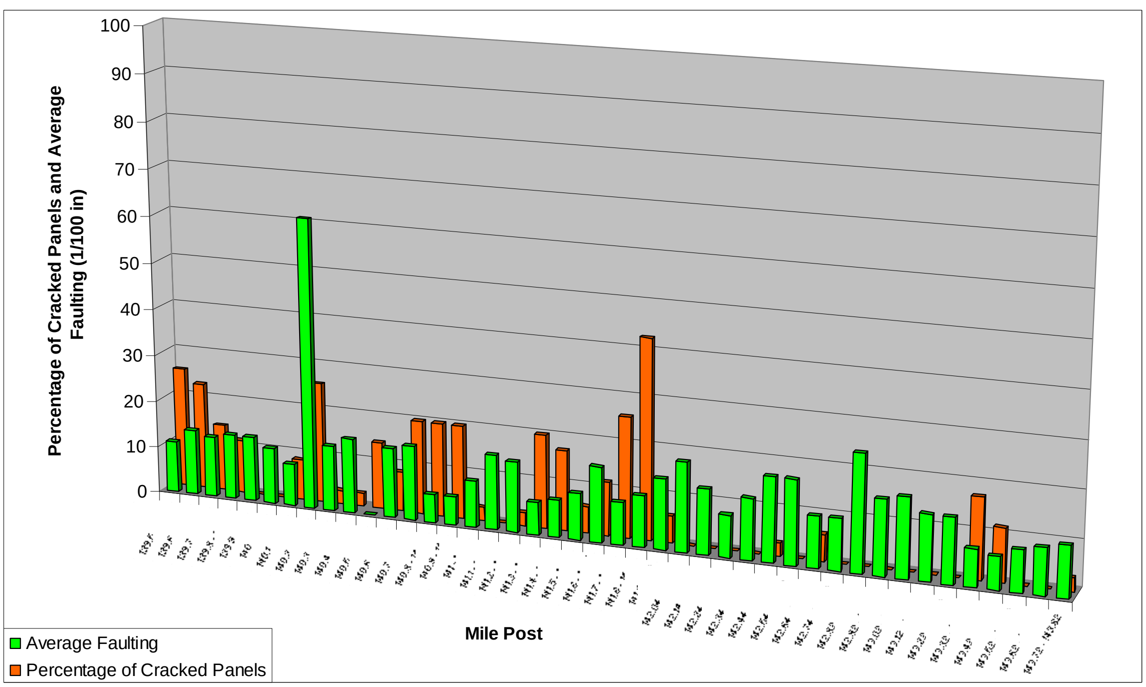
Northbound Lane 2 Percentage of Cracked Panels and Average Faulting MP 160.77 to MP 173.19



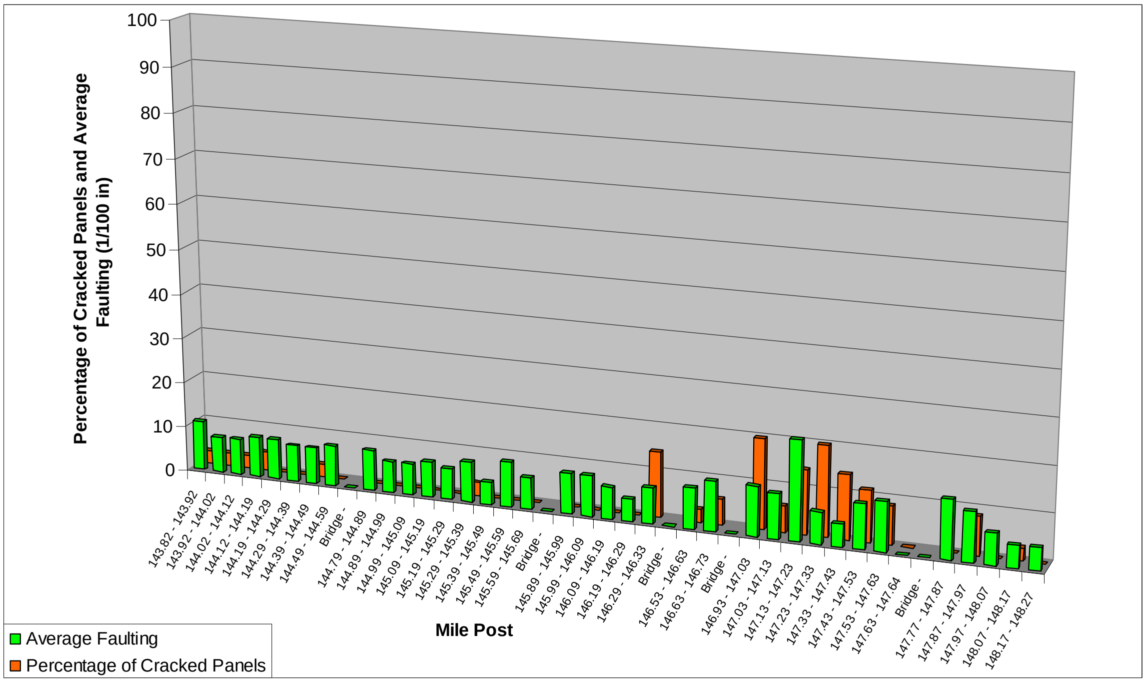
Northbound Lane 2 Percentage of Cracked Panels and Average Faulting MP 173.19 to MP 177.75



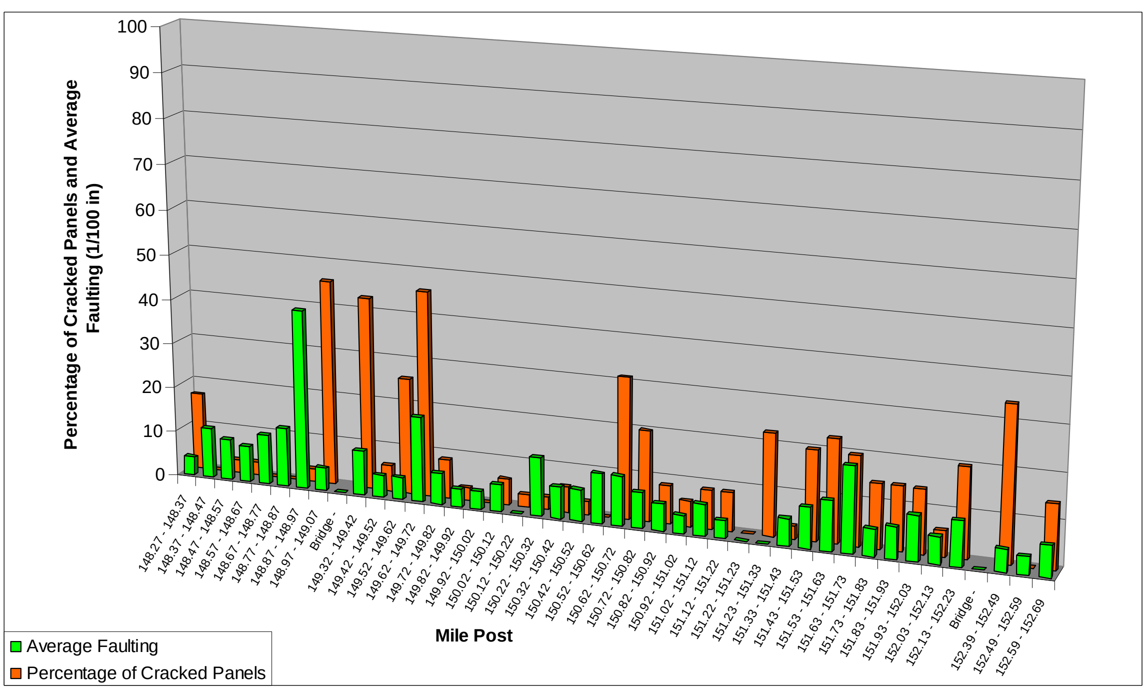
Northbound Lane 3 Percentage of Cracked Panels and Average Faulting MP 139.5 to MP 143.82



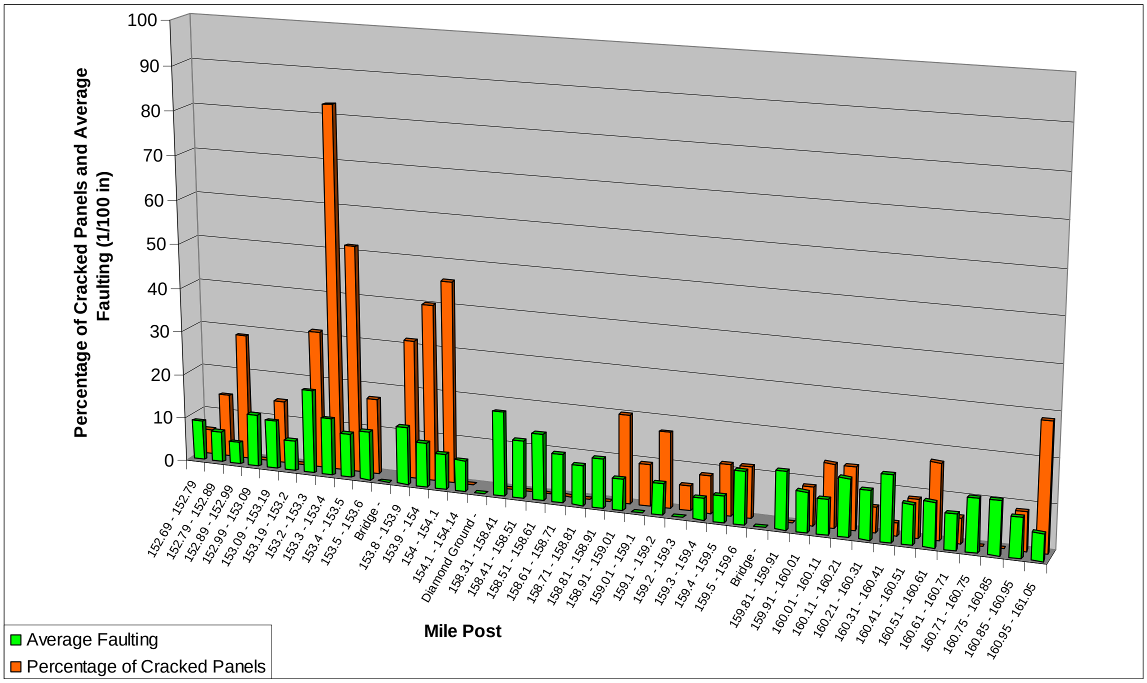
Northbound Lane 3 Percentage of Cracked Panels and Average Faulting MP 143.82 to MP 148.27



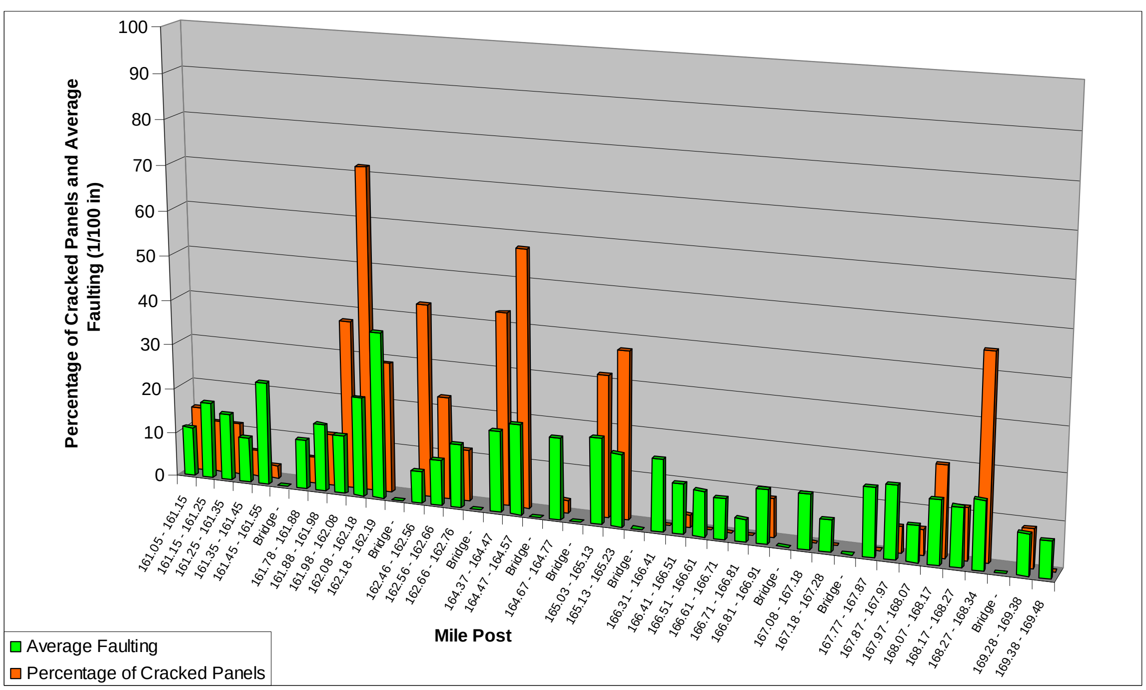
Northbound Lane 3 Percentage of Cracked Panels and Average Faulting MP 148.27 to MP 152.69



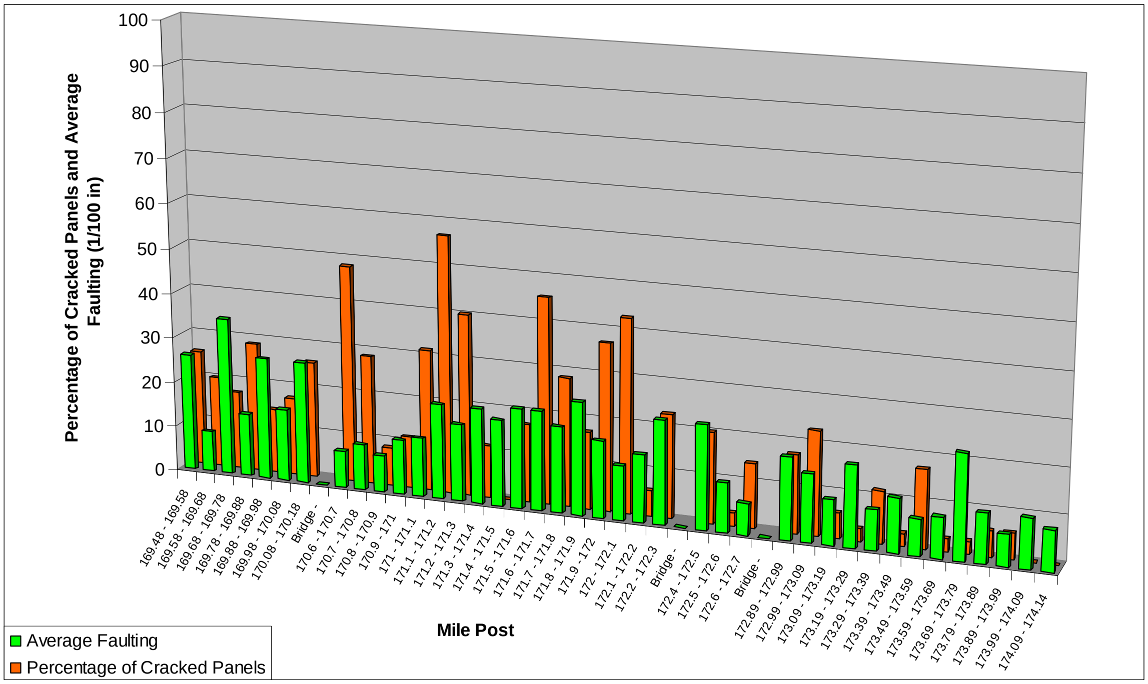
Northbound Lane 3 Percentage of Cracked Panels and Average Faulting MP 152.69 to MP 161.05



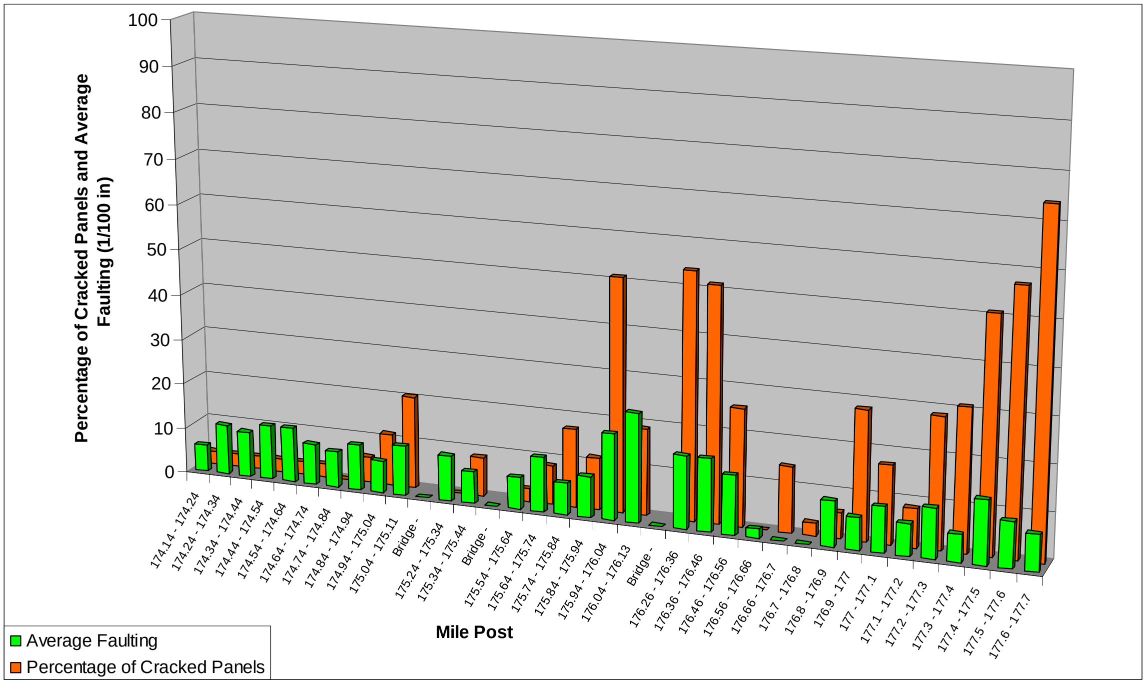
Northbound Lane 3 Percentage of Cracked Panels and Average Faulting MP 161.05 to MP 169.48



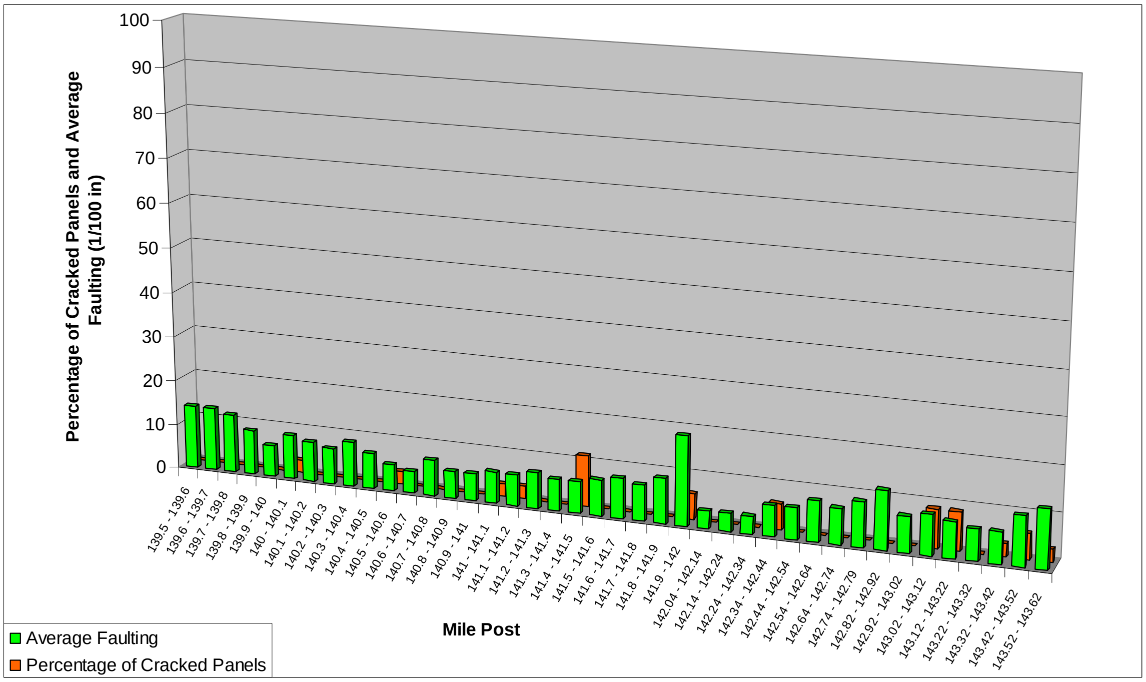
Northbound Lane 3 Percentage of Cracked Panels and Average Faulting MP 169.48 to MP 174.14



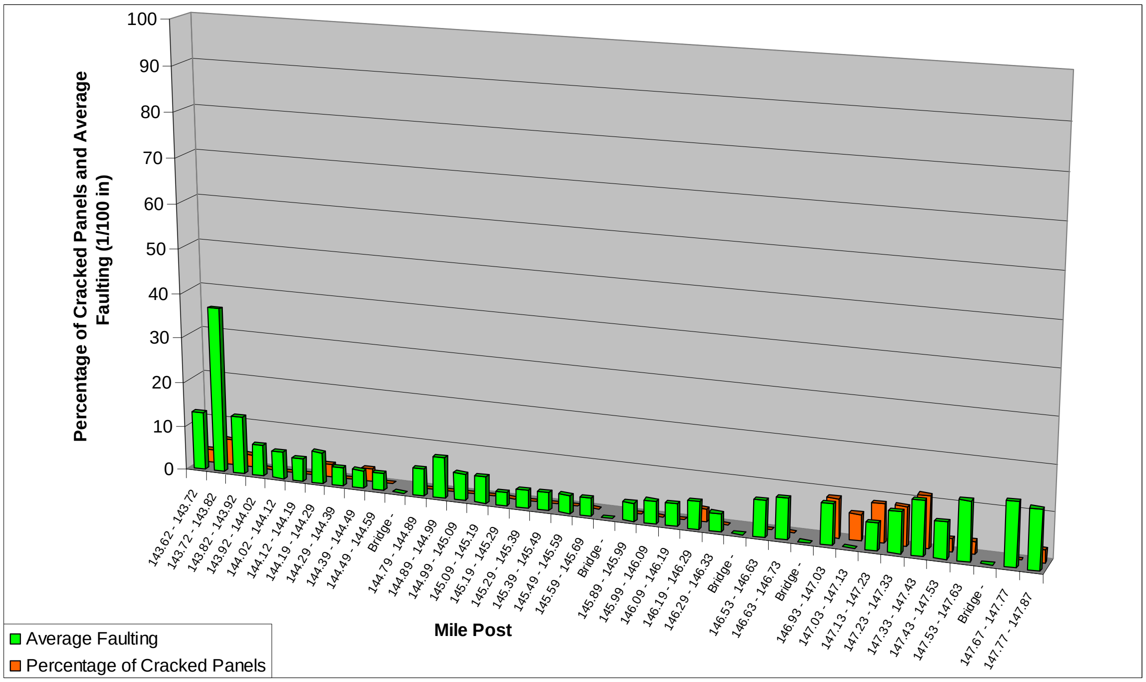
Northbound Lane 3 Percentage of Cracked Panels and Average Faulting MP 174.14 to MP 177.7



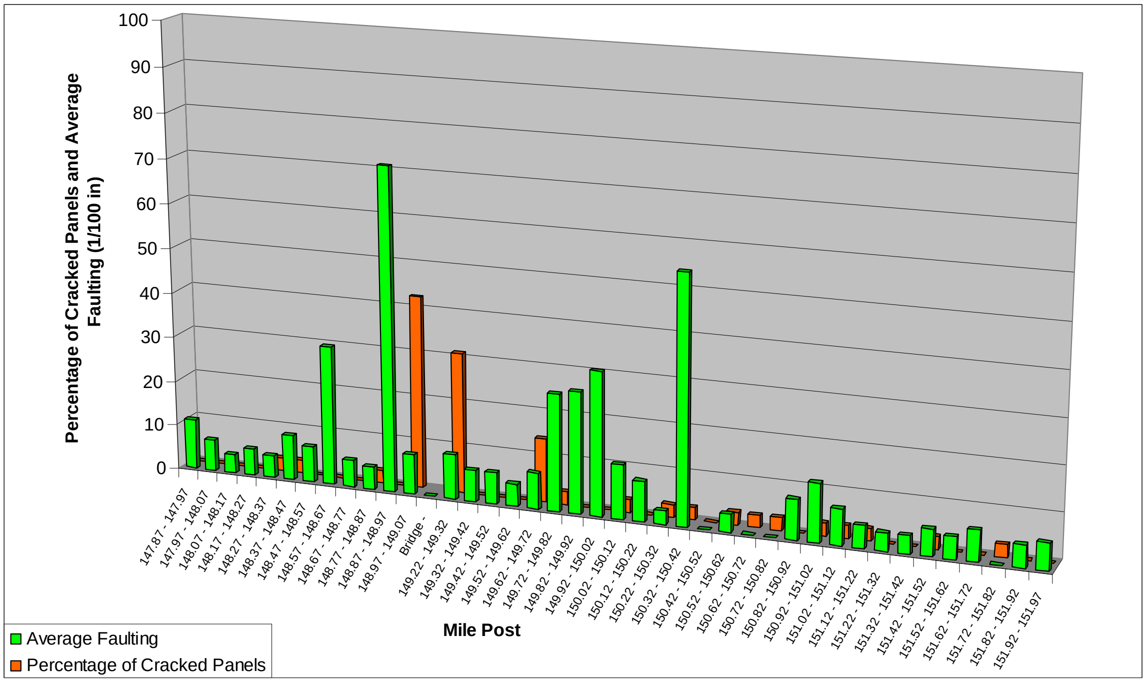
Northbound Lane 4 Percentage of Cracked Panels and Average Faulting MP 139.5 to MP 143.62



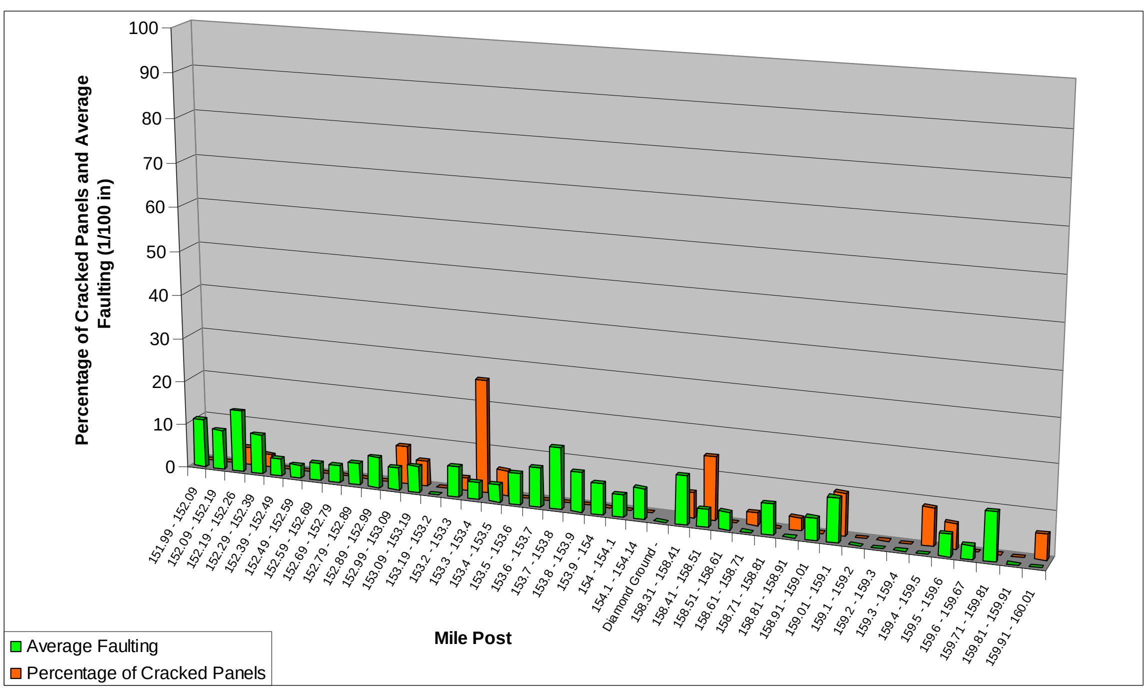
Northbound Lane 4 Percentage of Cracked Panels and Average Faulting MP 143.62 to MP 147.87



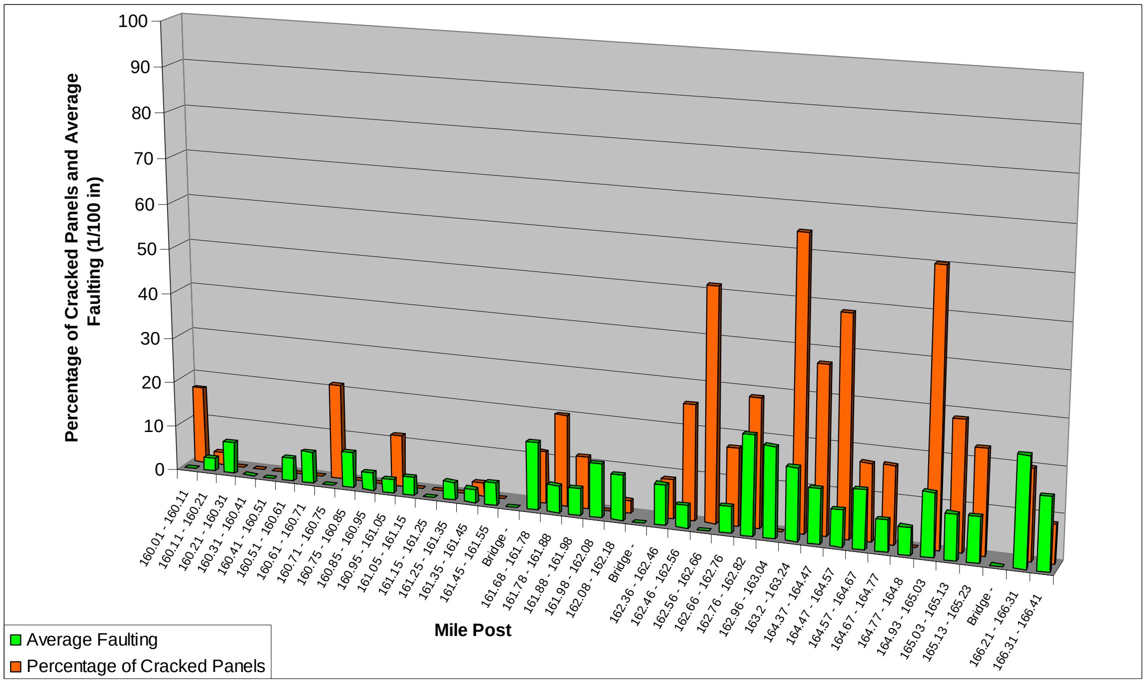
Northbound Lane 4 Percentage of Cracked Panels and Average Faulting MP 147.87 to MP 151.97



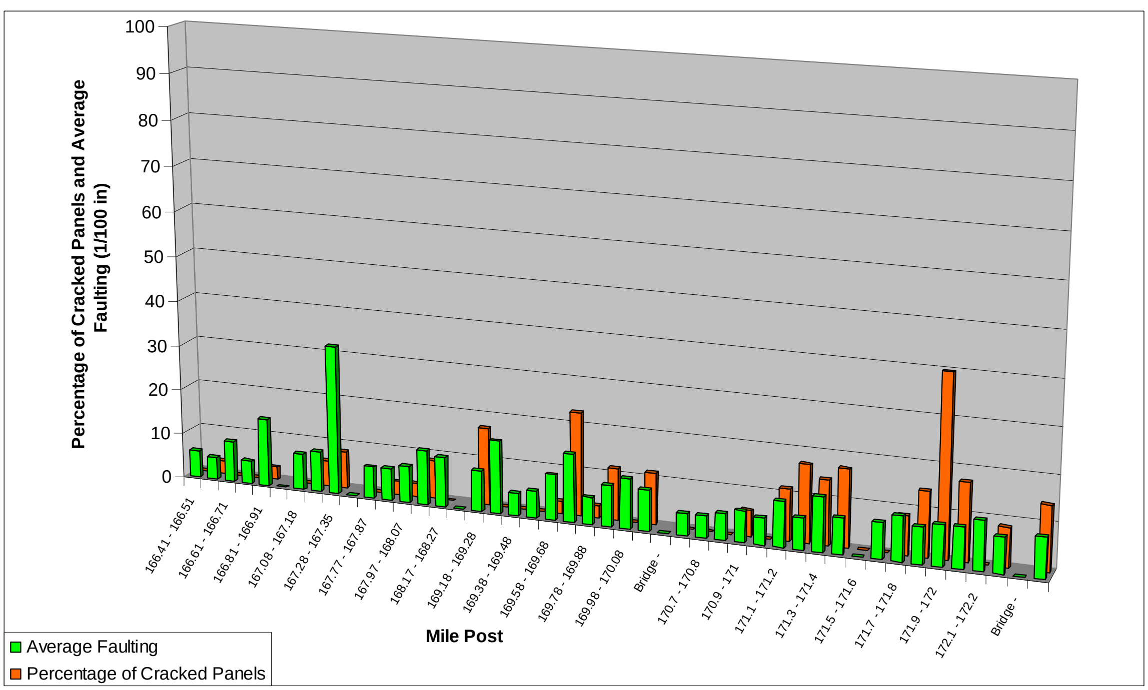
Northbound Lane 4 Percentage of Cracked Panels and Average Faulting MP 151.99 to MP 160.01



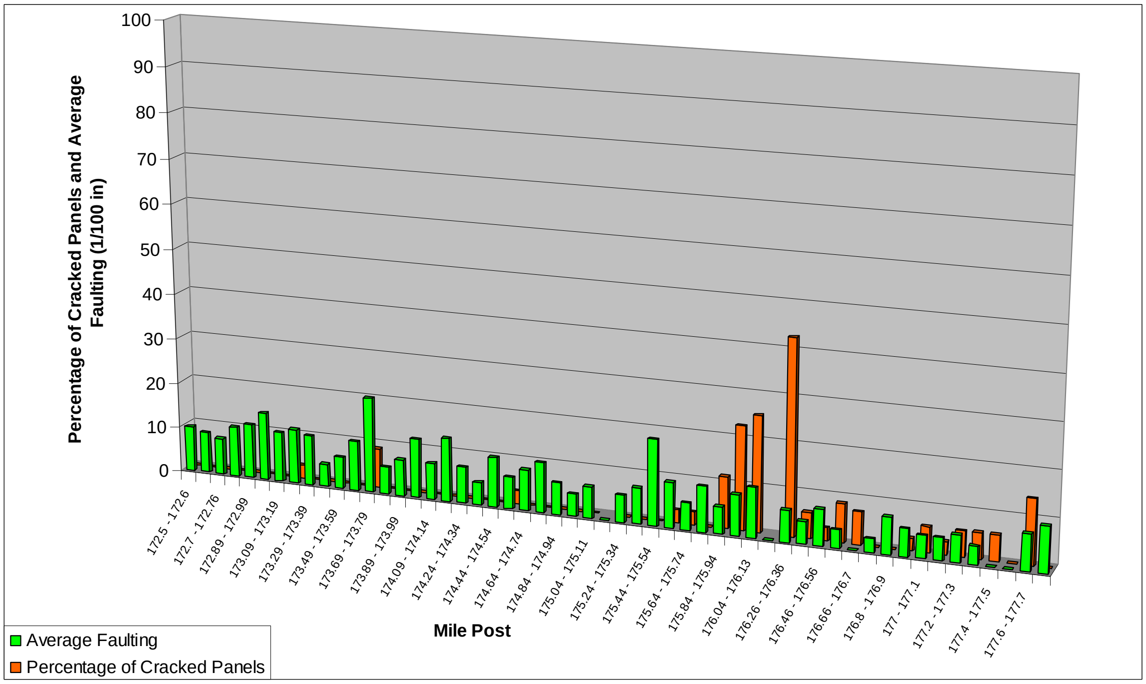
Northbound Lane 4 Percentage of Cracked Panels and Average Faulting MP 160.01 to MP 166.41



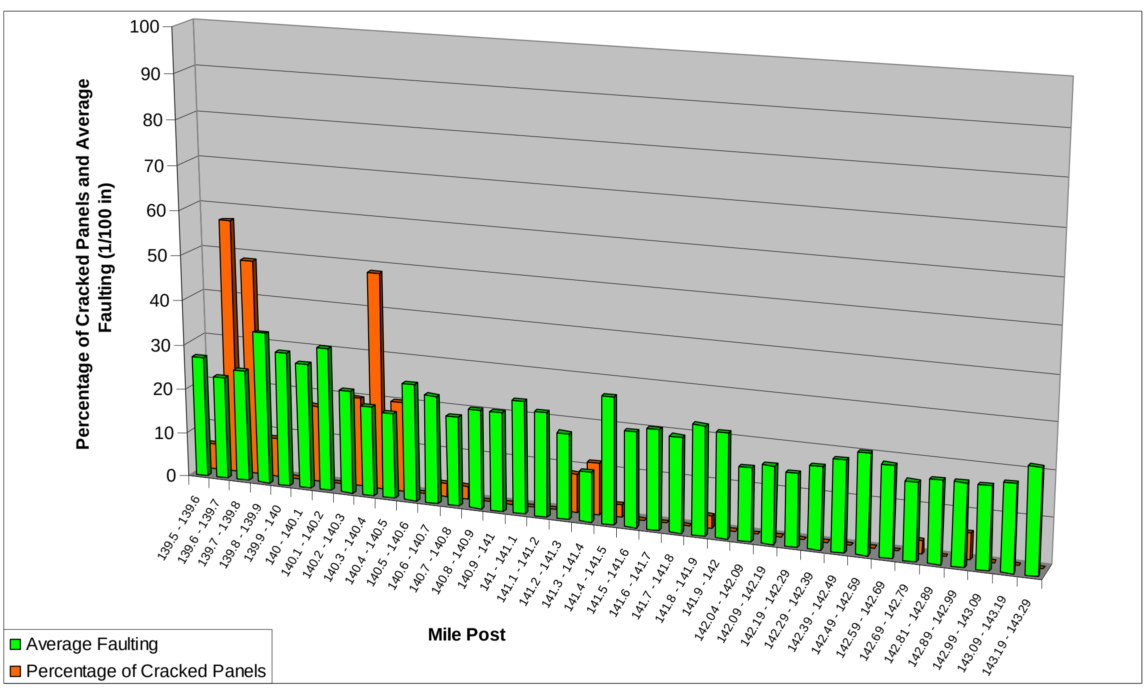
Northbound Lane 4 Percentage of Cracked Panels and Average Faulting MP166.41 to MP 172.5



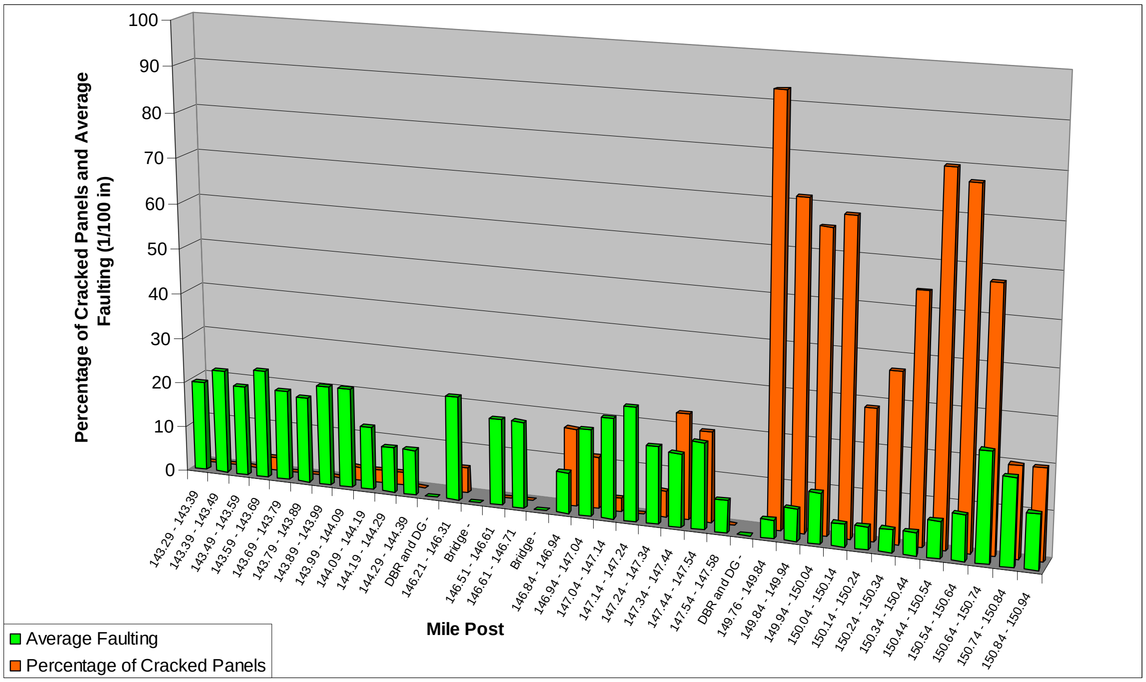
Northbound Lane 4 Percentage of Cracked Panels and Average Faulting MP 172.5 to MP 177.75



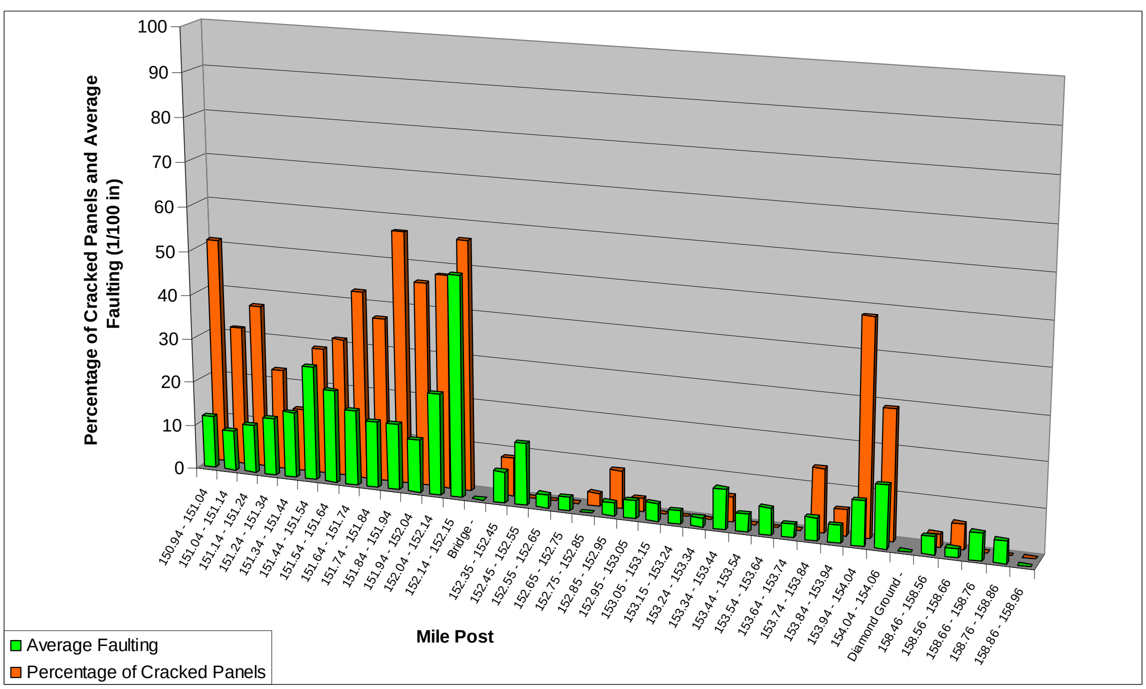
Southbound Lane 1 Percentage of Cracked Panels and Average Faulting MP 139.5 to MP 143.29



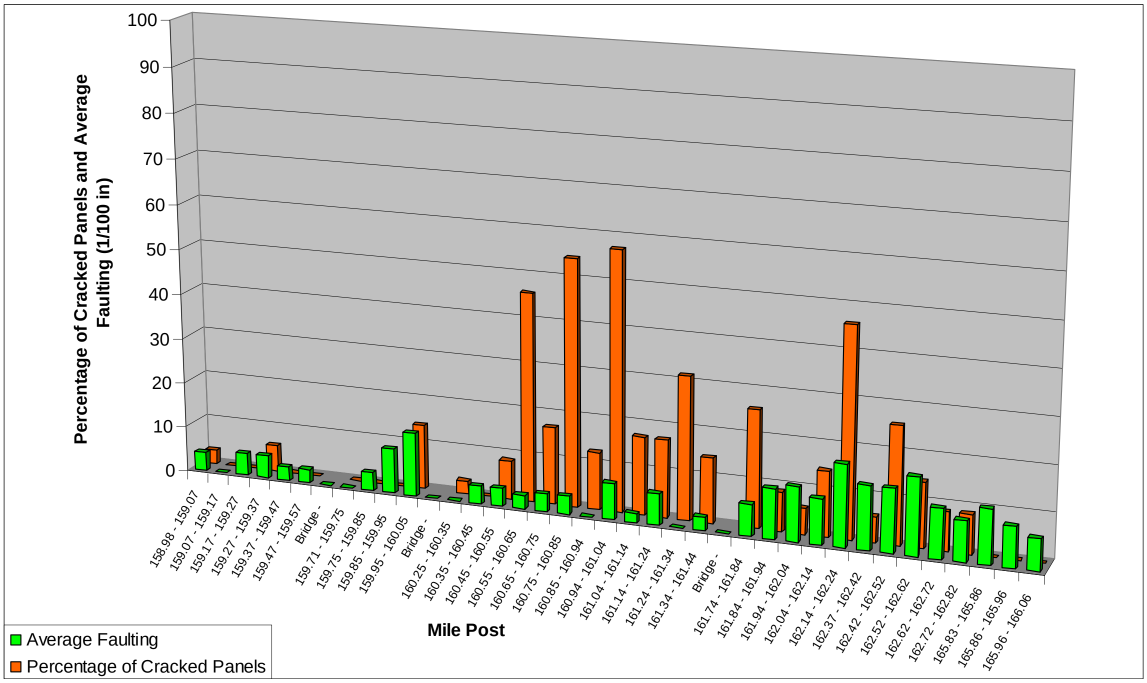
Southbound Lane 1 Percentage of Cracked Panels and Average Faulting MP 139.5 to MP 143.29



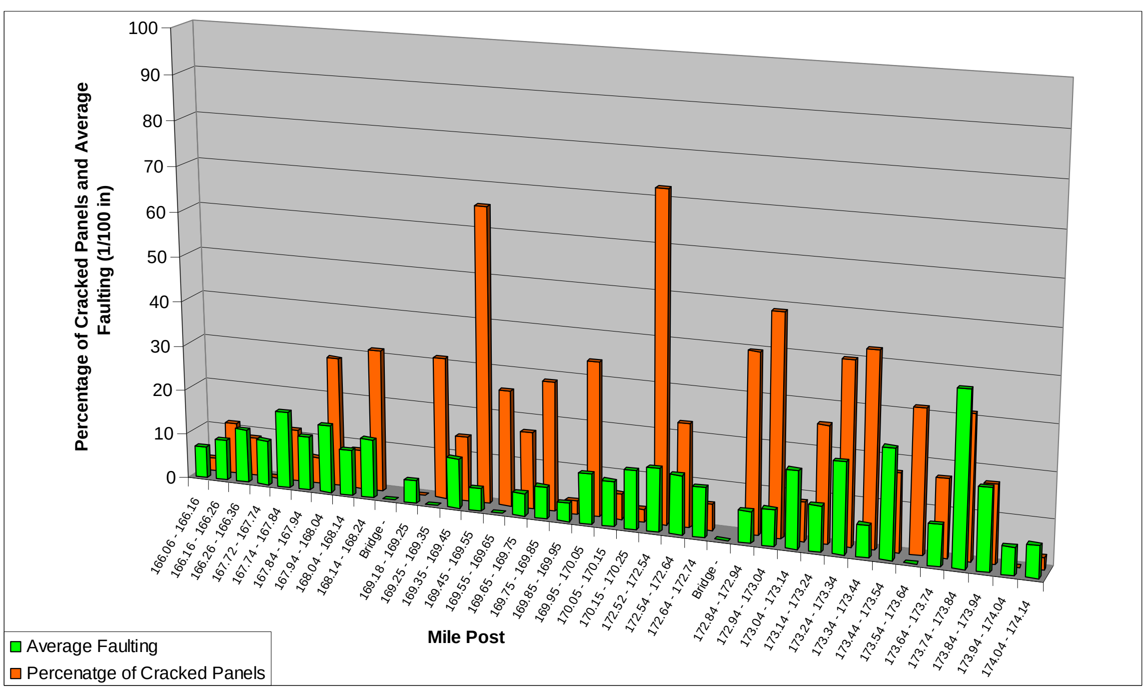
Southbound Lane 1 Percentage of Cracked Panels and Average Faulting MP 150.94 to MP 158.96



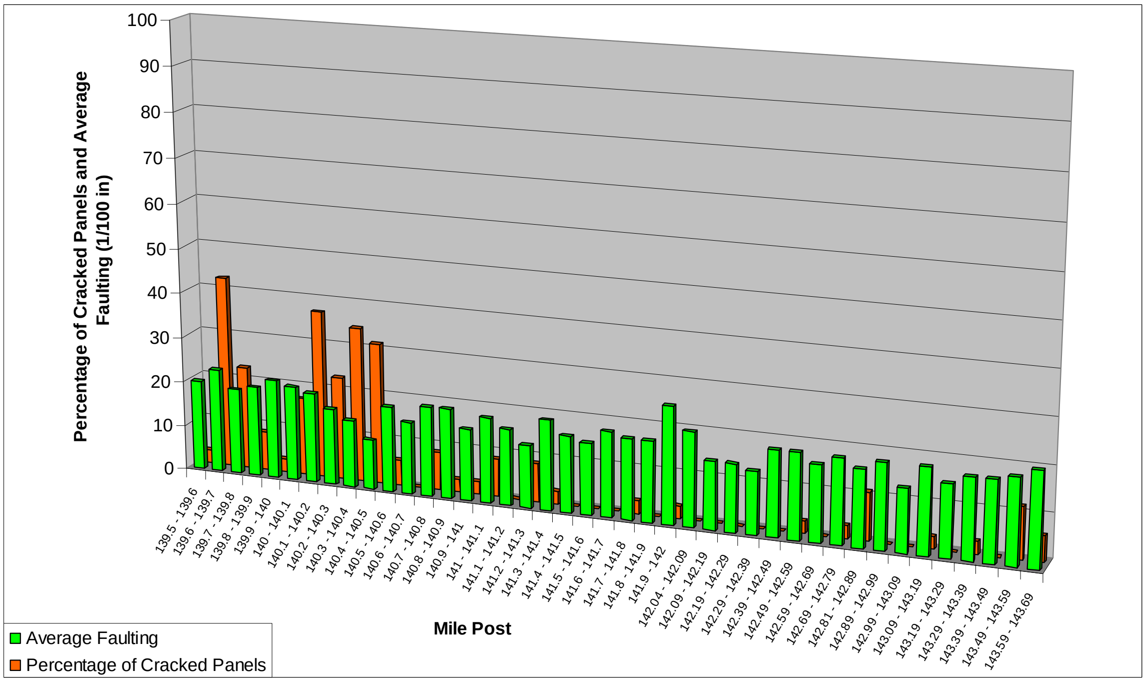
Southbound Lane 1 Percentage of Cracked Panels and Average Faulting MP 158.98 to MP 166.06



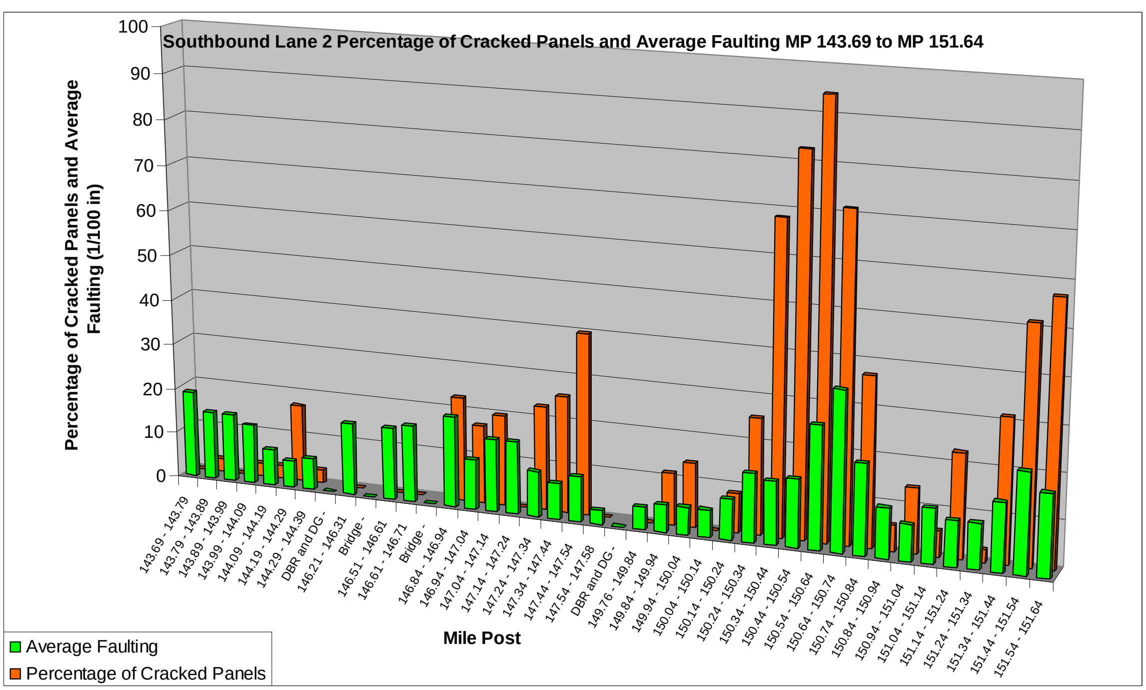
Southbound Lane 1 Percentage of Cracked Panels and Average Faulting MP 166.06 to MP 174.14



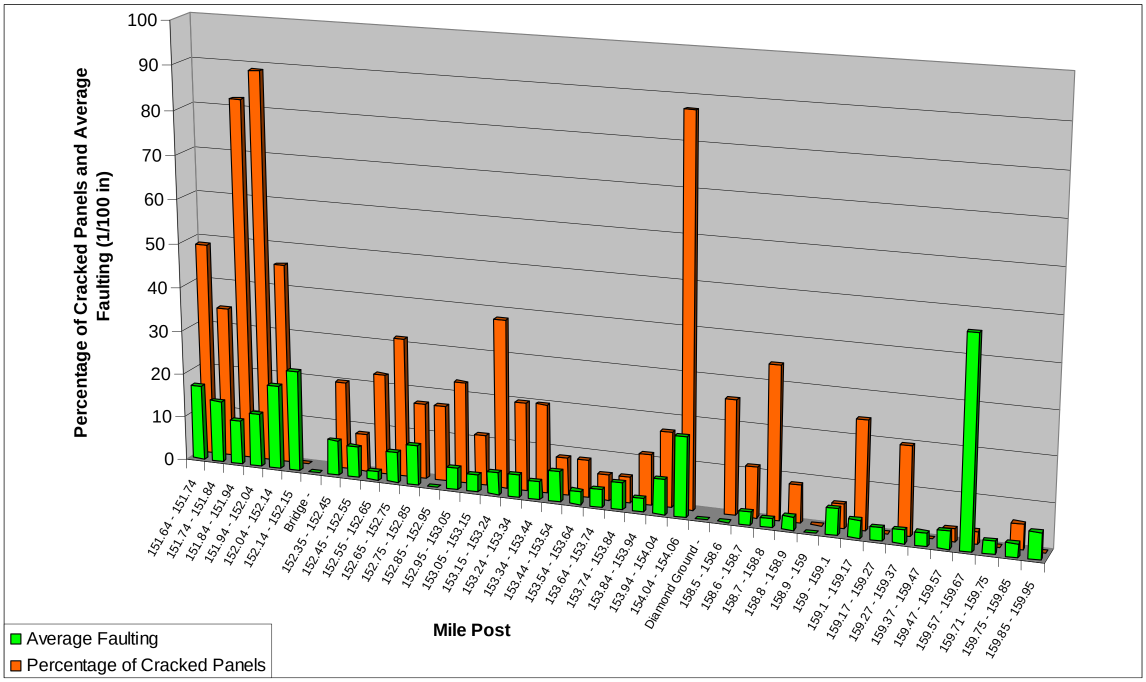
Southbound Lane 2 Percentage of Cracked Panels and Average Faulting MP 139.5 to MP 143.69



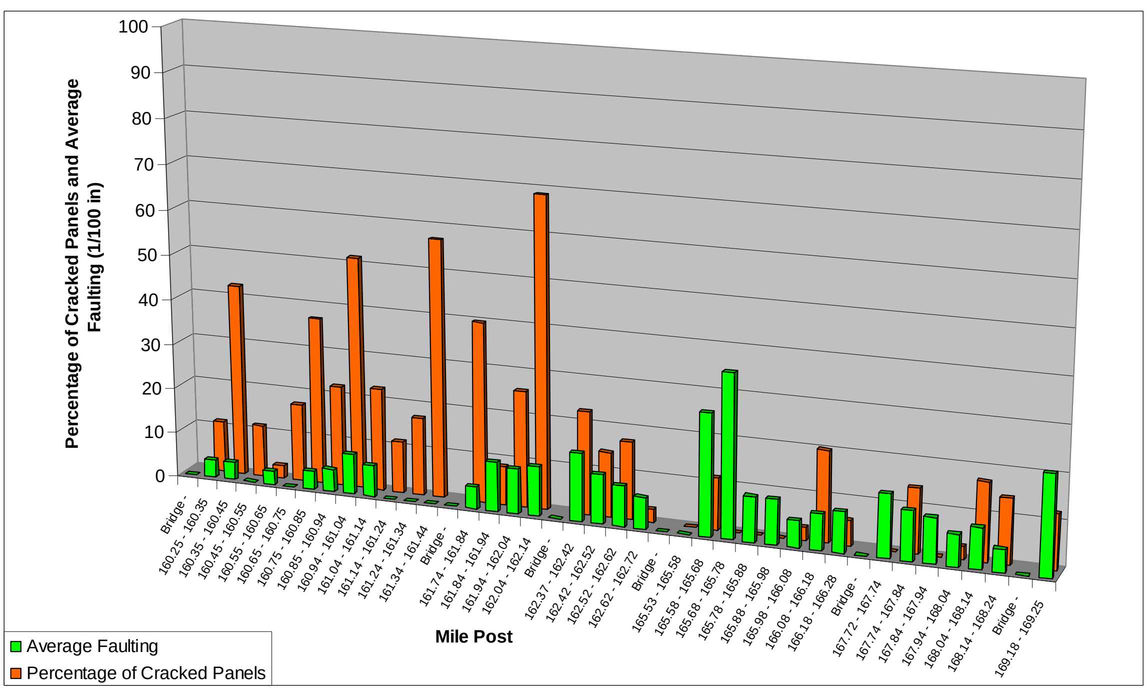
Southbound Lane 2 Percentage of Cracked Panels and Average Faulting MP 143.69 to MP 151.64



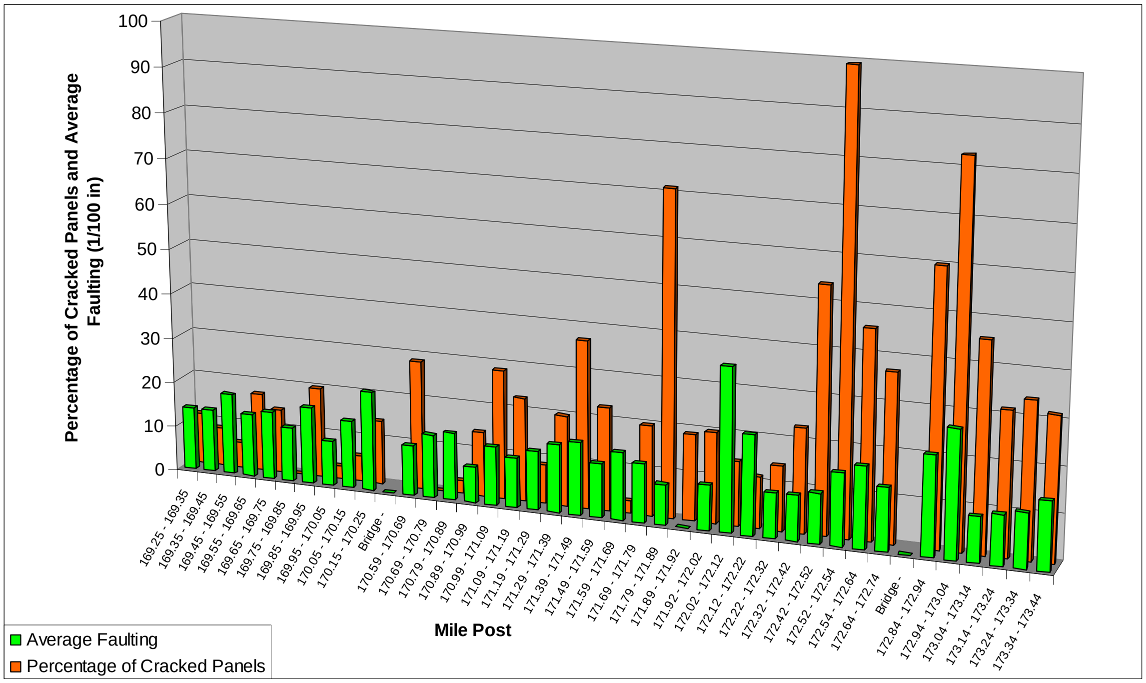
Southbound Lane 2 Percentage of Cracked Panels and Average Faulting MP 151.64 to MP 159.95



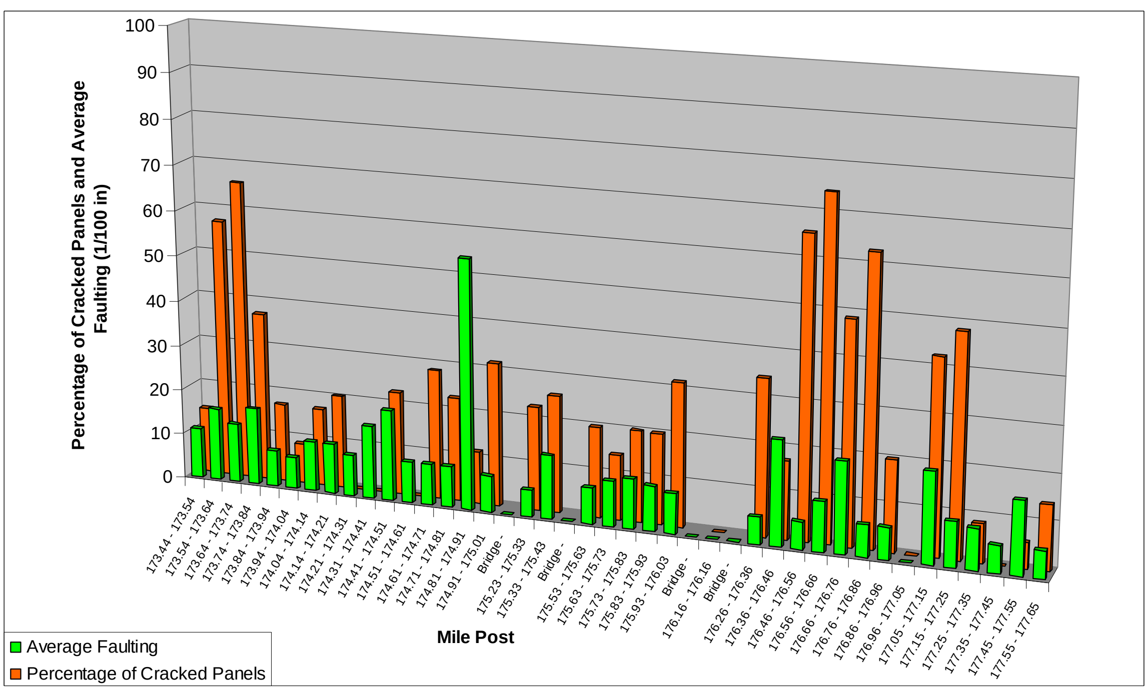
Southbound Lane 2 Percentage of Cracked Panels and Average Faulting MP 160.25 to MP 169.25



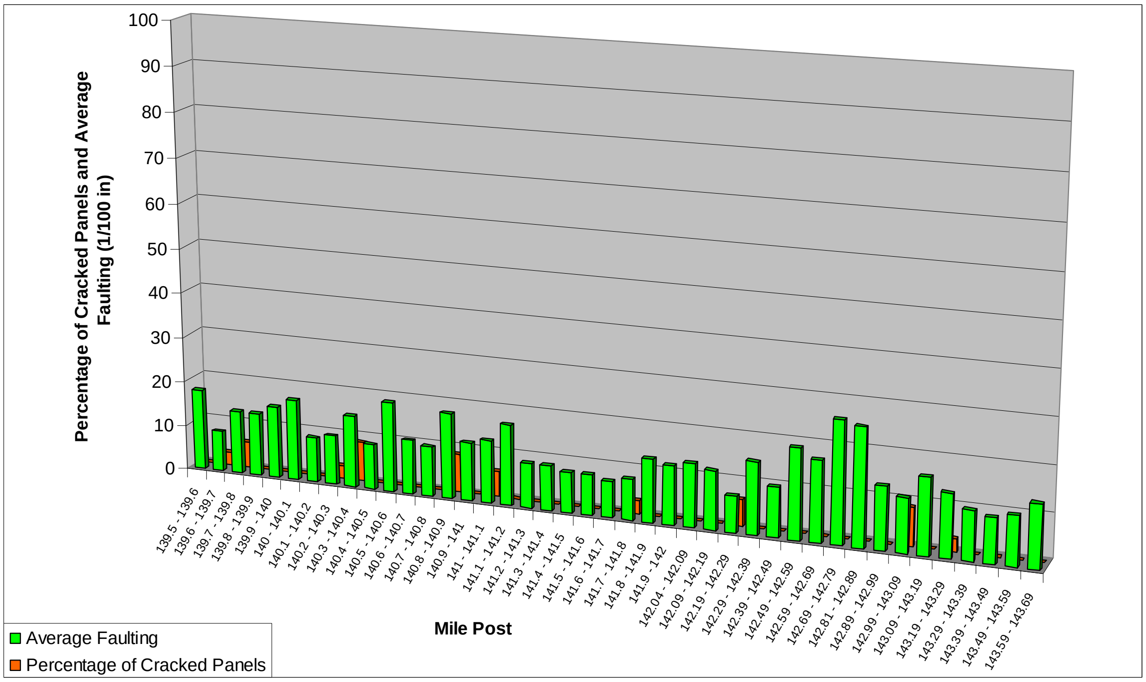
Southbound Lane 2 Percentage of Cracked Panels and Average Faulting MP 169.25 to MP 173.44



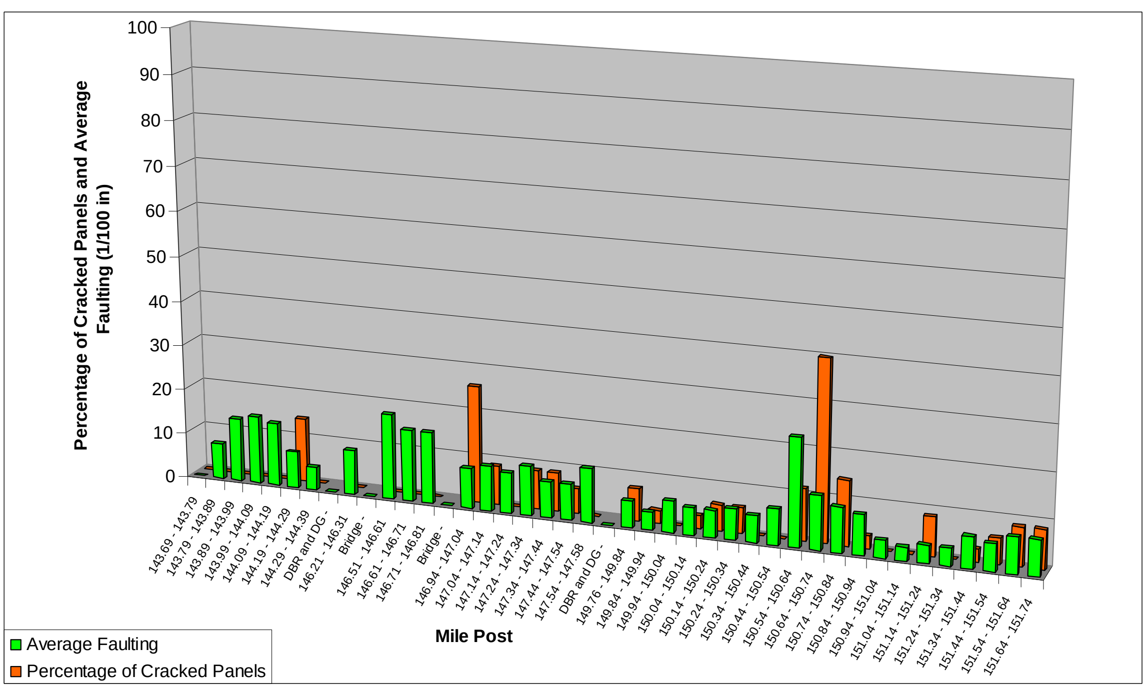
Southbound Lane 2 Percentage of Cracked Panels and Average Faulting MP 173.44 to MP 177.65



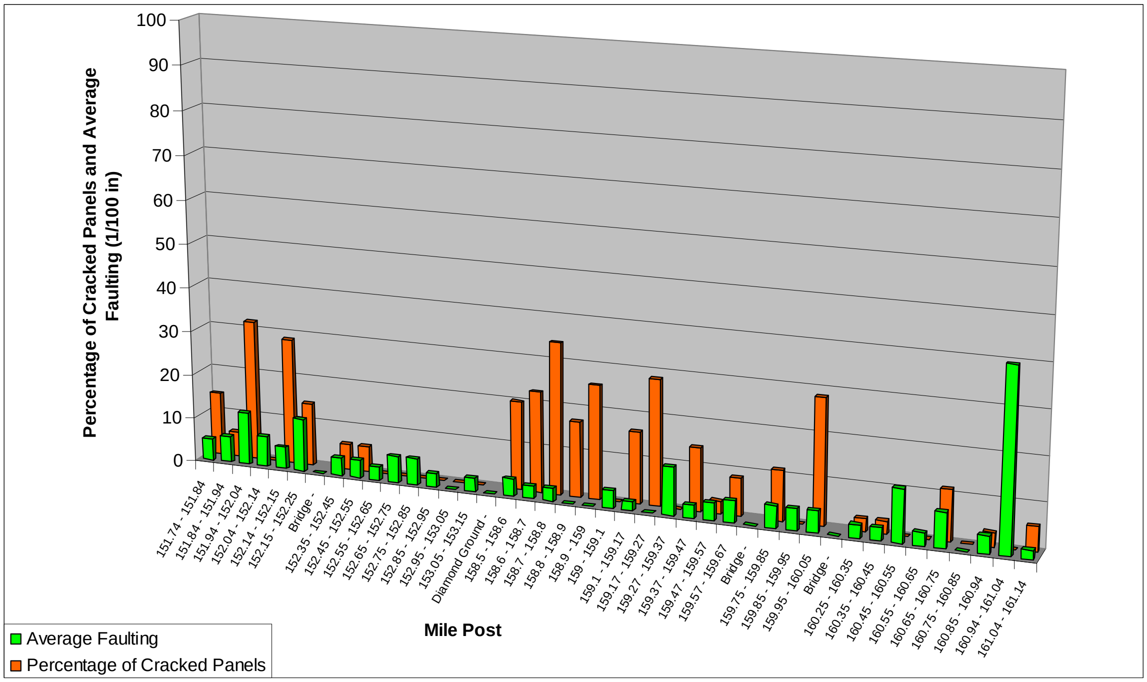
Southbound Lane 3 Percentage of Cracked Panels and Average Faulting MP 139.5 to MP 143.69



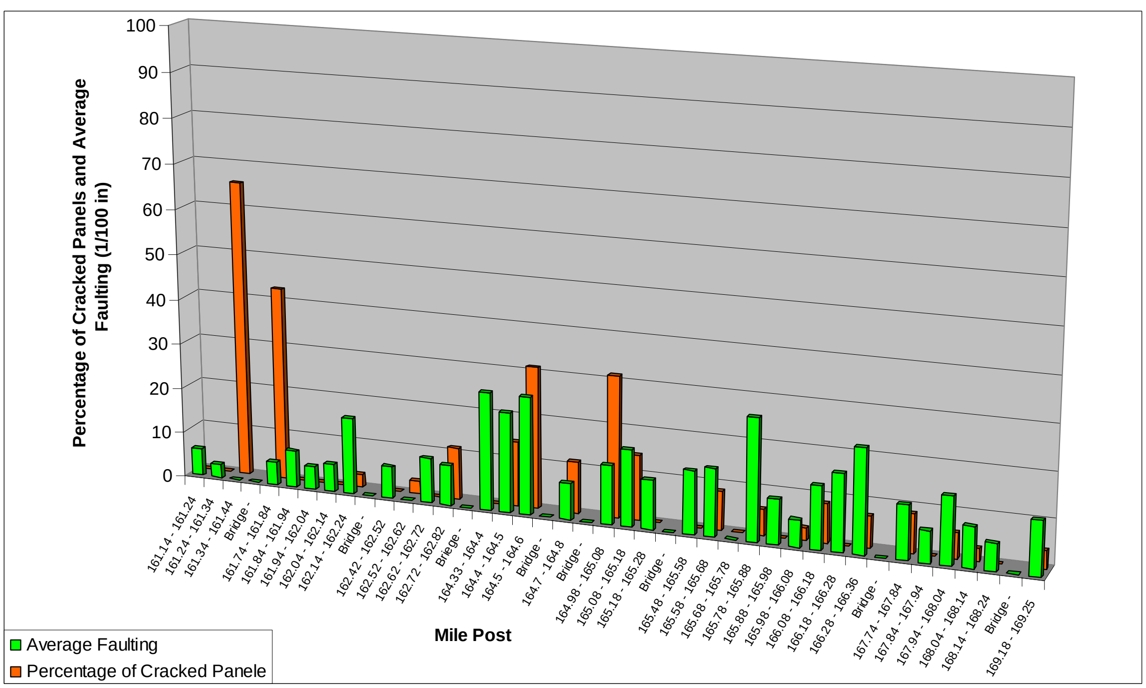
Southbound Lane 3 Percentage of Cracked Panels and Average Faulting MP 143.69 to MP 151.74



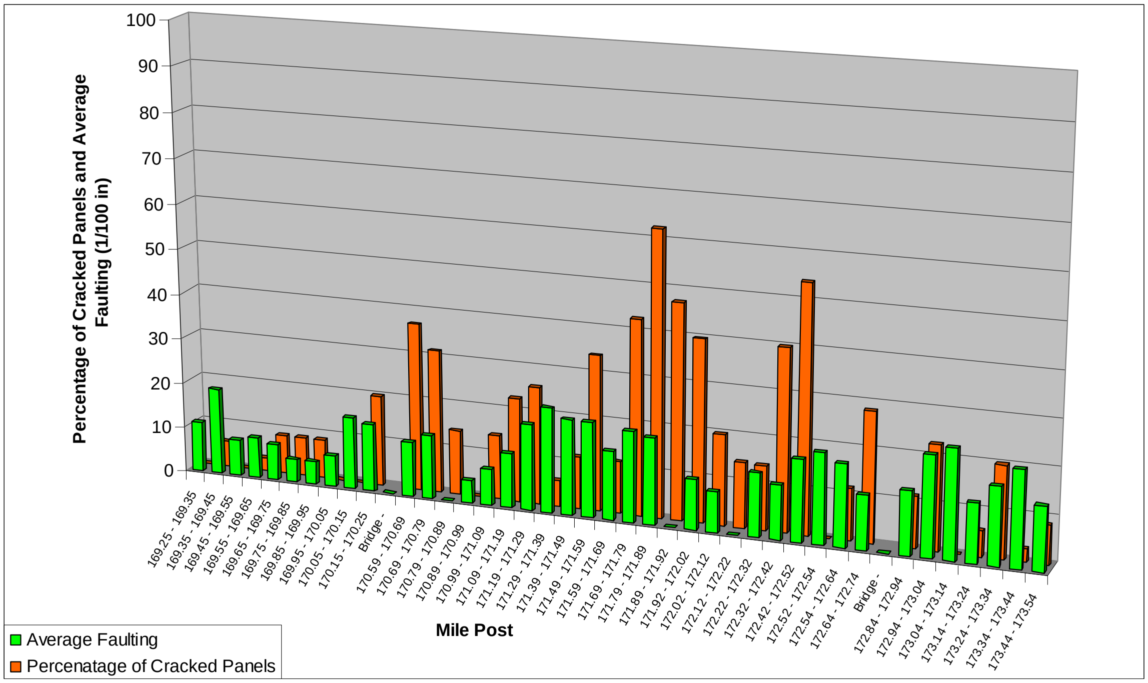
Southbound Lane 3 Percentage of Cracked Panels and Average Faulting MP 151.74 to MP 161.14



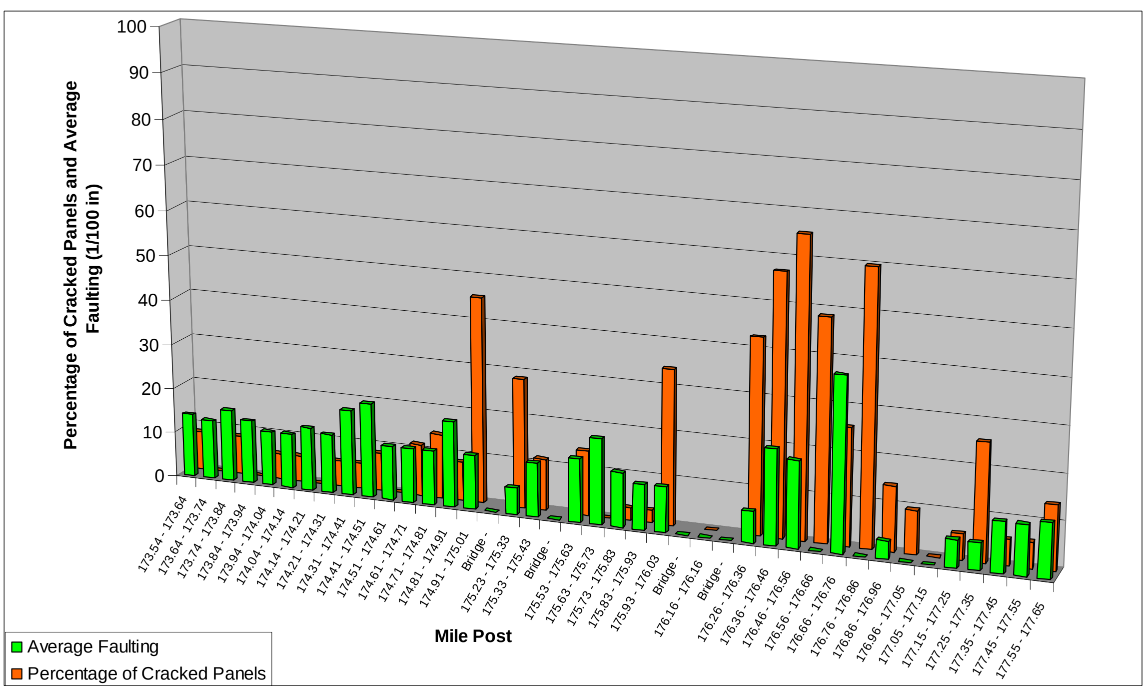
Southbound Lane 3 Percentage of Cracked Panels and Average Faulting MP 161.14 to MP 169.25



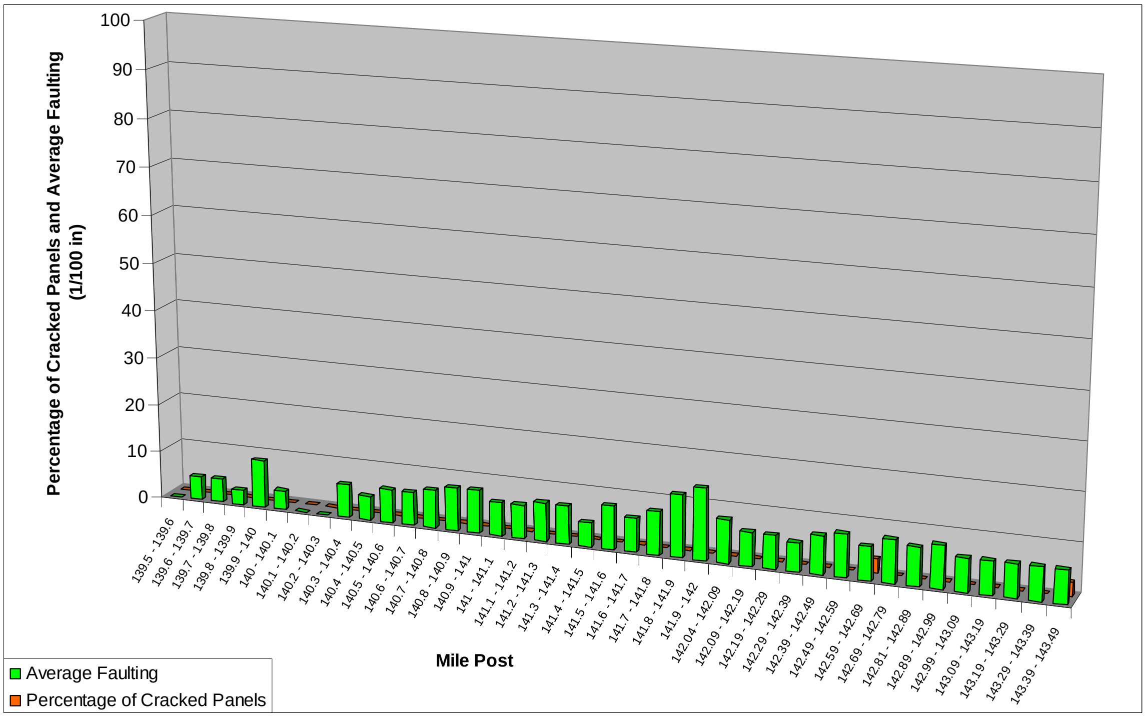
Southbound Lane 3 Percentage of Cracked Panels and Average Faulting MP 169.25 to MP 173.54



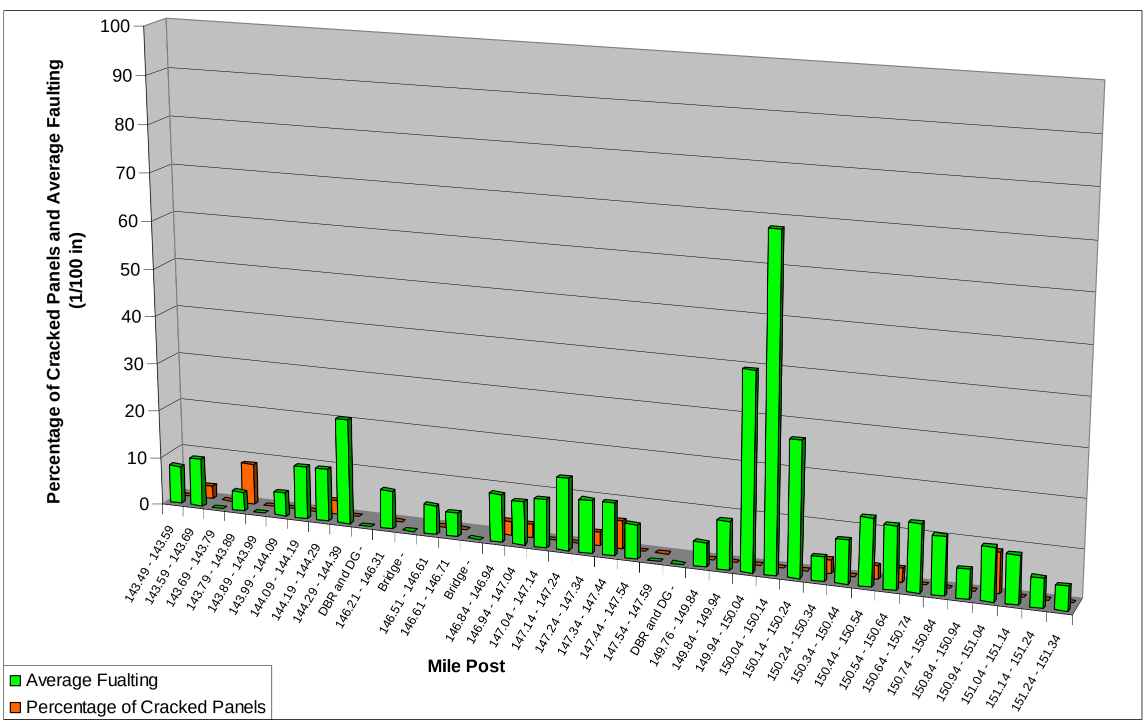
Southbound Lane 3 Percentage of Cracked Panels and Average Faulting MP 173.54 to MP 177.65



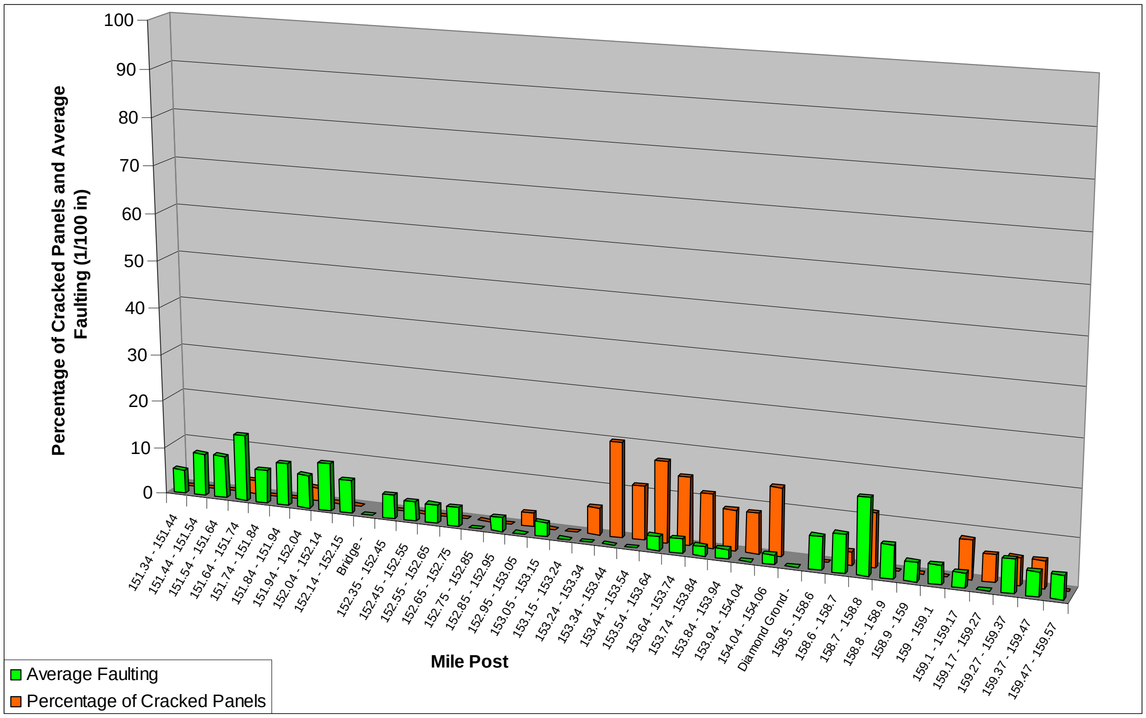
Southbound Lane 4 Percentage of Cracked Panels and Average Faulting MP 139.5 to MP 143.49



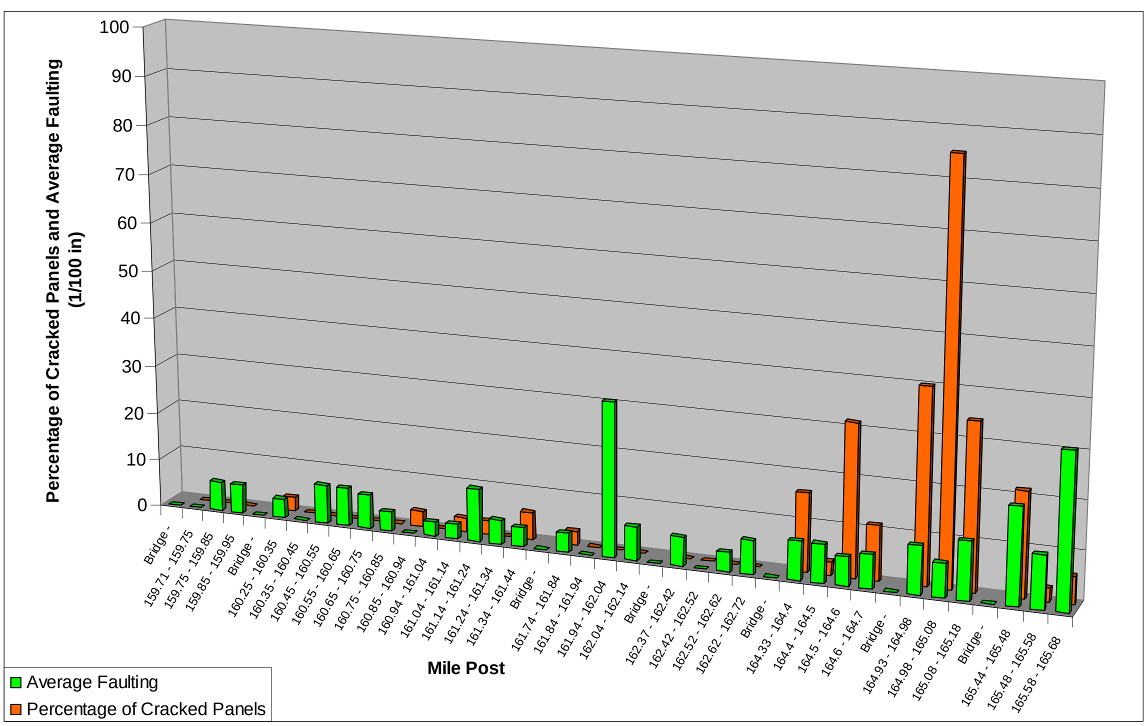
Southbound Lane 4 Percentage of Cracked Panels and Average Faulting MP 143.49 to MP 151.34



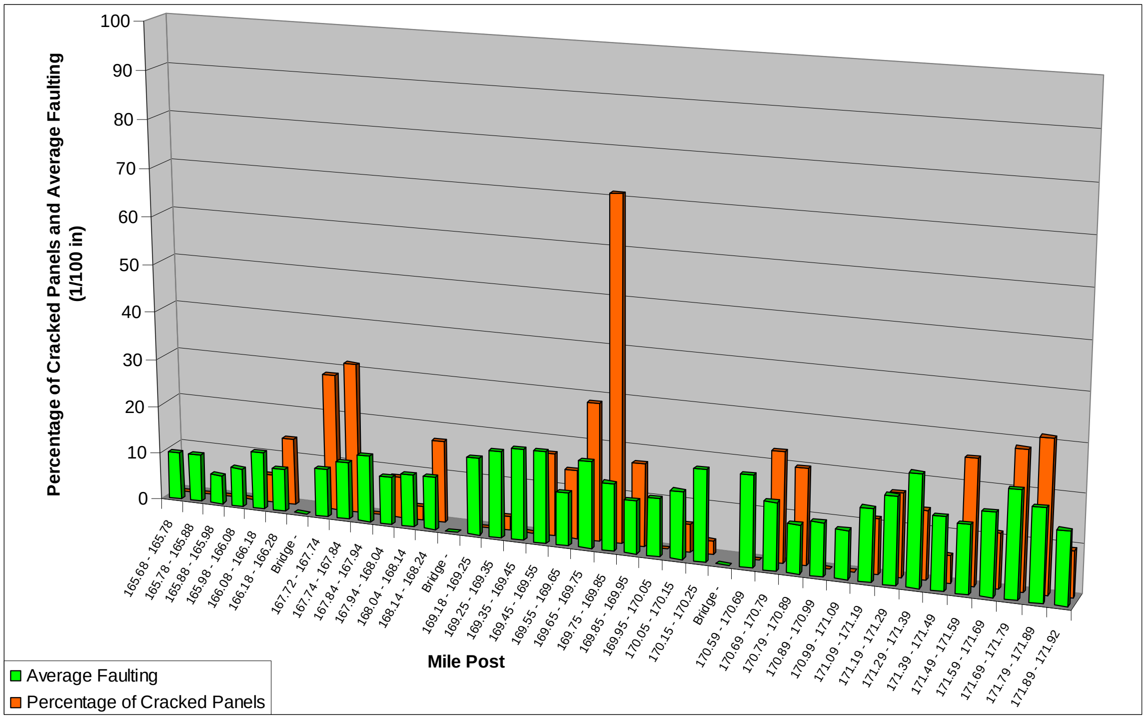
Southbound Lane 4 Percentage of Cracked Panels and Average Faulting MP 151.34 to MP 159.57



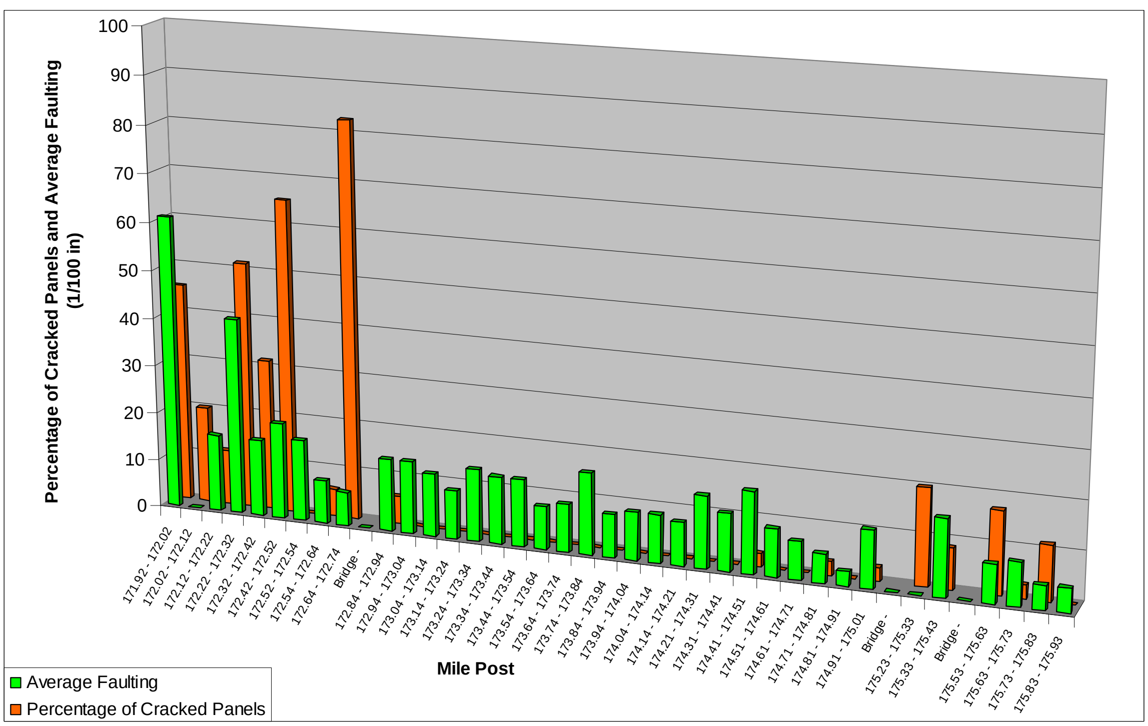
Southbound Lane 4 Percentage of Cracked Panels and Average Faulting MP 159.71 to MP 165.68



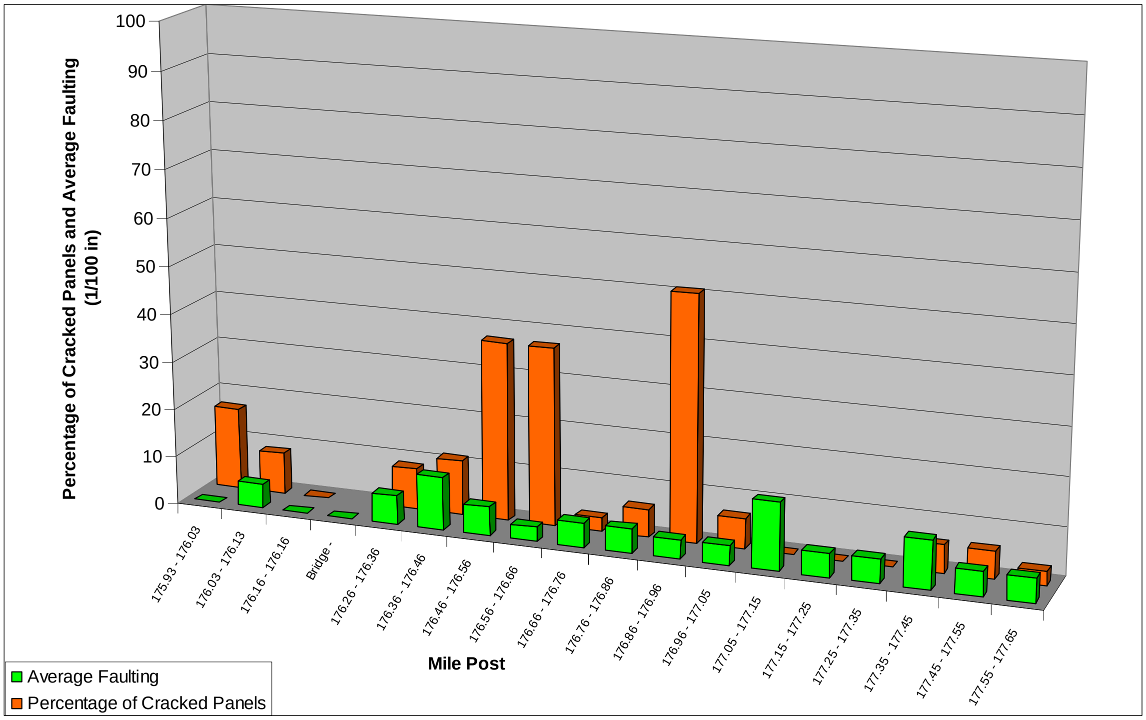
Southbound Lane 4 Percentage of Cracked Panels and Average Faulting MP 165.68 to MP 171.92



Southbound Lane 4 Percentage of Cracked Panels and Average Faulting MP 171.92 to MP 175.93

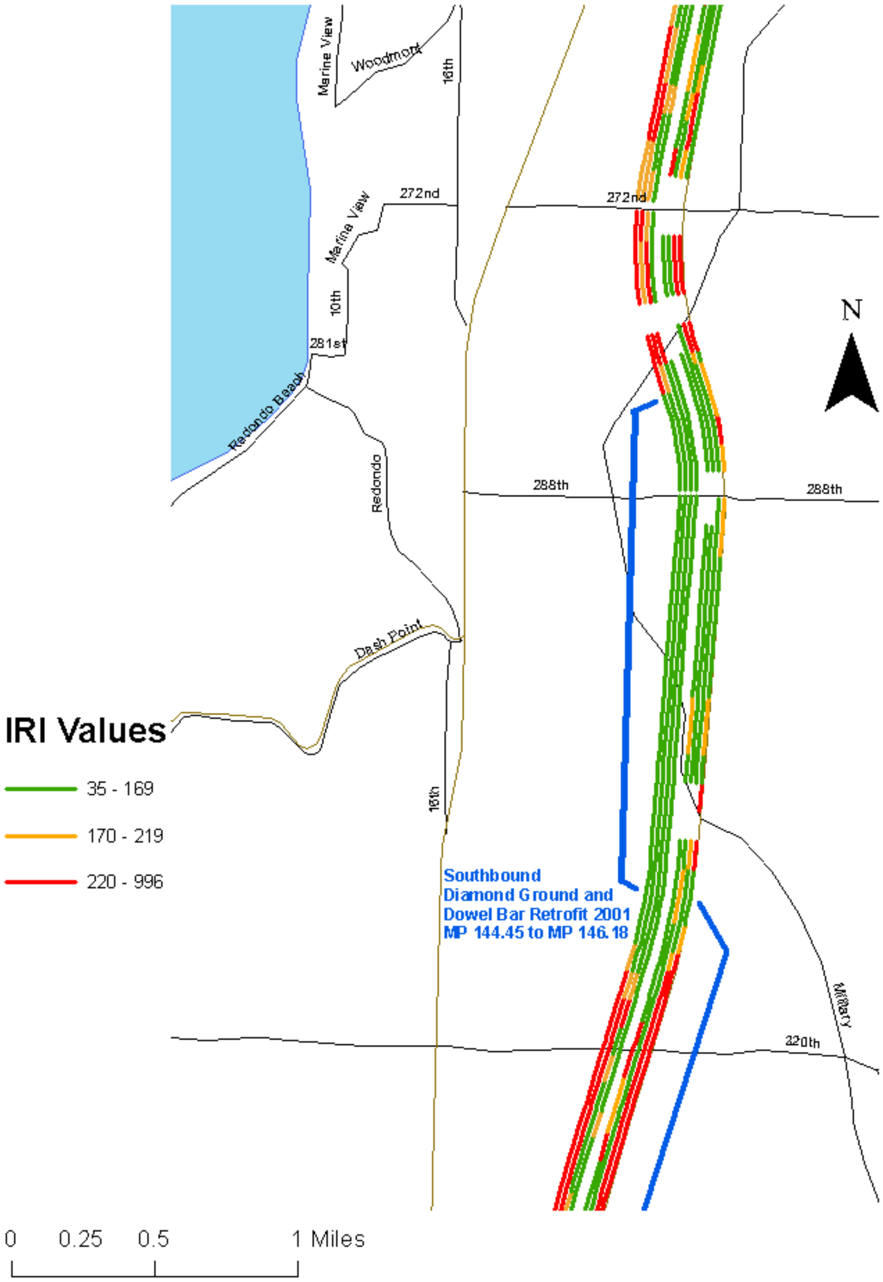


Southbound Lane 4 Percentage of Cracked Panels and Average Faulting MP 175.93 to MP 177.65

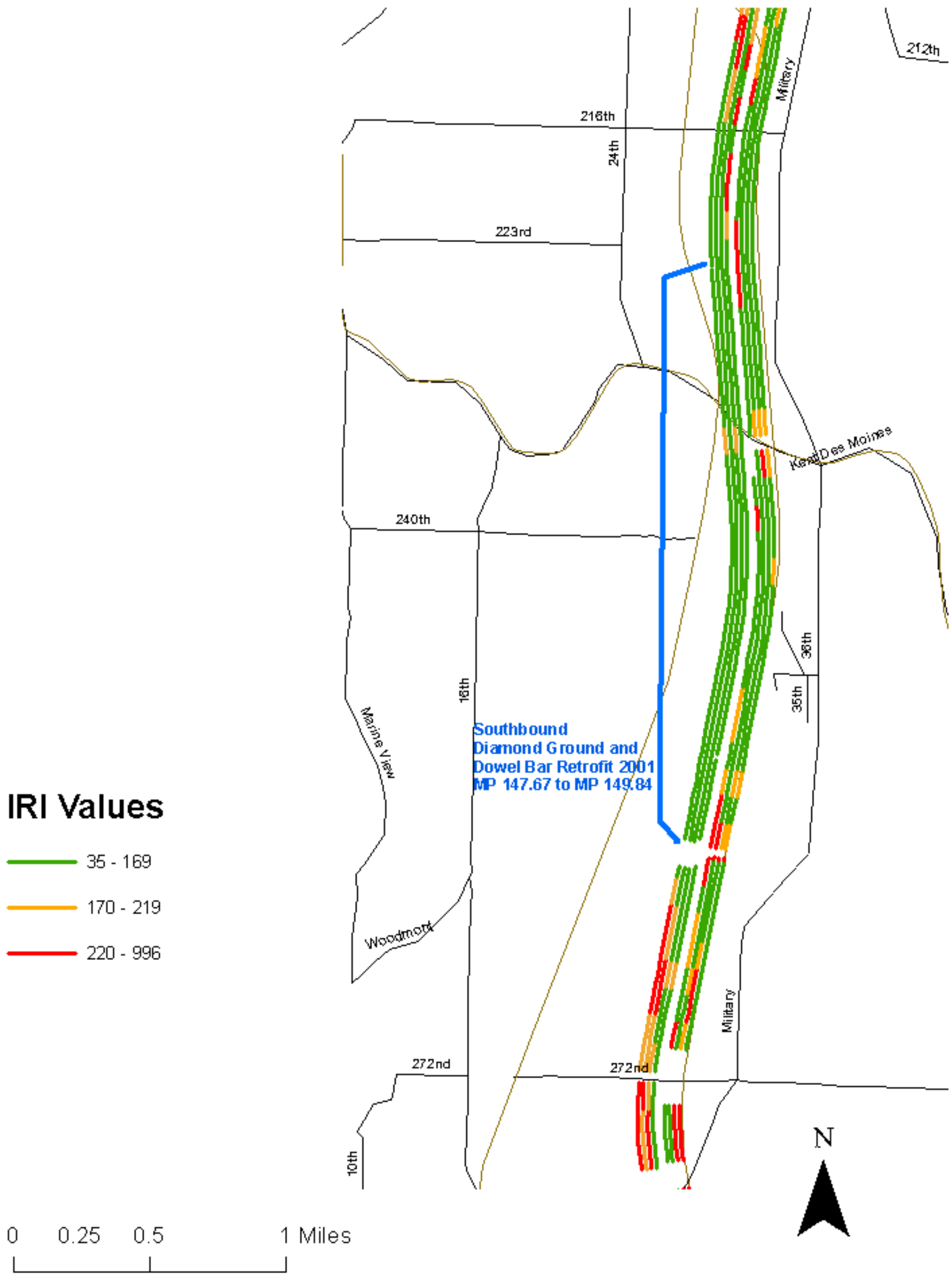


Appendix O –
Arc GIS IRI Pavement Distress Images

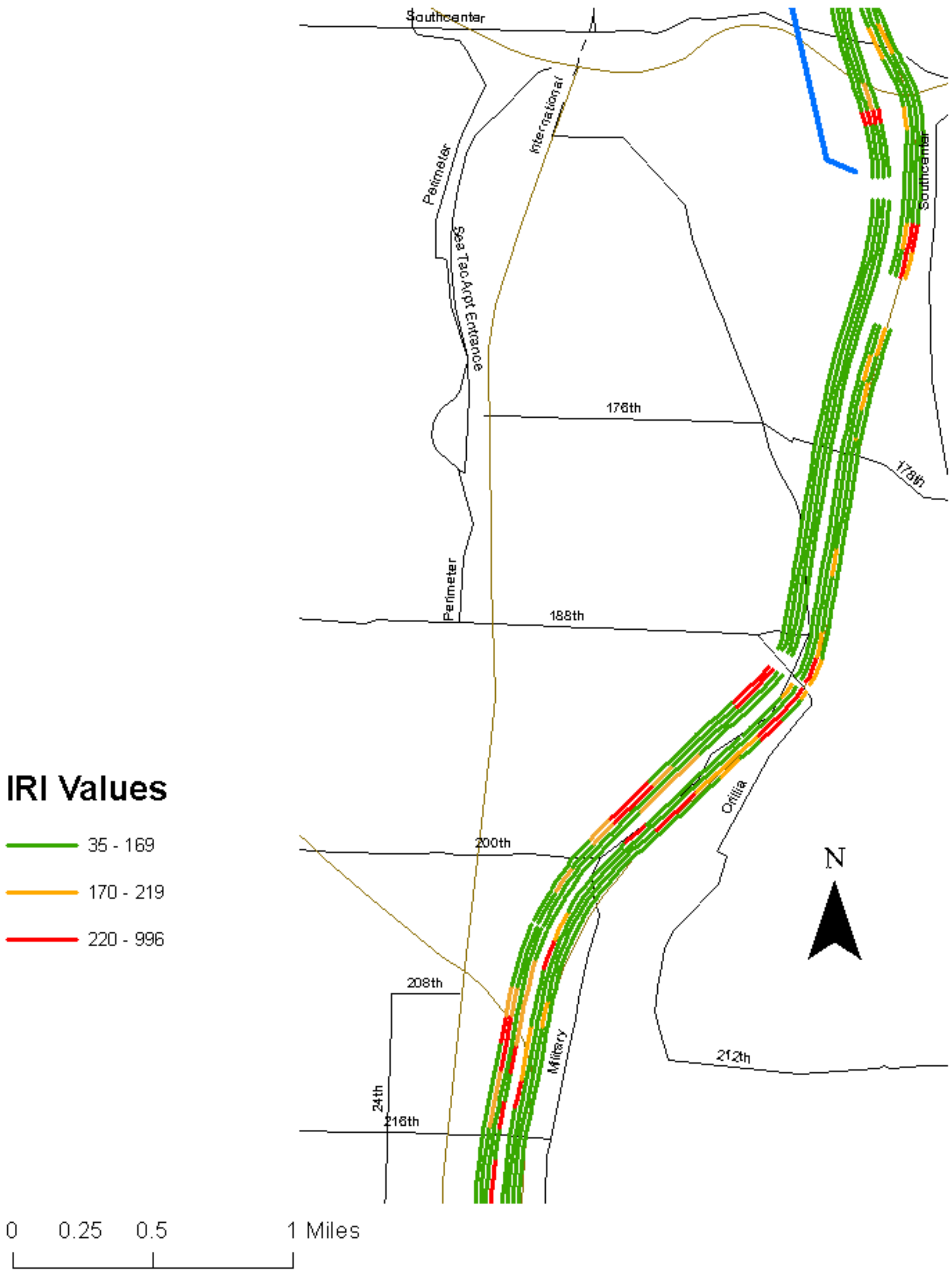
IRI Values
320th to 272nd



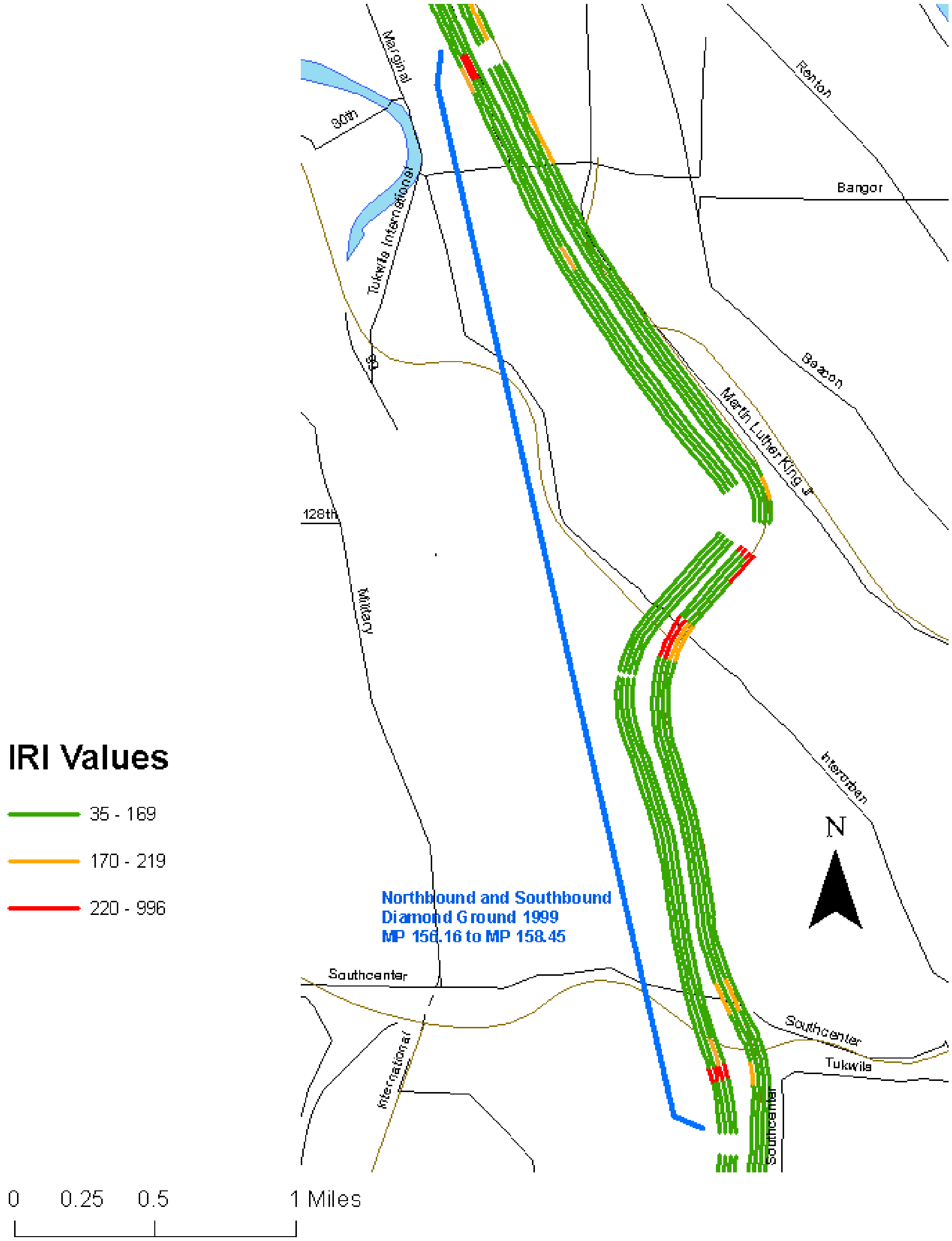
IRI Values 272nd to 216th



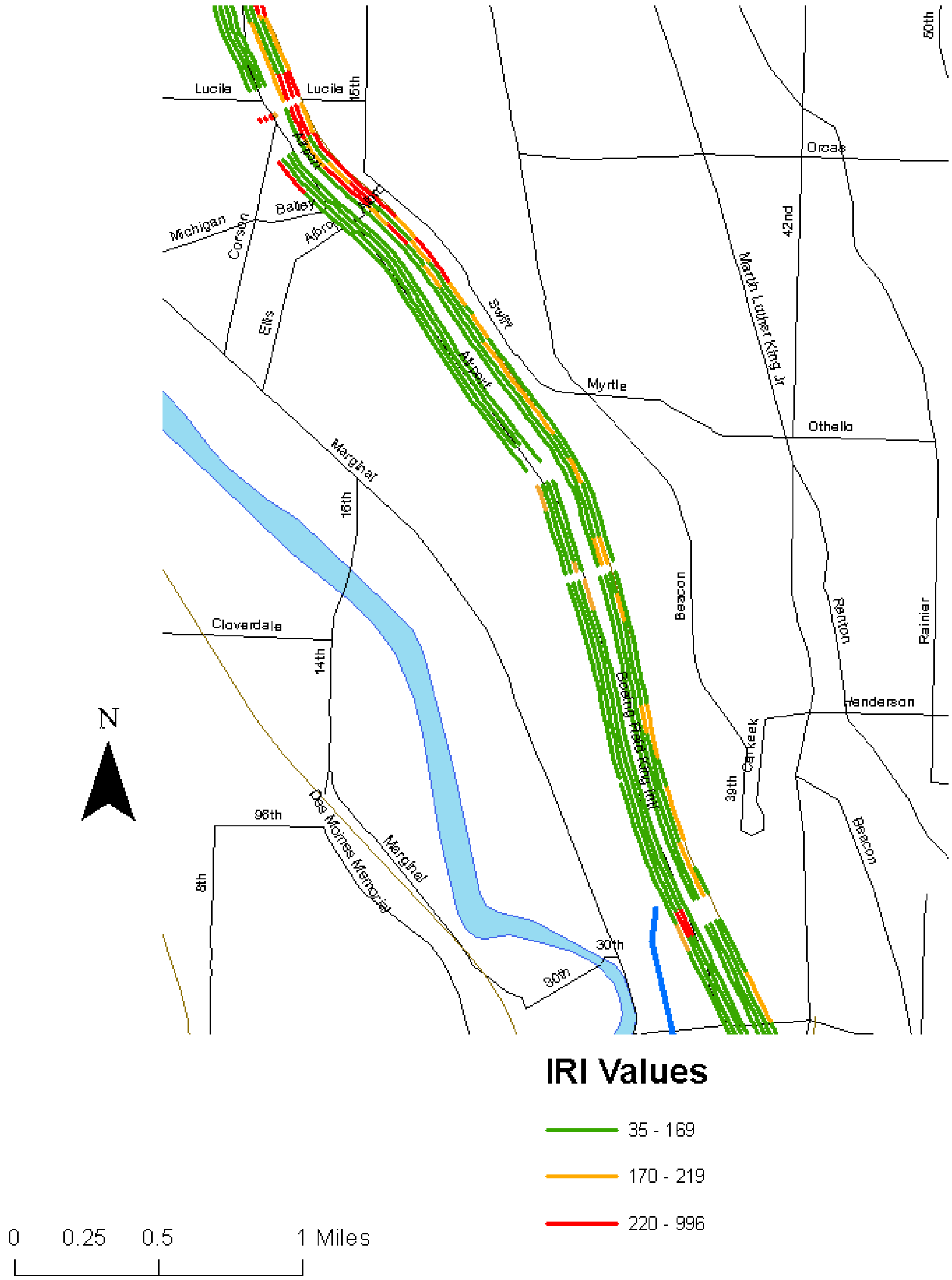
IRI Values 216th to I-405



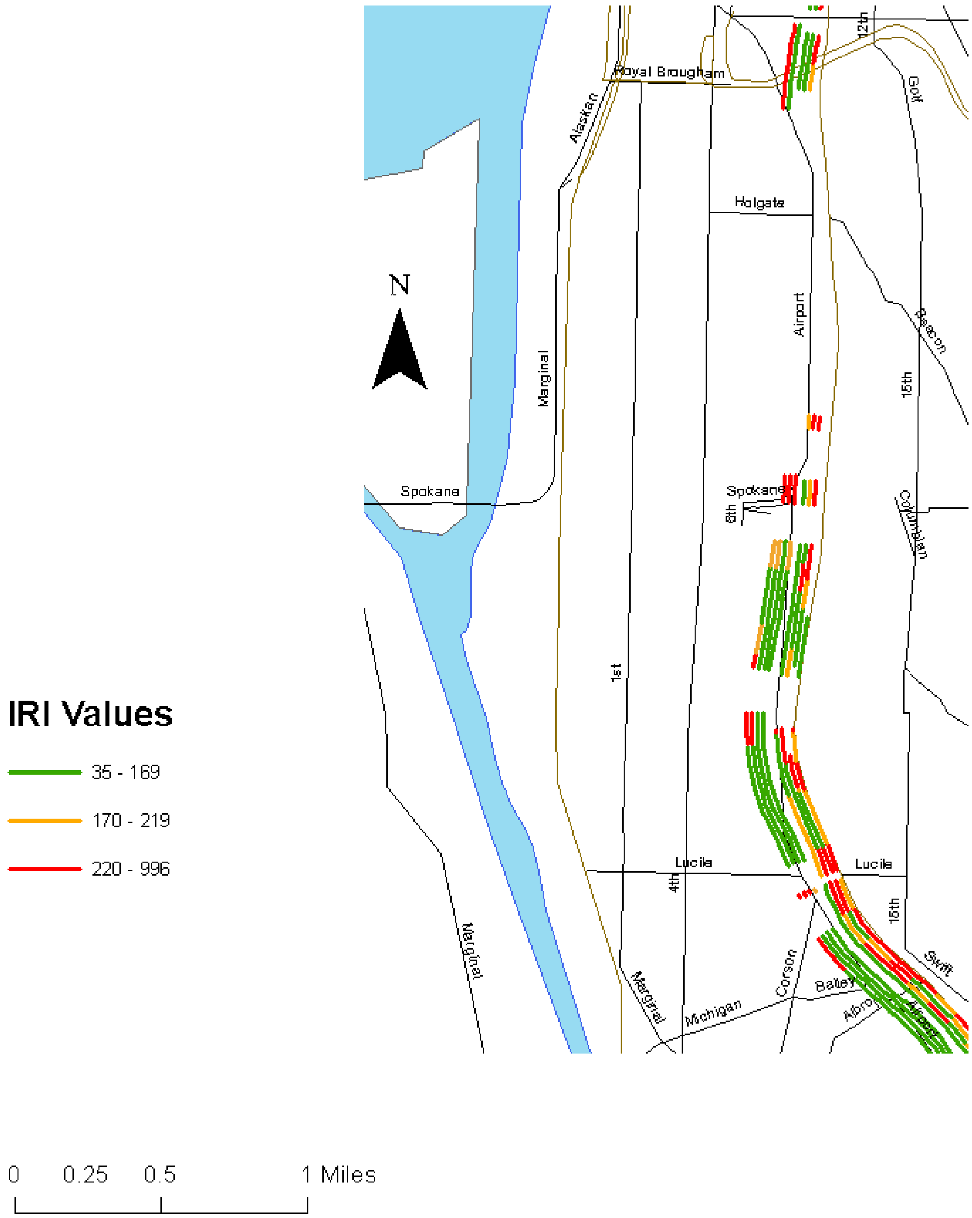
IRI Values
I-405 to South Boeing Access Rd.



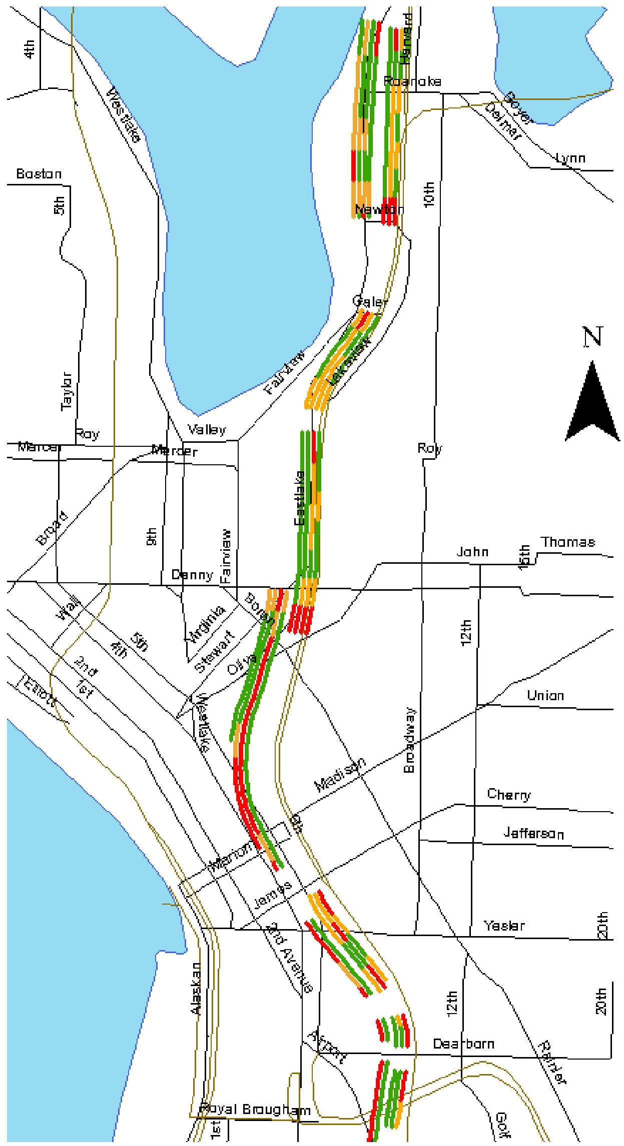
IRI Values
South Boeing Access Rd. to Michigan St.



IRI Values
Michigan St. to I-90



IRI Values
I-90 to Ship Canal Bridge

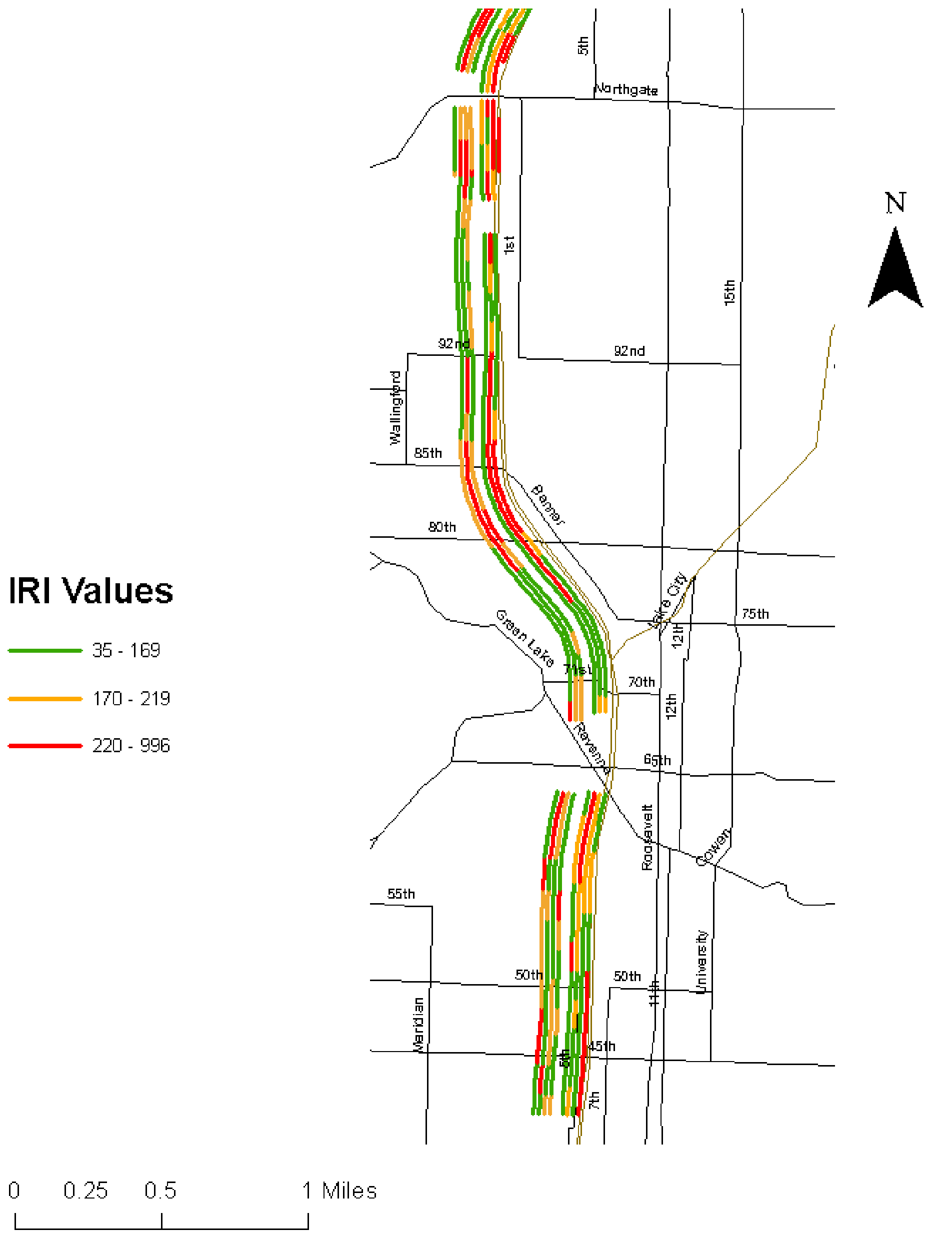


IRI Values

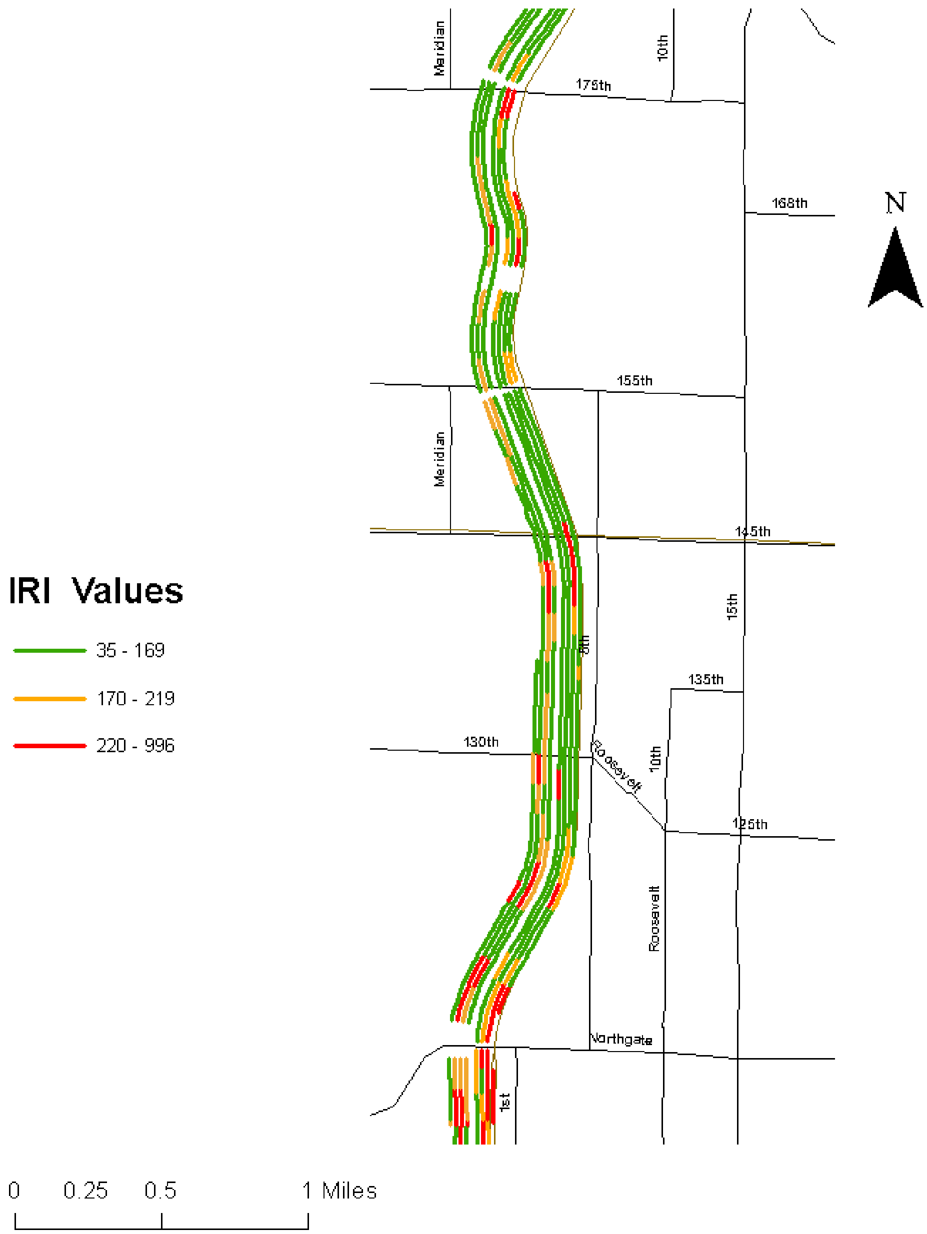
- 35 - 169
- 170 - 219
- 220 - 996

0 0.25 0.5 1 Miles

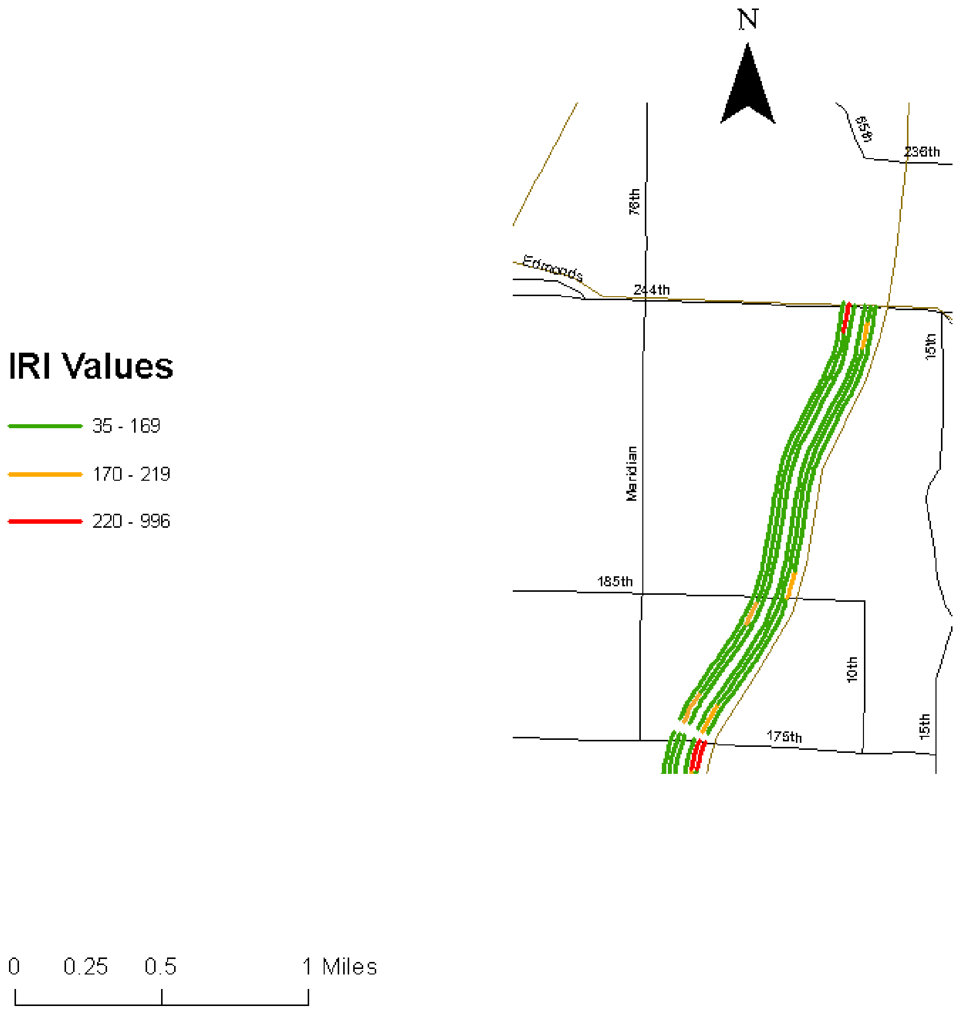
IRI Values
Ship Canal Bridge to Northgate Way



IRI Values
Northgate Way to 175th

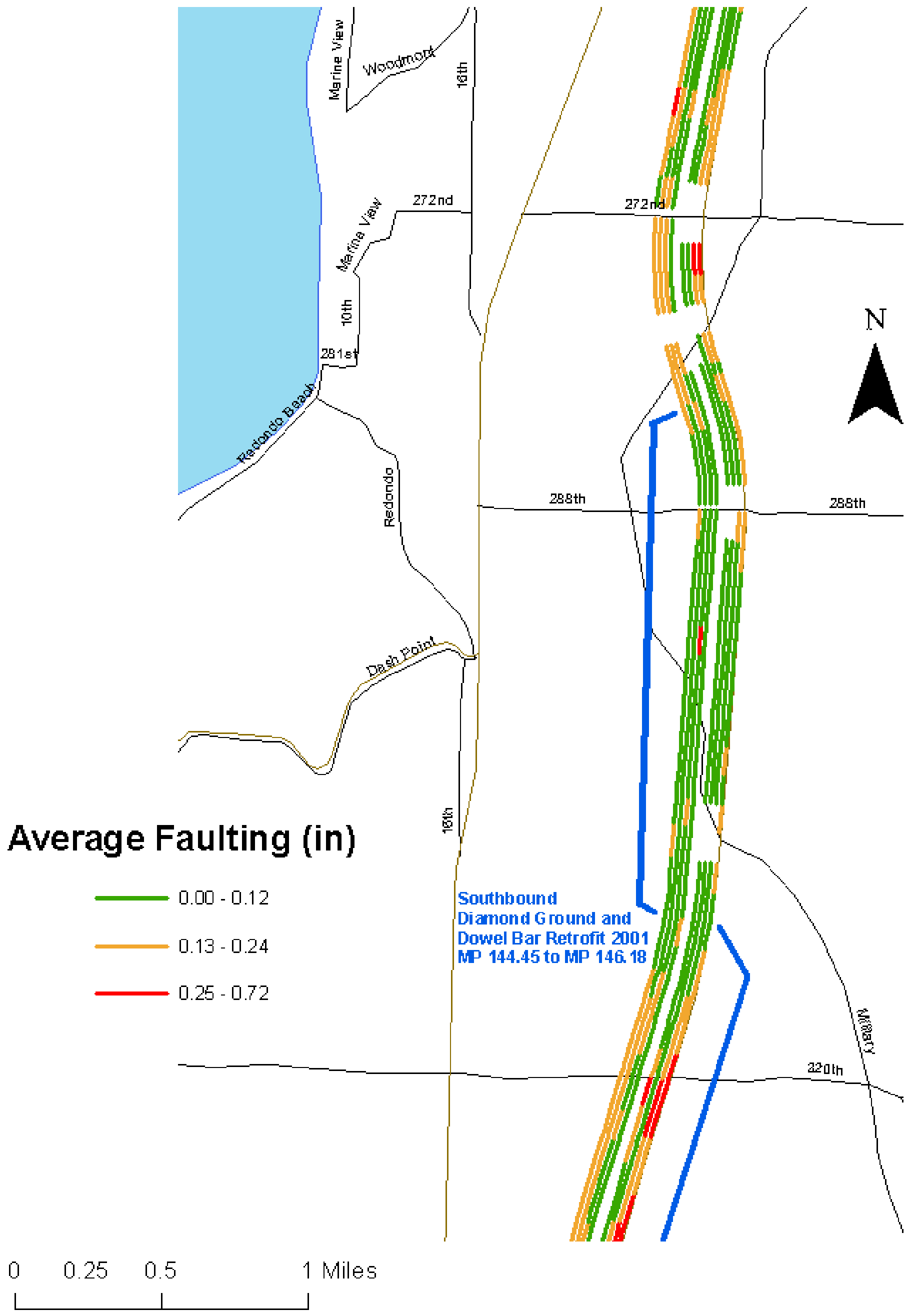


IRI Values
175th to 244th

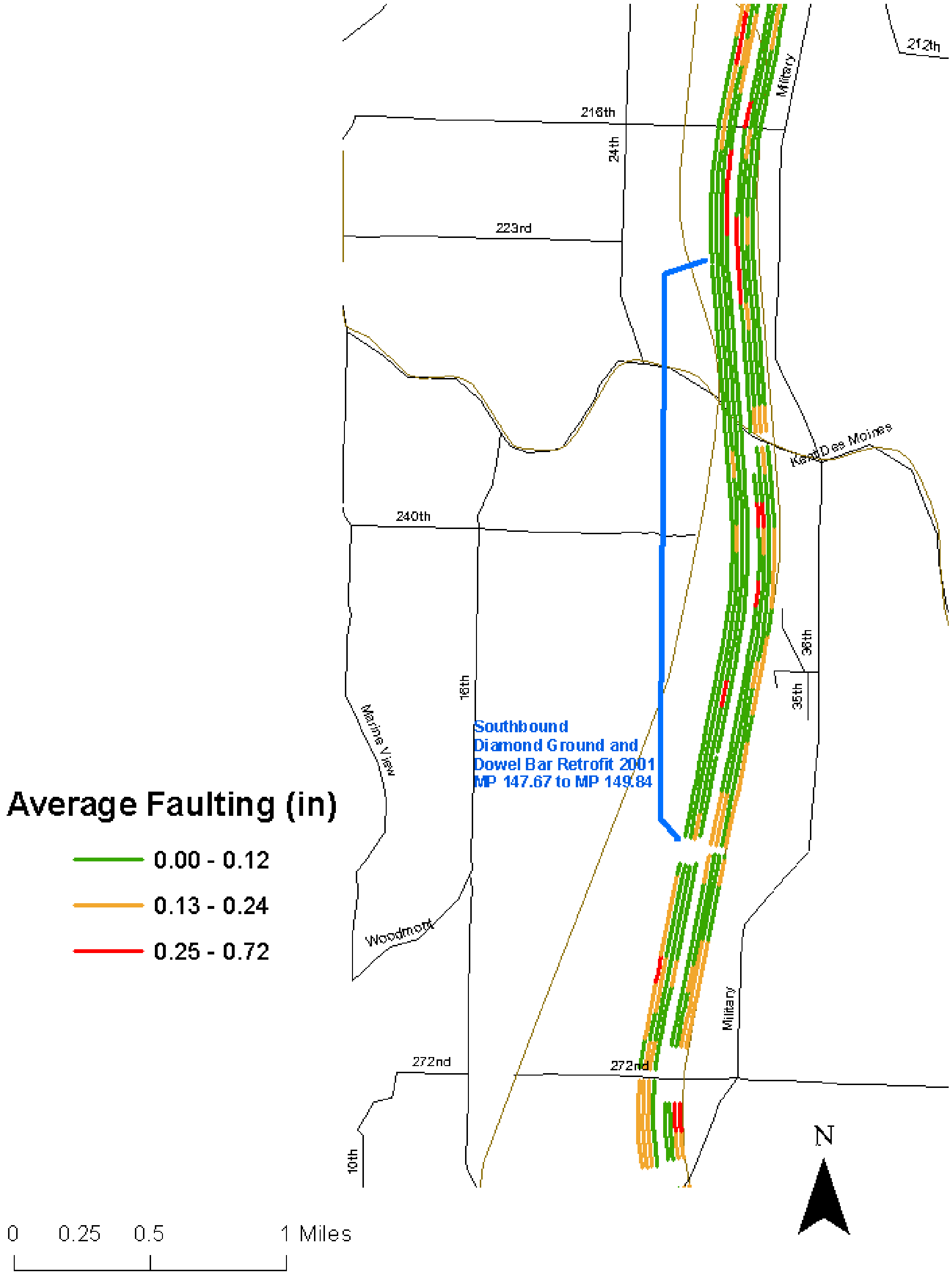


Appendix P –
Arc GIS Average Faulting Pavement Distress Images

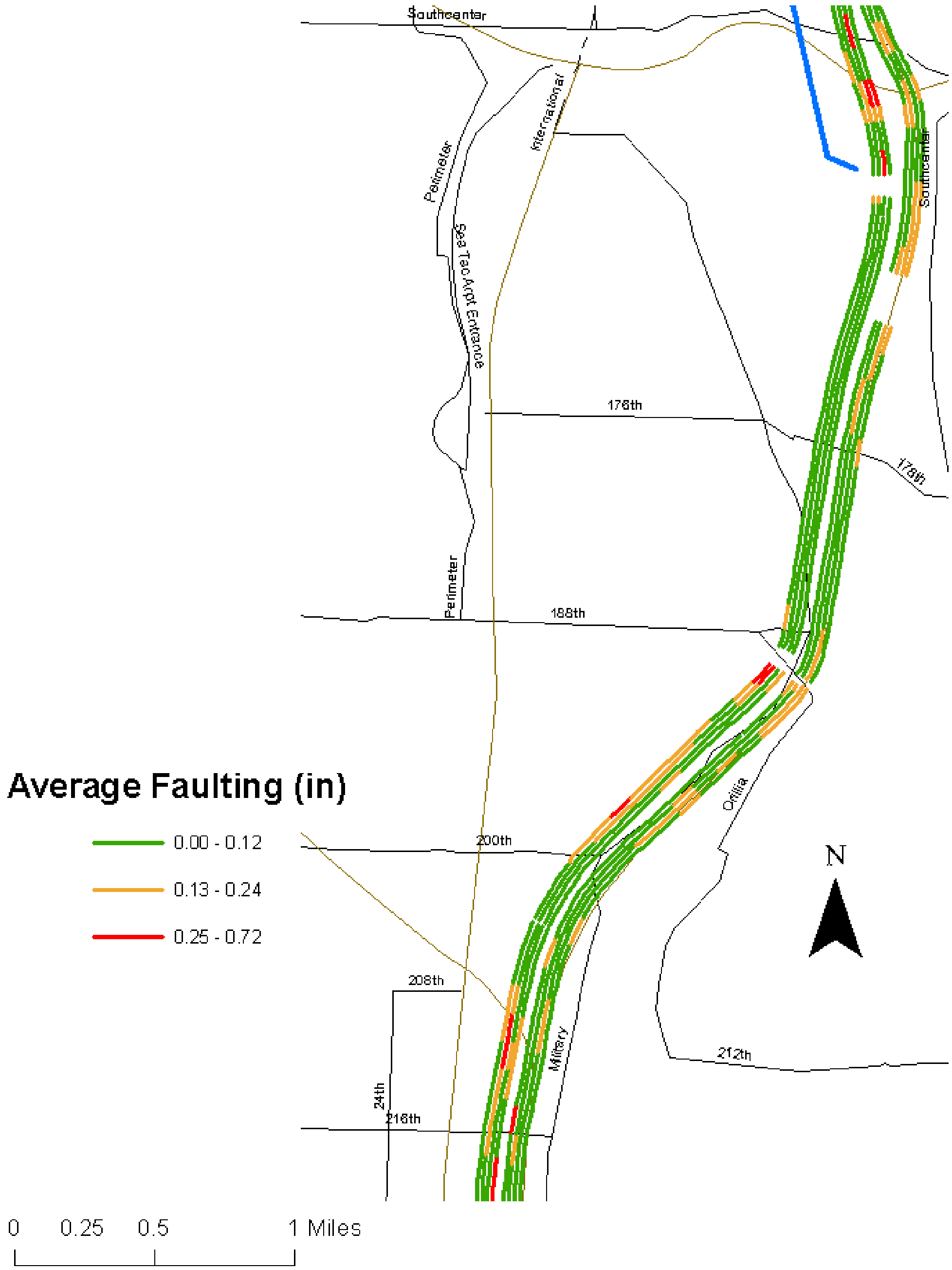
Average Faulting
320th to 272nd



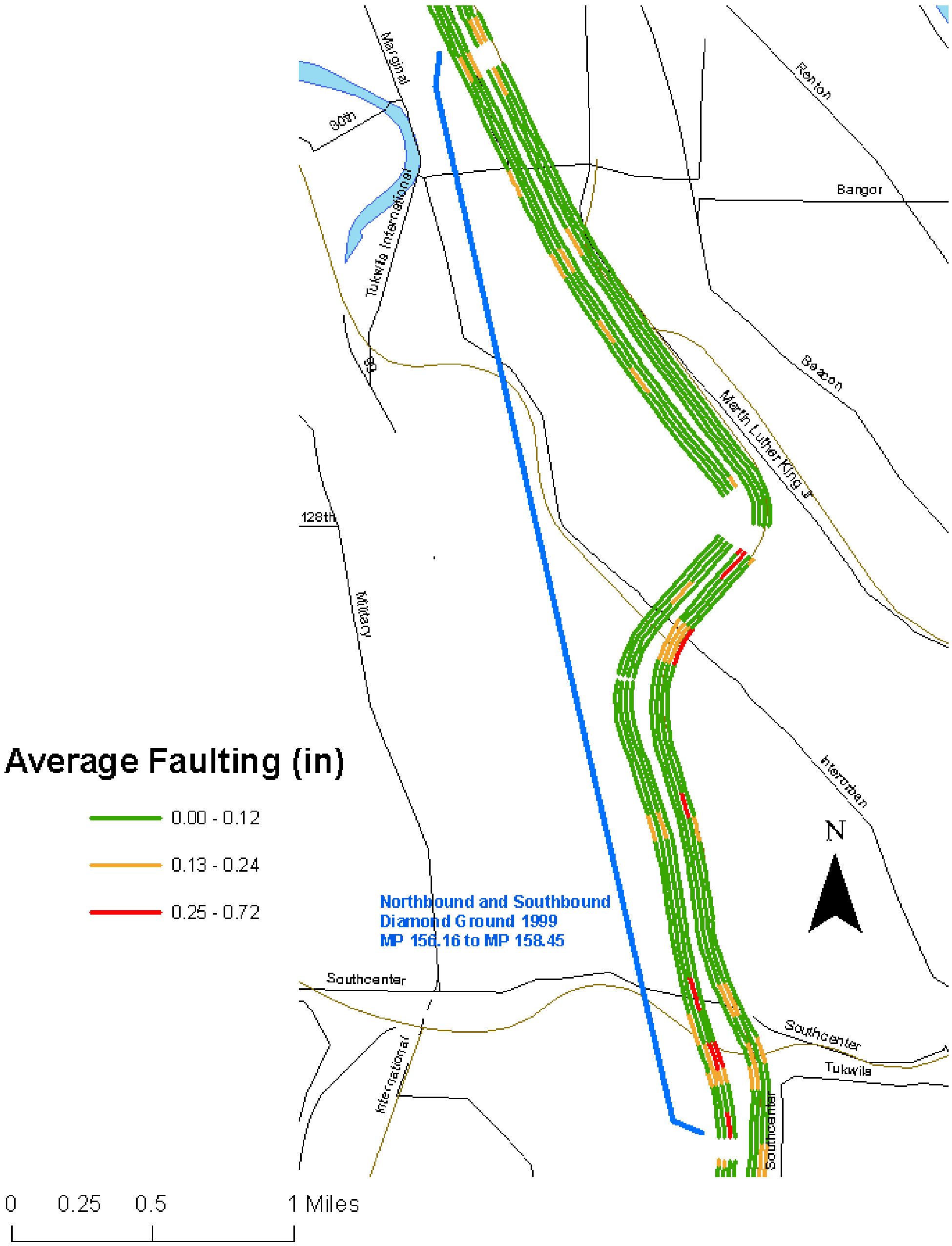
Average Faulting 272nd to 216th



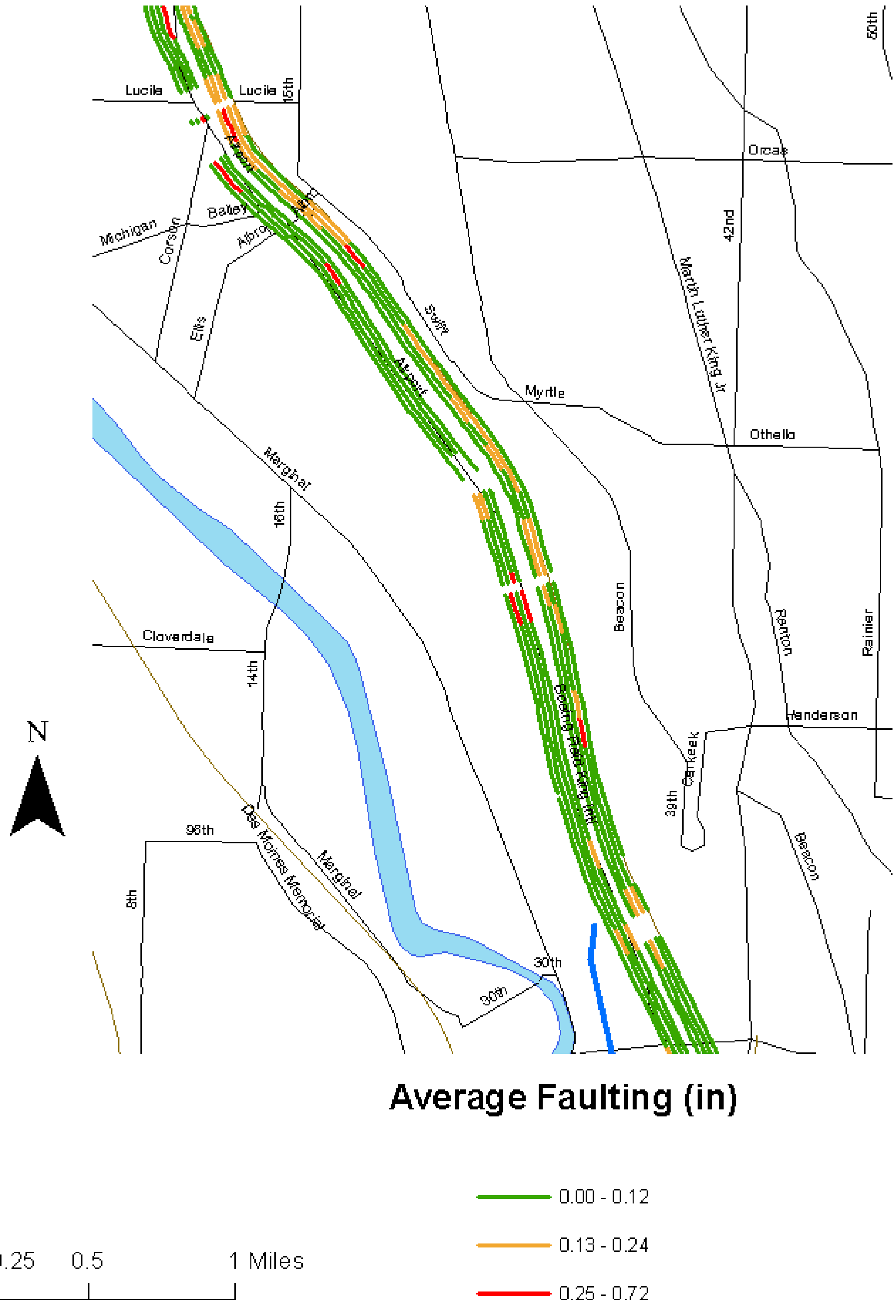
Average Faulting 216th to I-405



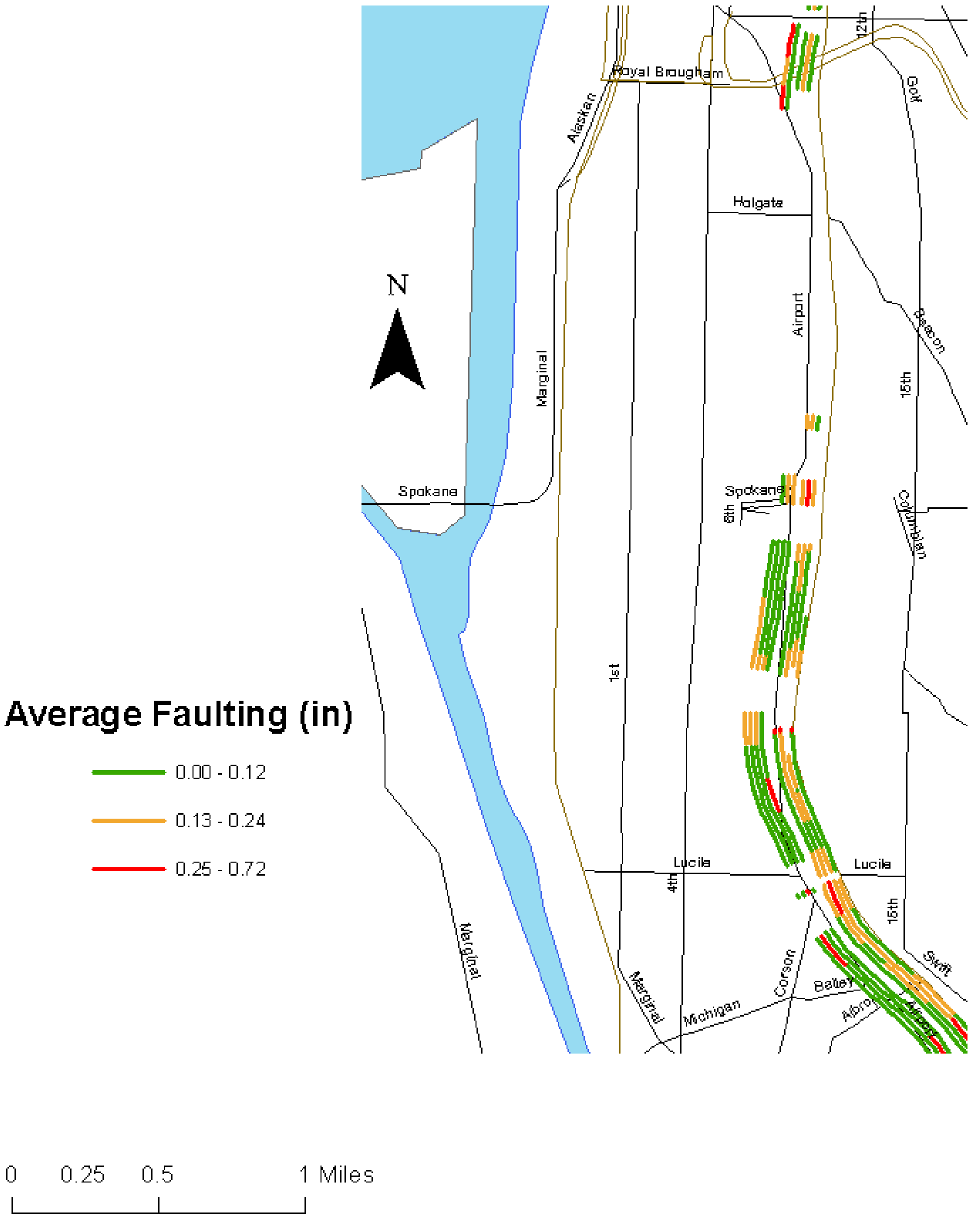
Average Faulting
I-405 to South Boeing Access Rd.



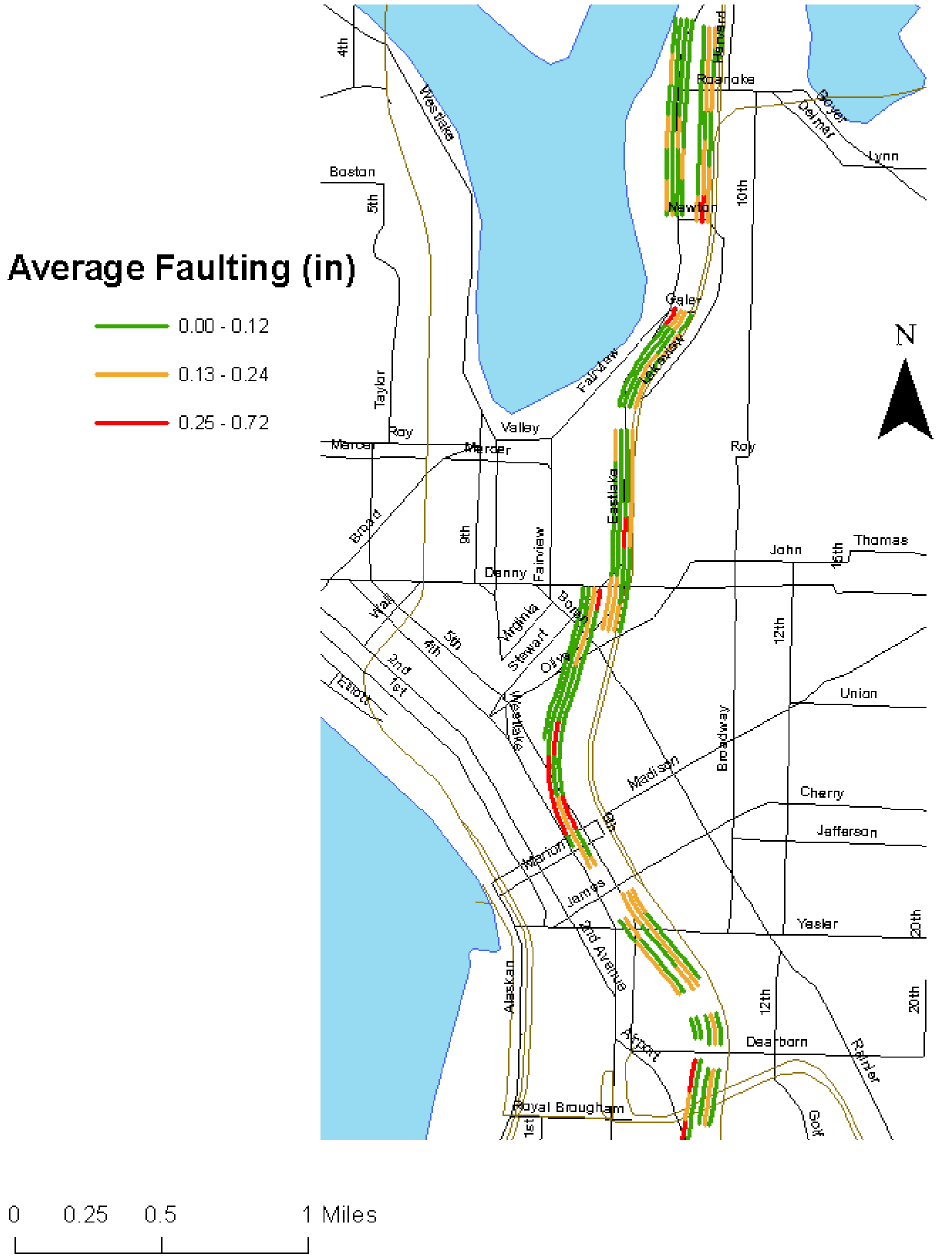
Average Faulting
South Boeing Access Rd. to Michigan St.



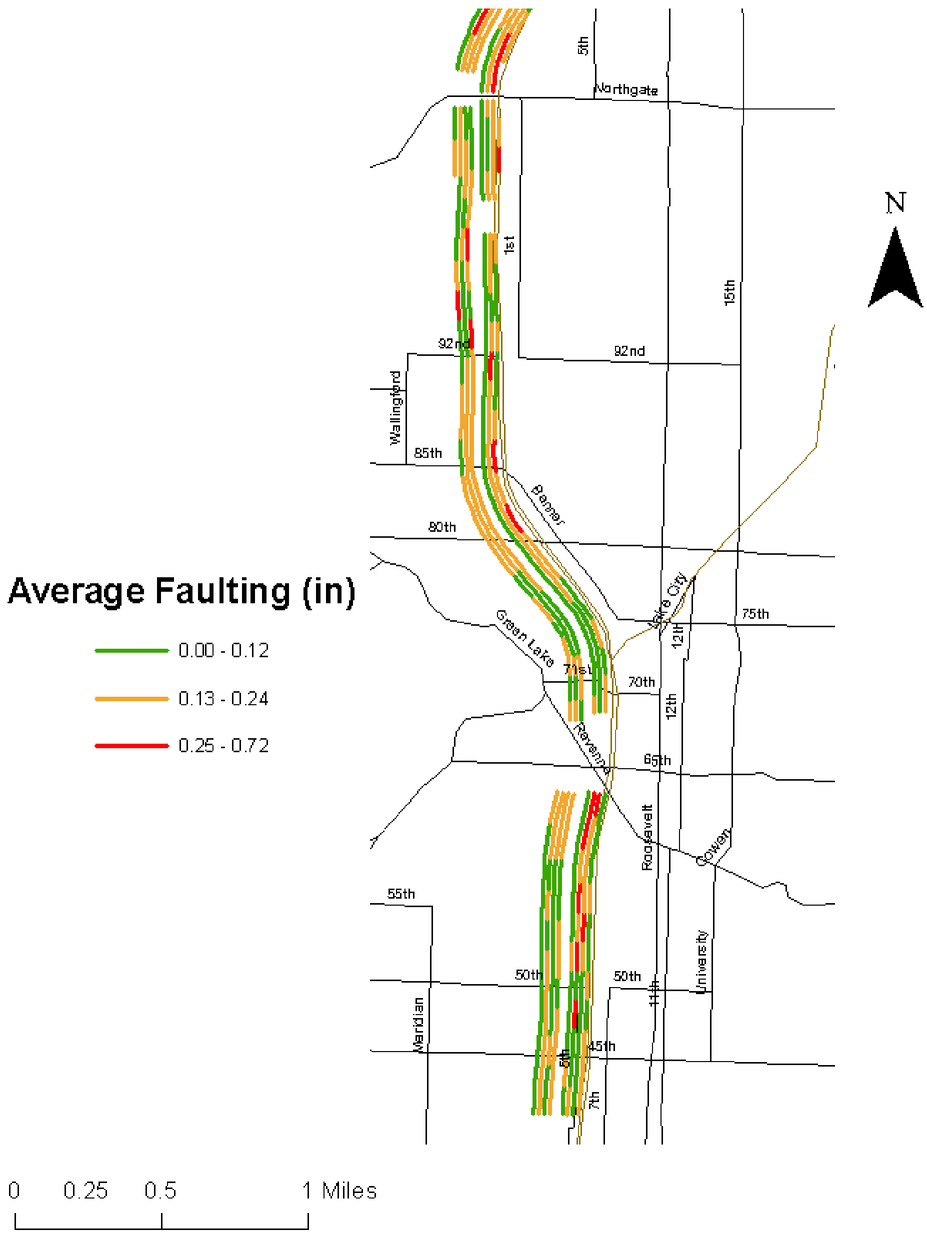
Average Faulting
Michigan St. to I-90



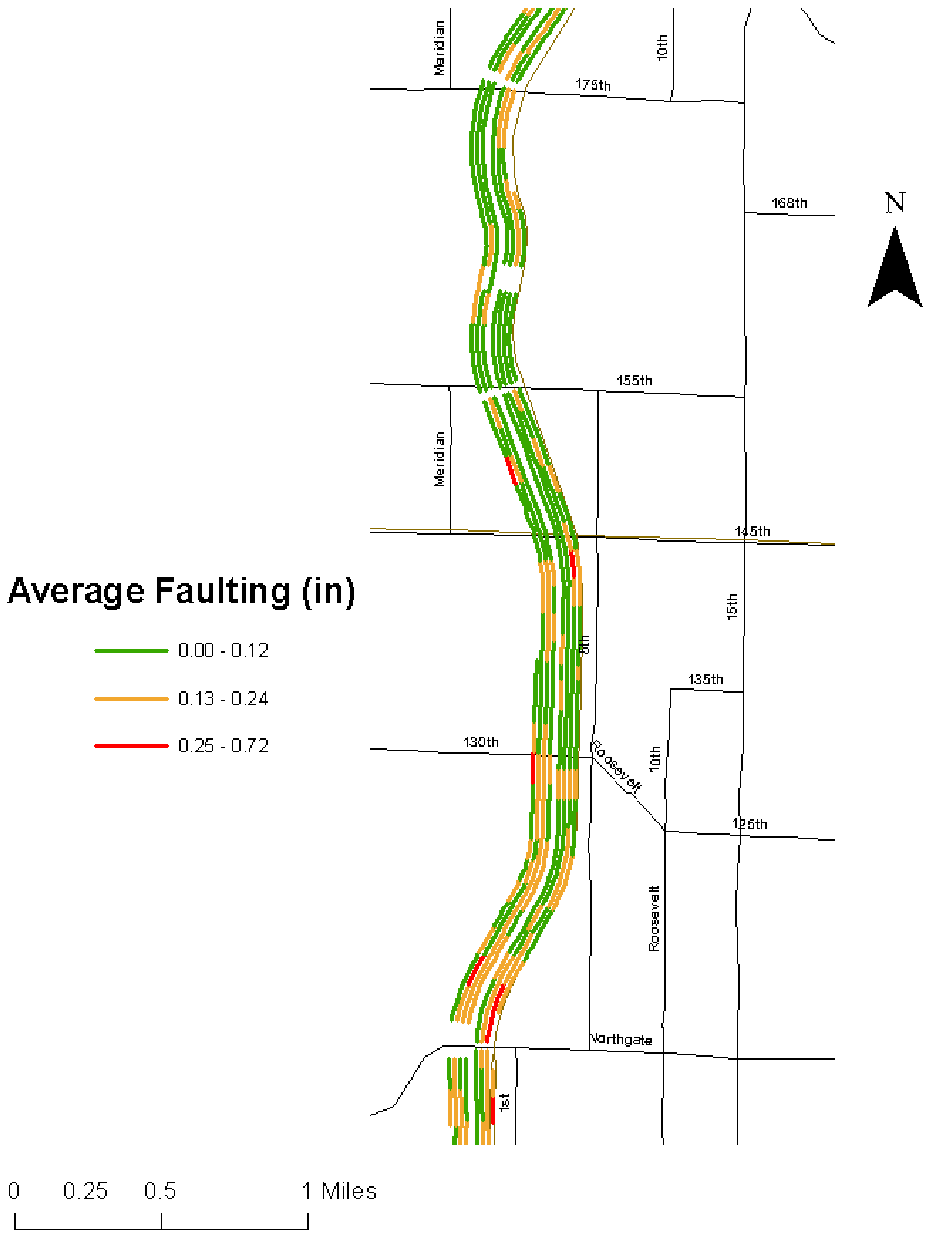
Average Faulting
I-90 to Ship Canal Bridge



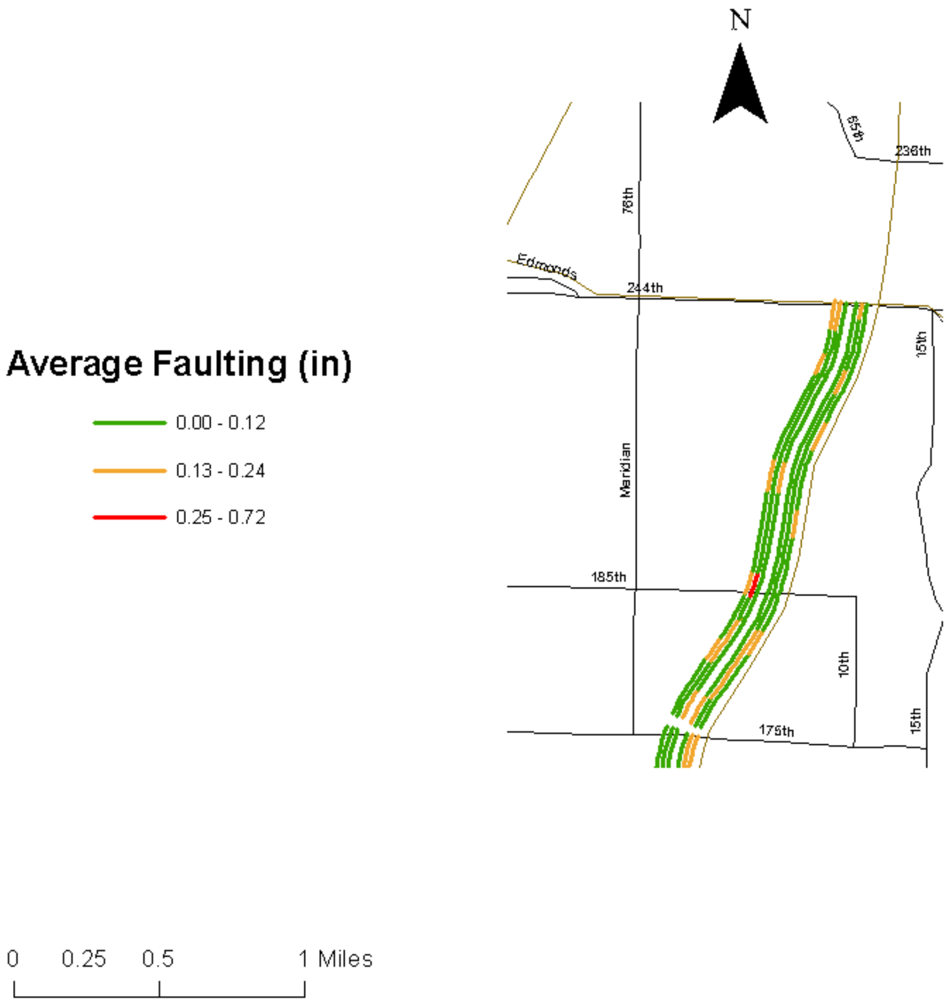
Average Faulting
Ship Canal Bridge to Northgate Way



Average Faulting
Northgate Way to 175th

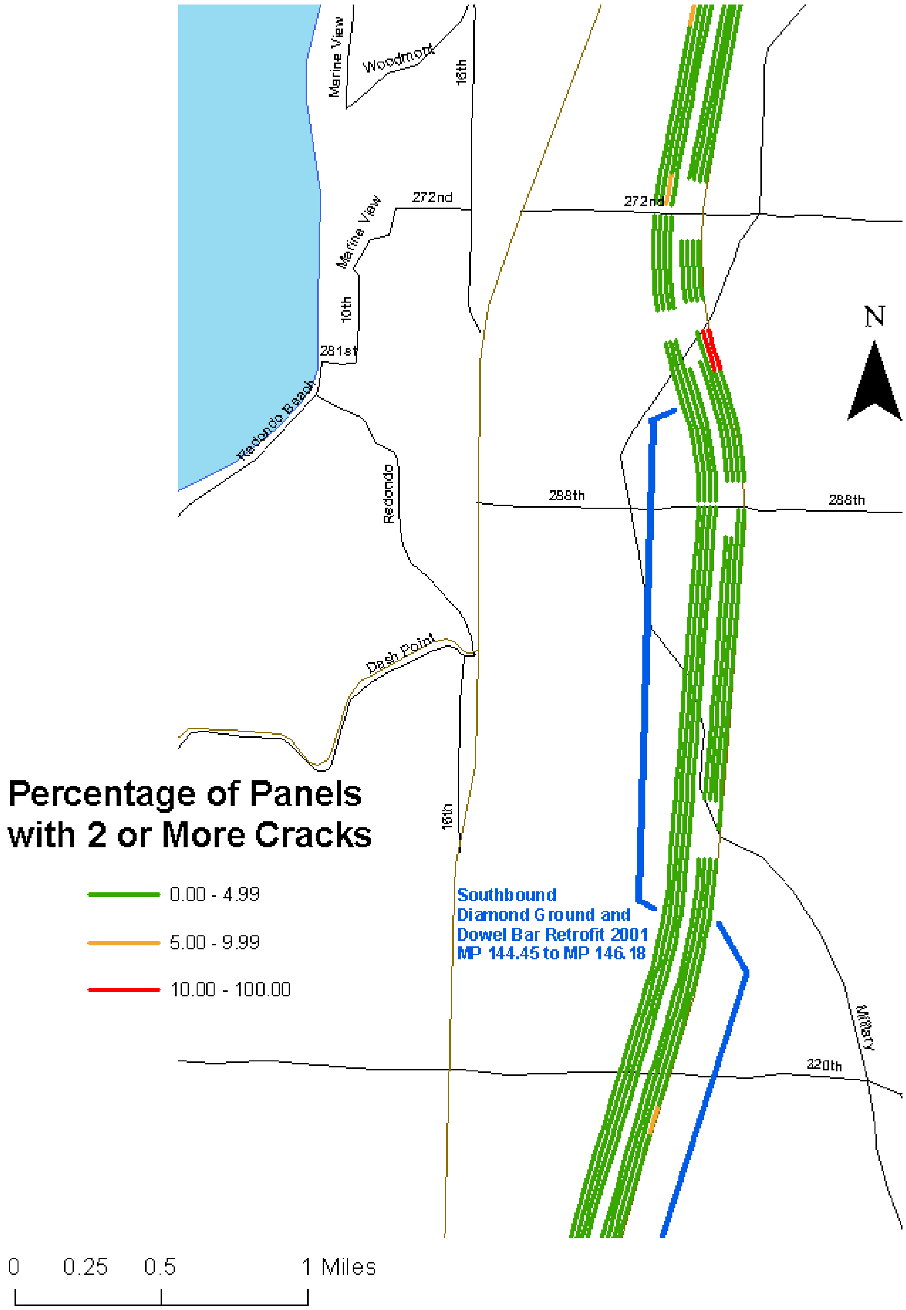


Average Faulting
175th to 244th

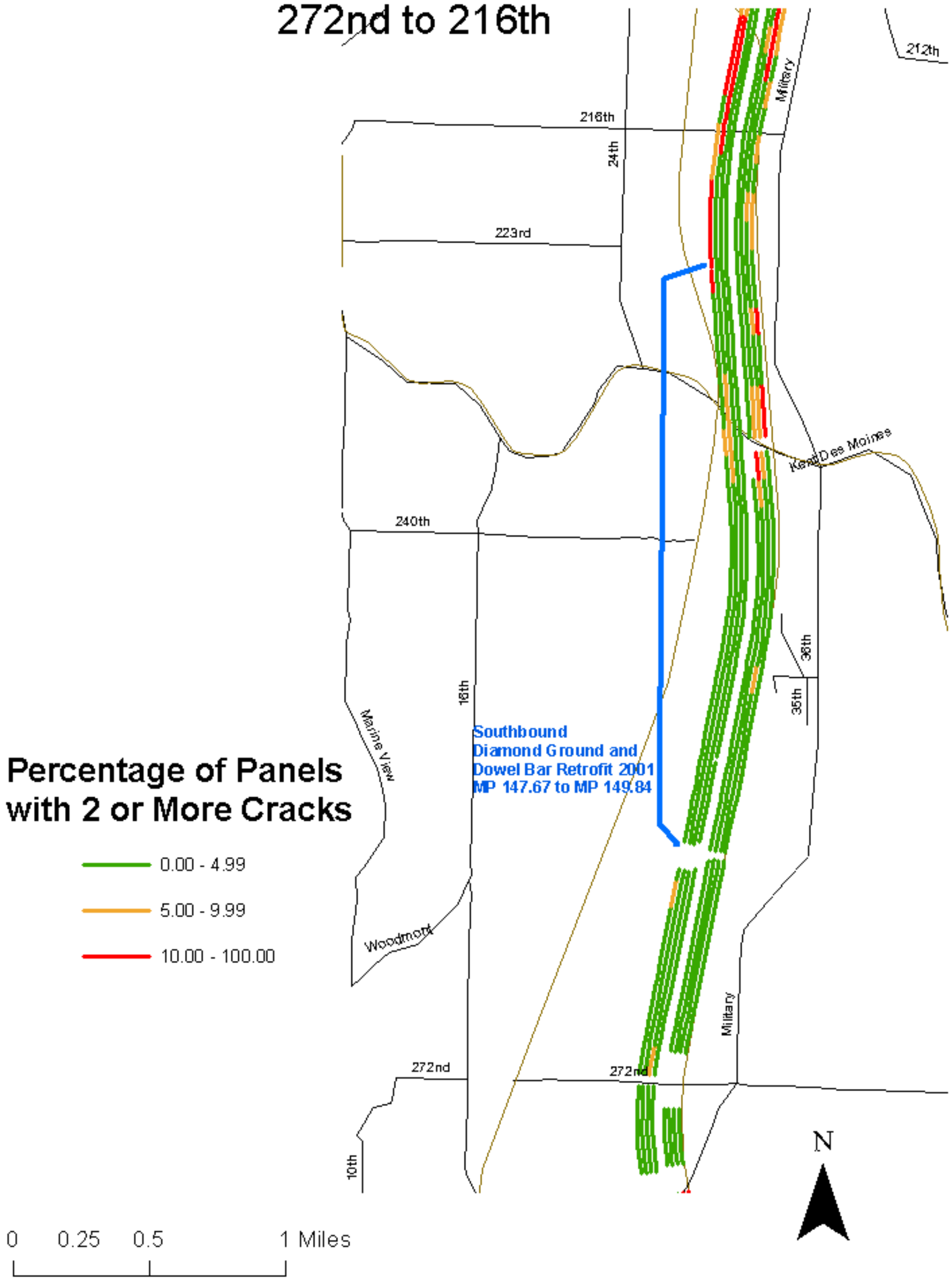


Appendix Q –
Arc GIS Percentage of Cracked Panels with Two or More Cracks
Distress Images

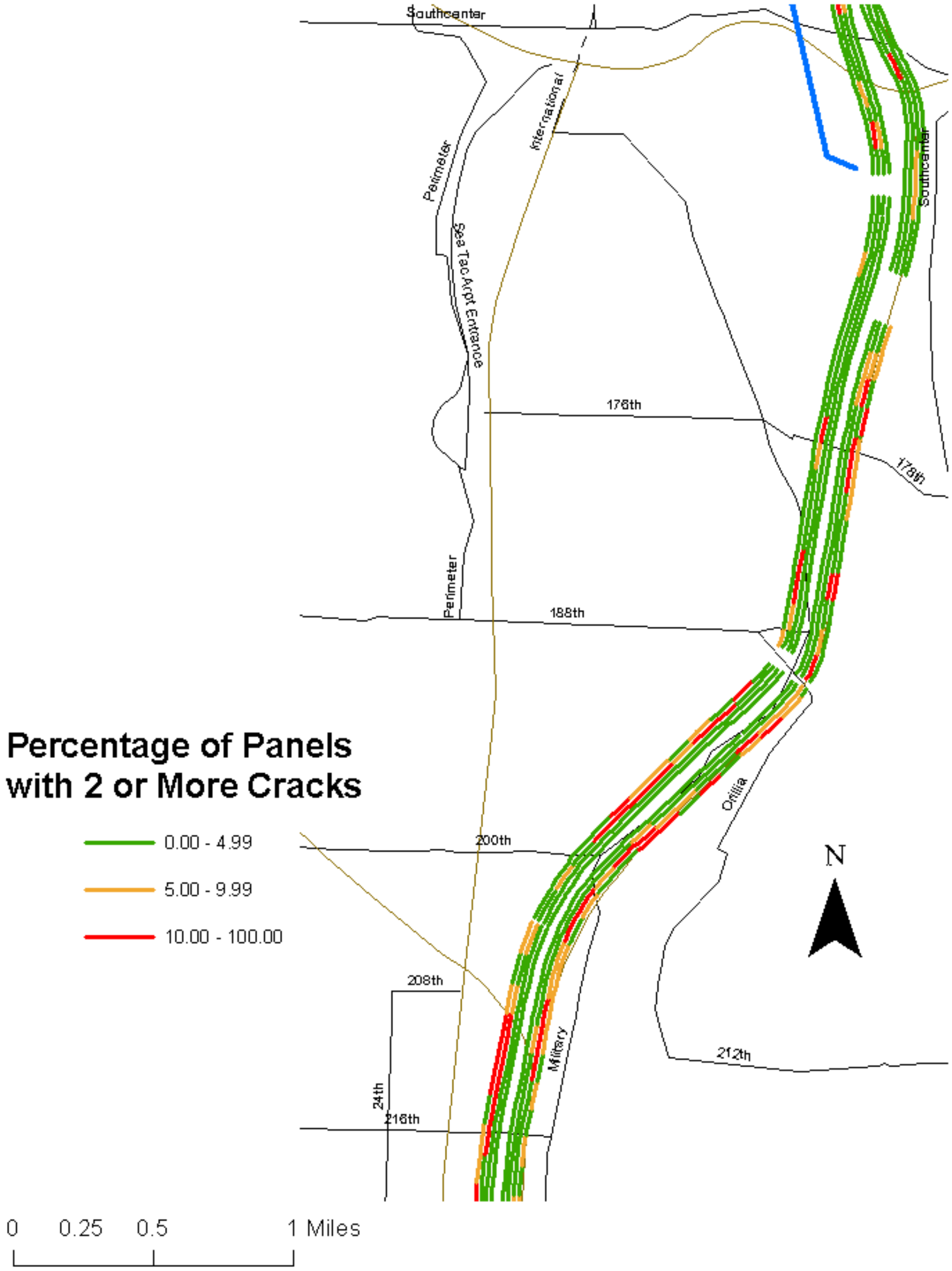
Percentage of Panels with 2 or More Cracks
320th to 272nd



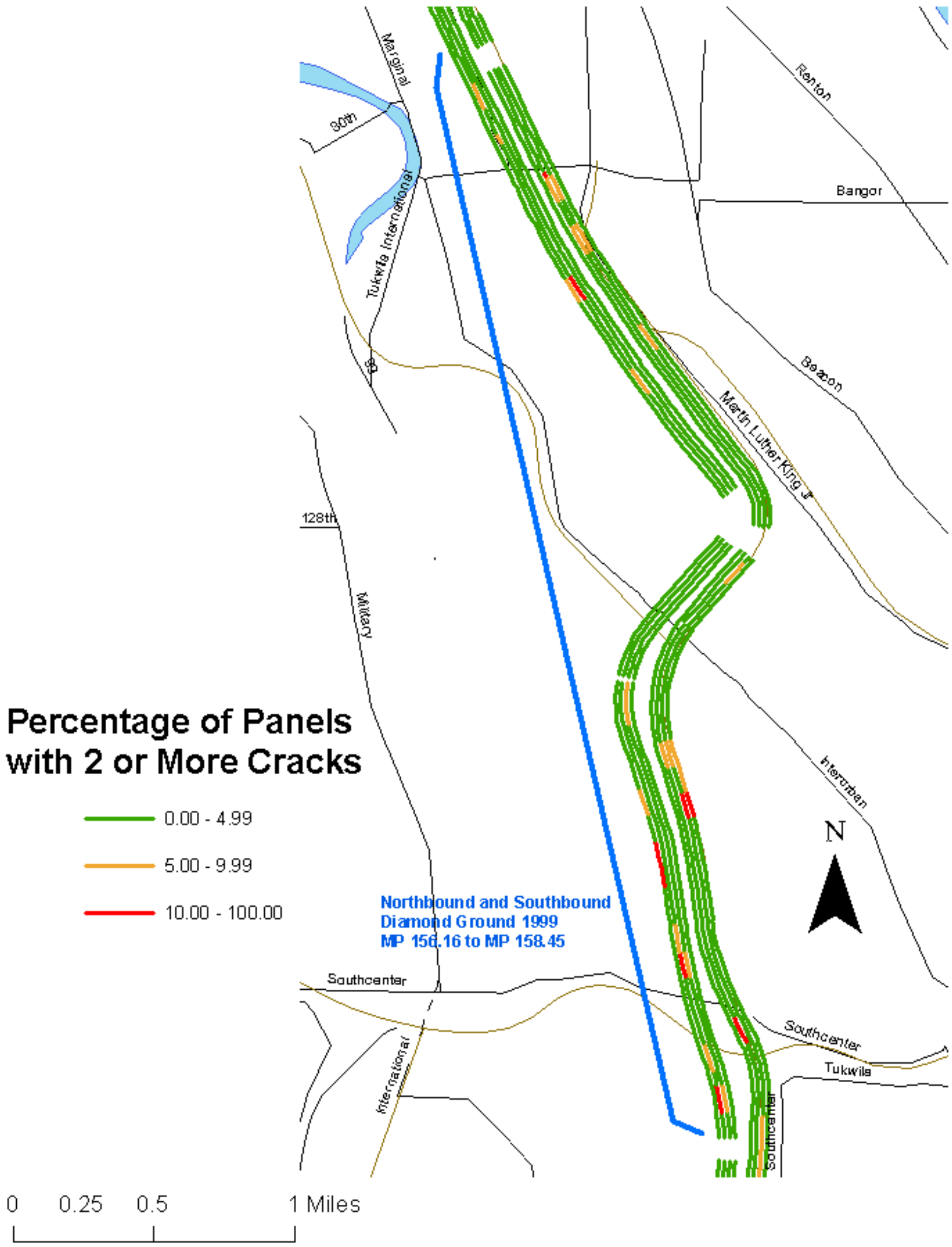
Percentage of Panels with 2 or More Cracks
272nd to 216th



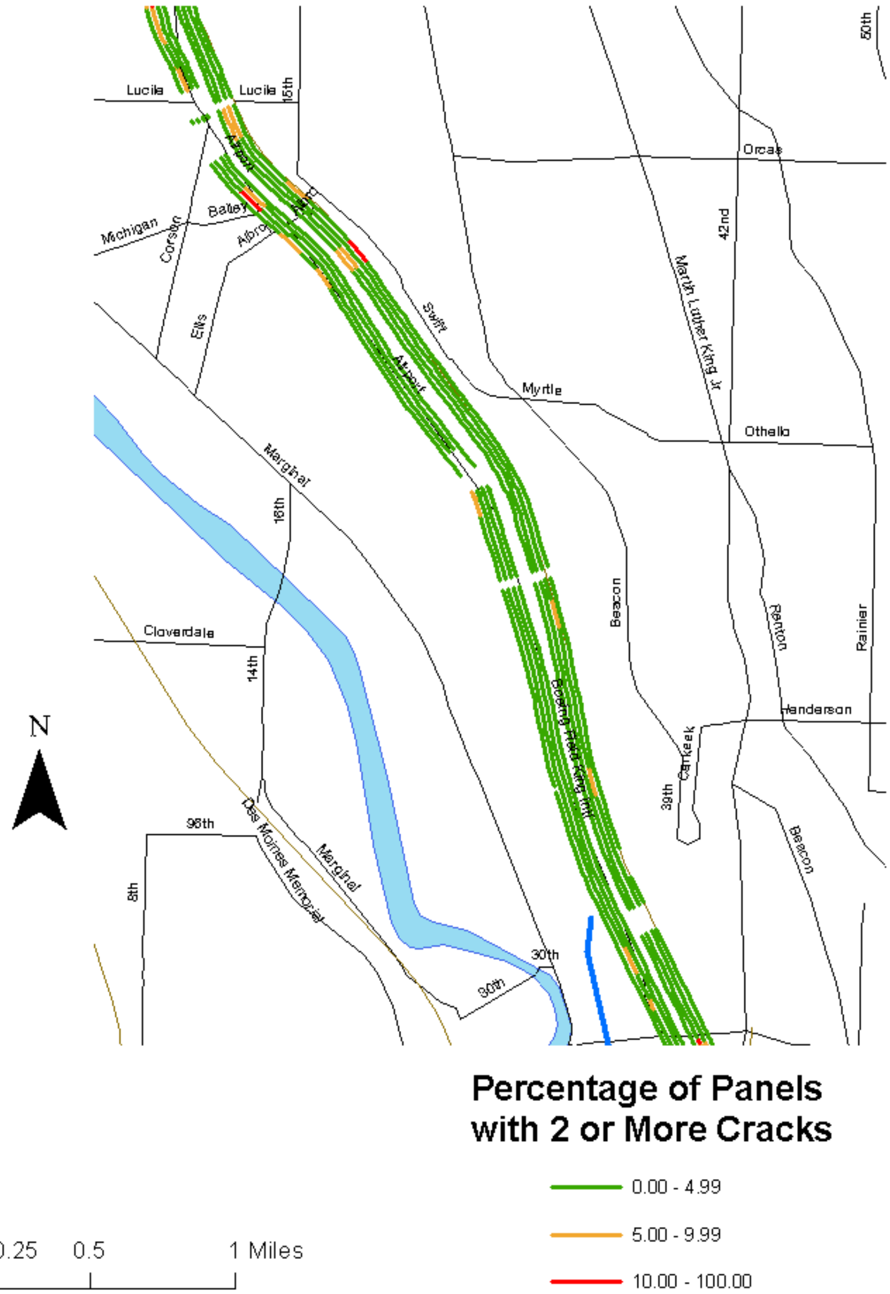
Percentage of Panels with 2 or More Cracks
216th to I-405



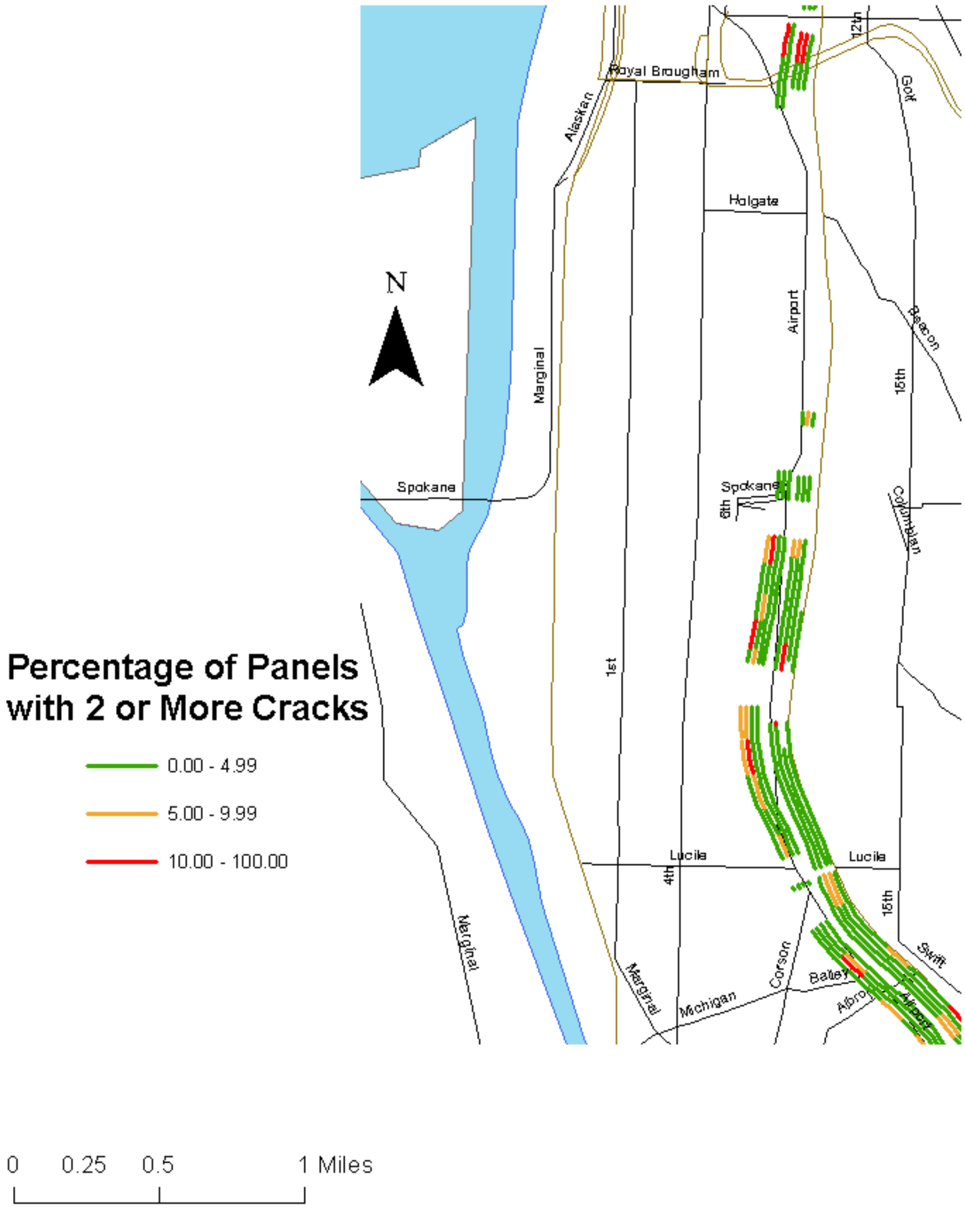
Percentage of Panels with 2 or More Cracks
I-405 to South Boeing Access Rd.



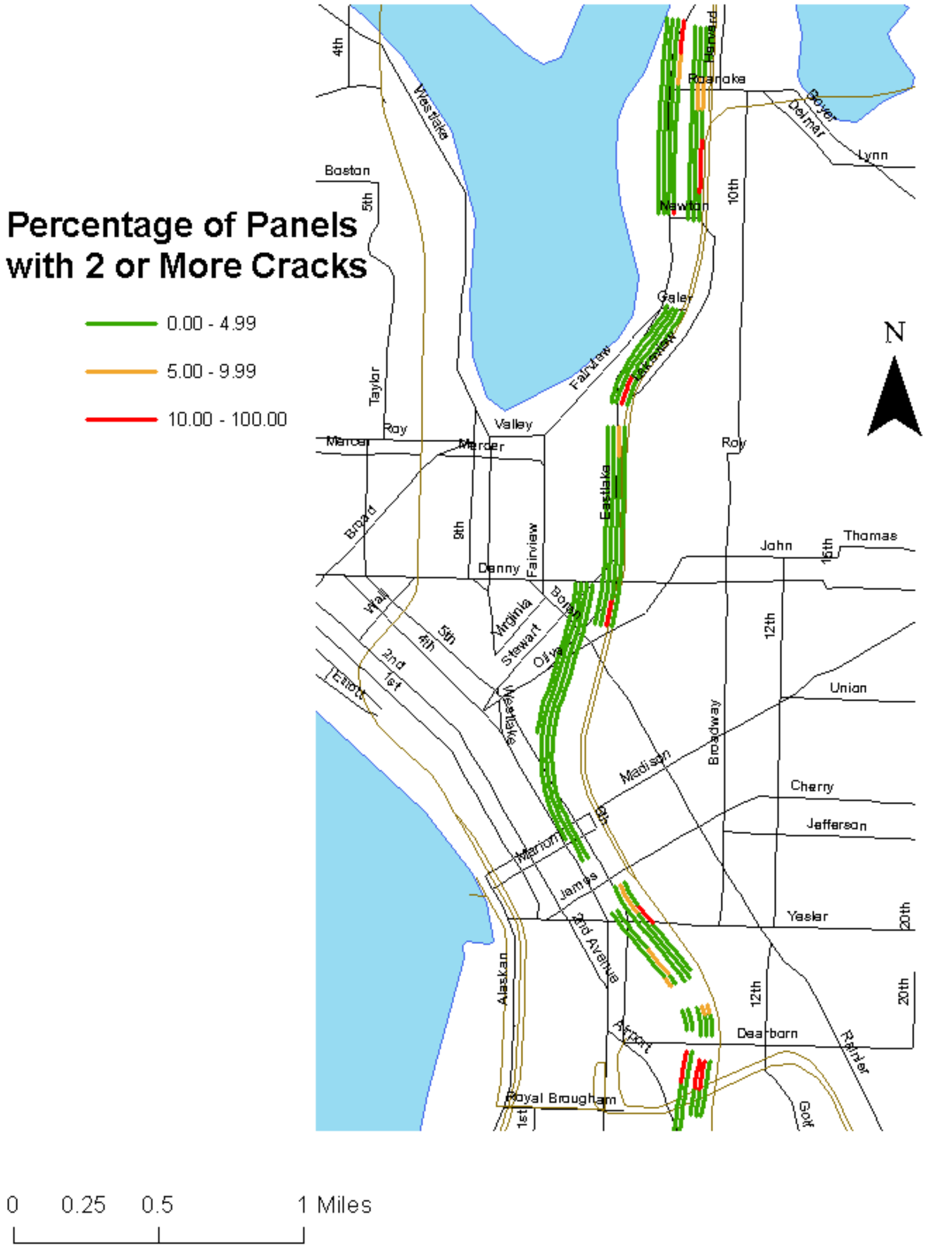
Percentage of Panels with 2 or More Cracks
South Boeing Access Rd. to Michigan St.



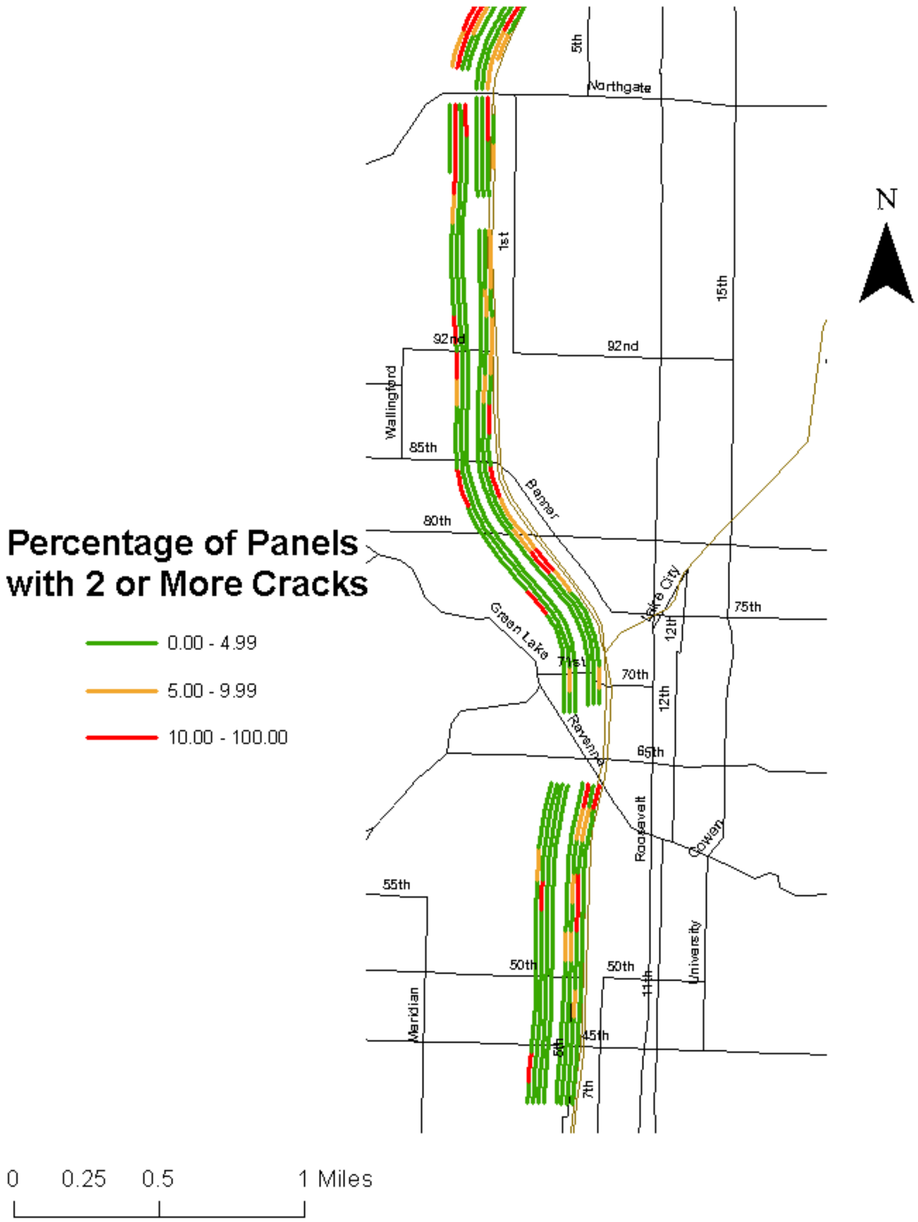
Percentage of Panels with 2 or More Cracks
Michigan St. to I-90



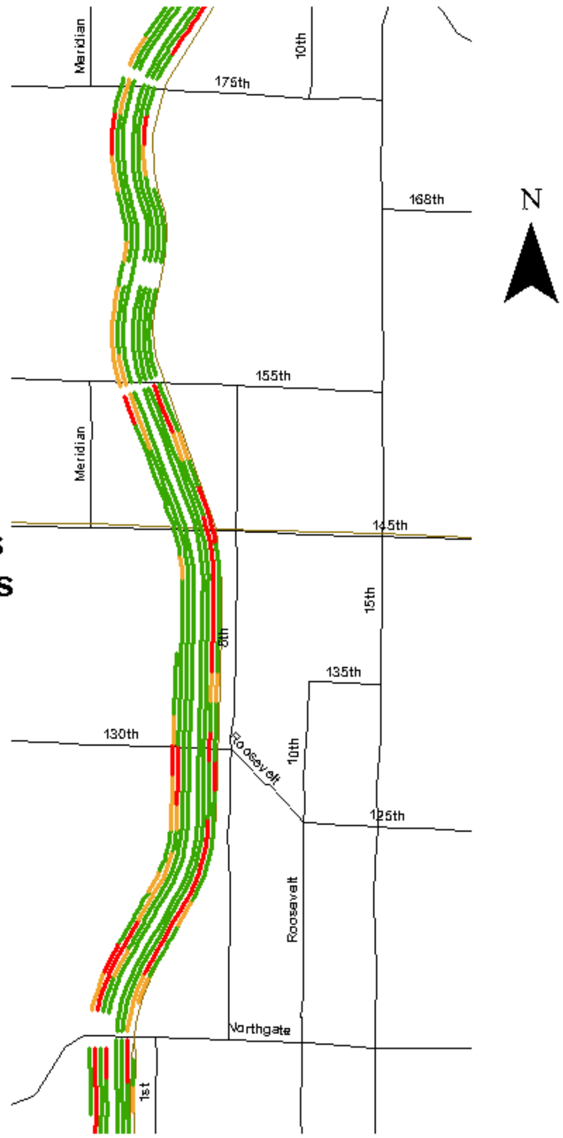
Percentage of Panels with 2 or More Cracks
I-90 to Ship Canal Bridge



Percentage of Panels with 2 or More Cracks
Ship Canal Bridge to Northgate Way



Percentage of Panels with 2 or More Cracks
Northgate Way to 175th

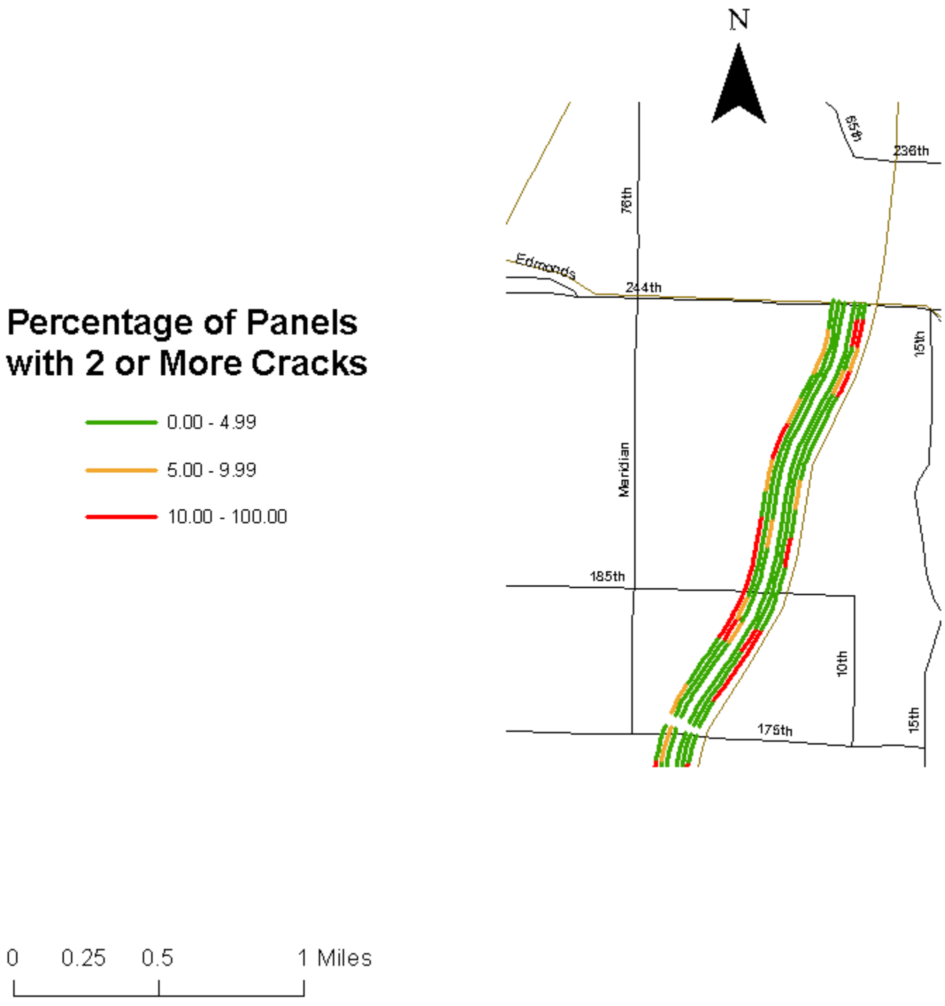


Percentage of Panels with 2 or More Cracks

- 0.00 - 4.99
- 5.00 - 9.99
- 10.00 - 100.00

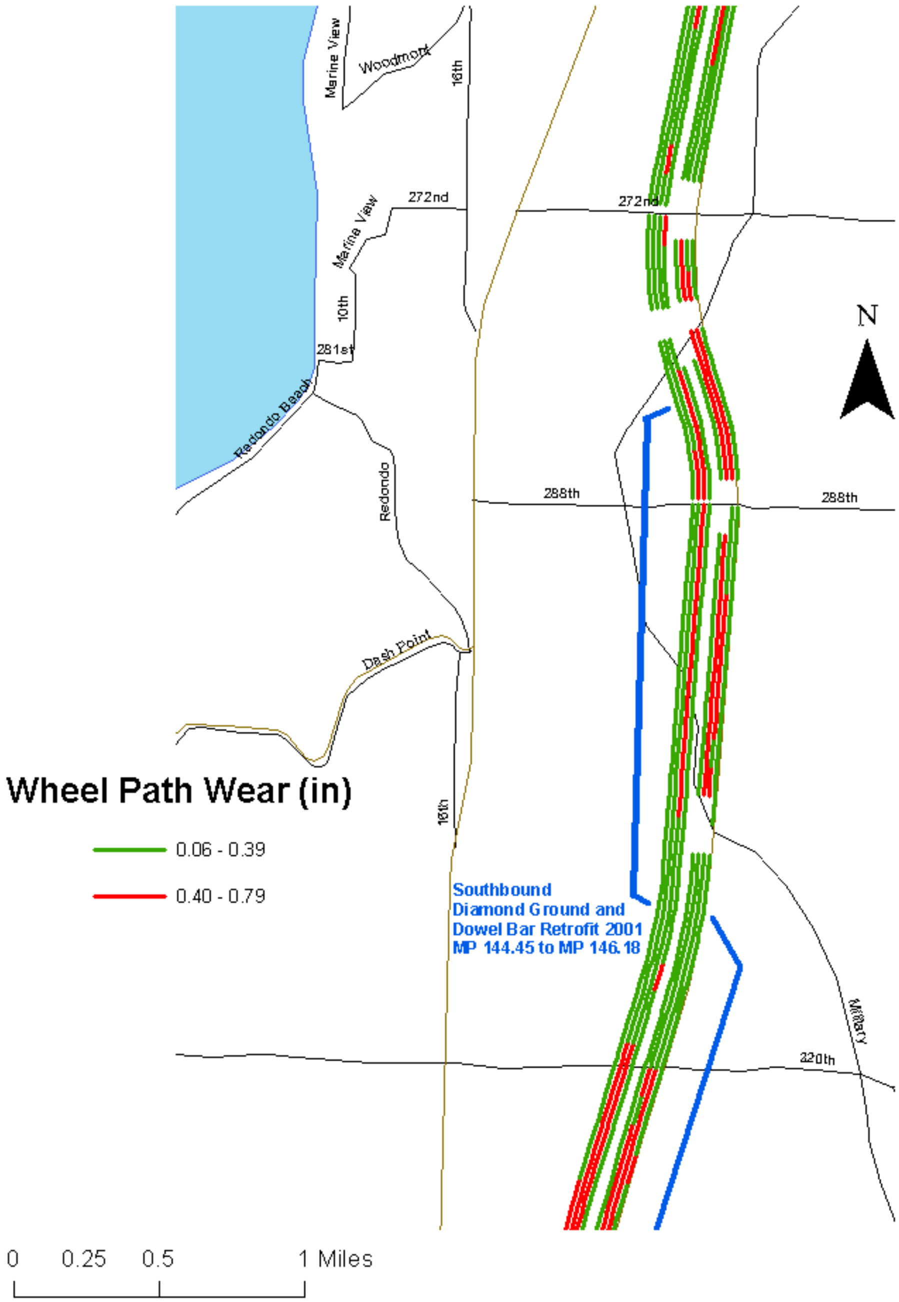
0 0.25 0.5 1 Miles

Percentage of Panels with 2 or More Cracks
175th to 244th

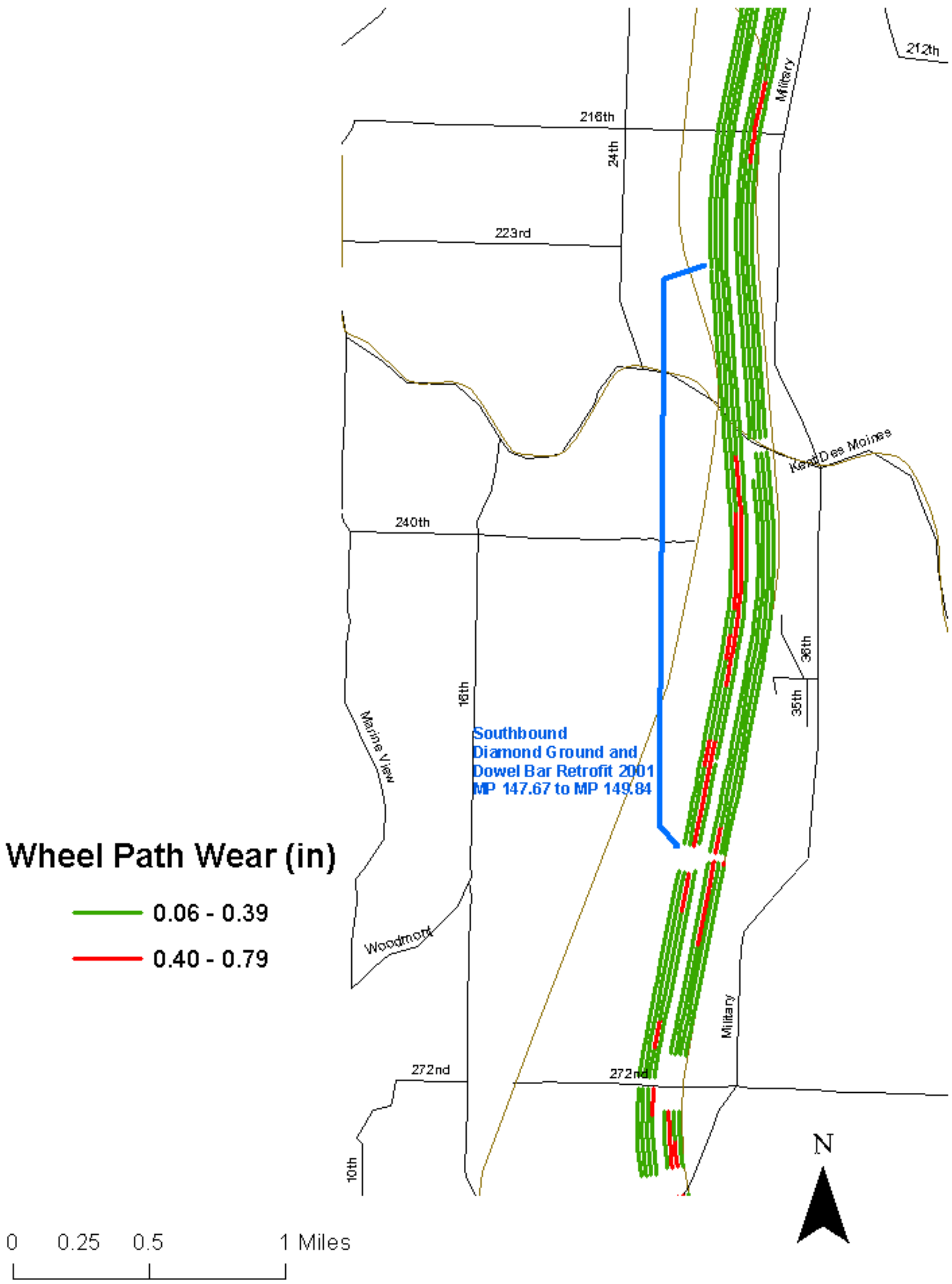


Appendix R –
Arc GIS Wheel Path Wear Pavement Distress Images

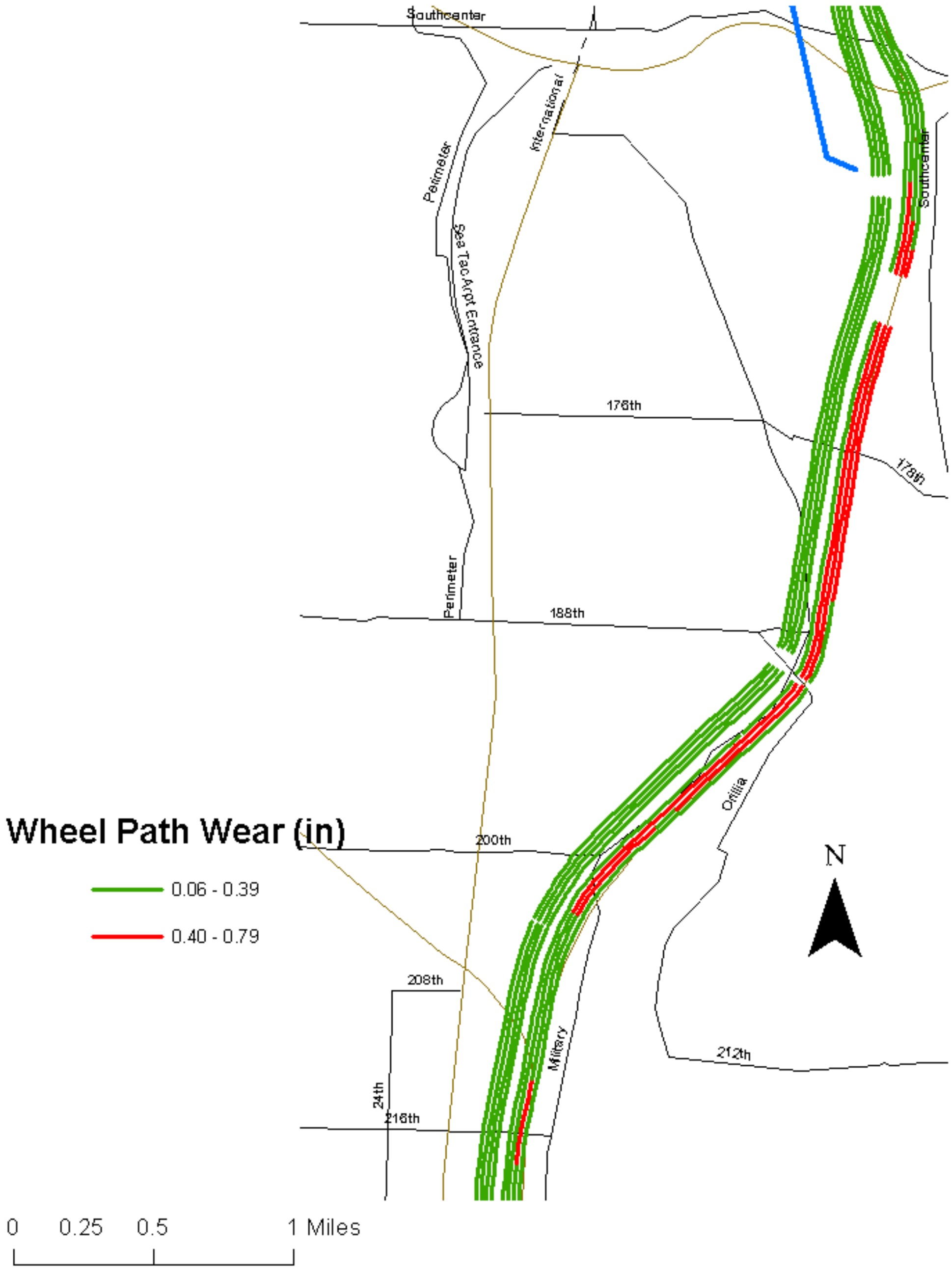
Wheel Path Wear
320th to 272nd



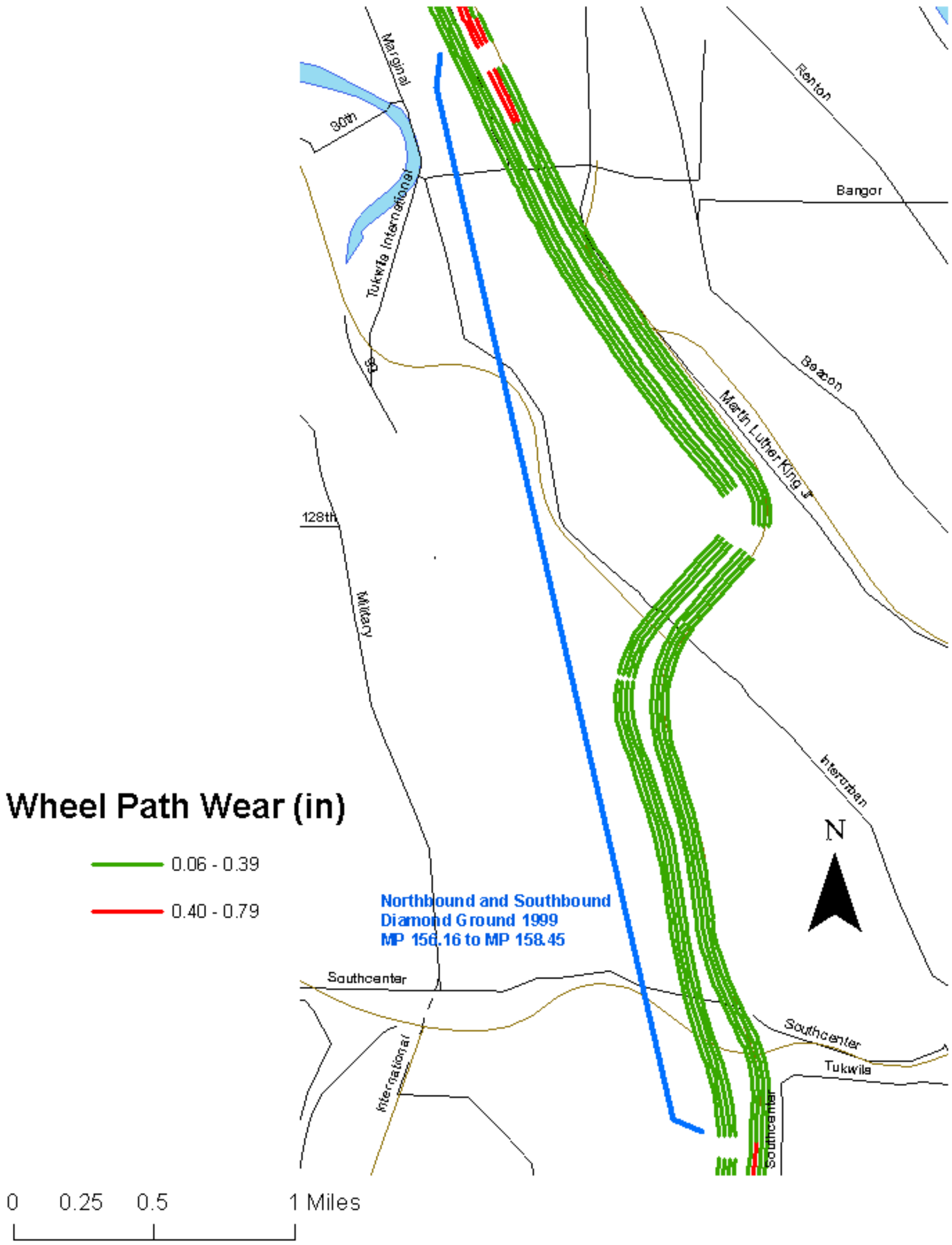
Wheel Path Wear 272nd to 216th



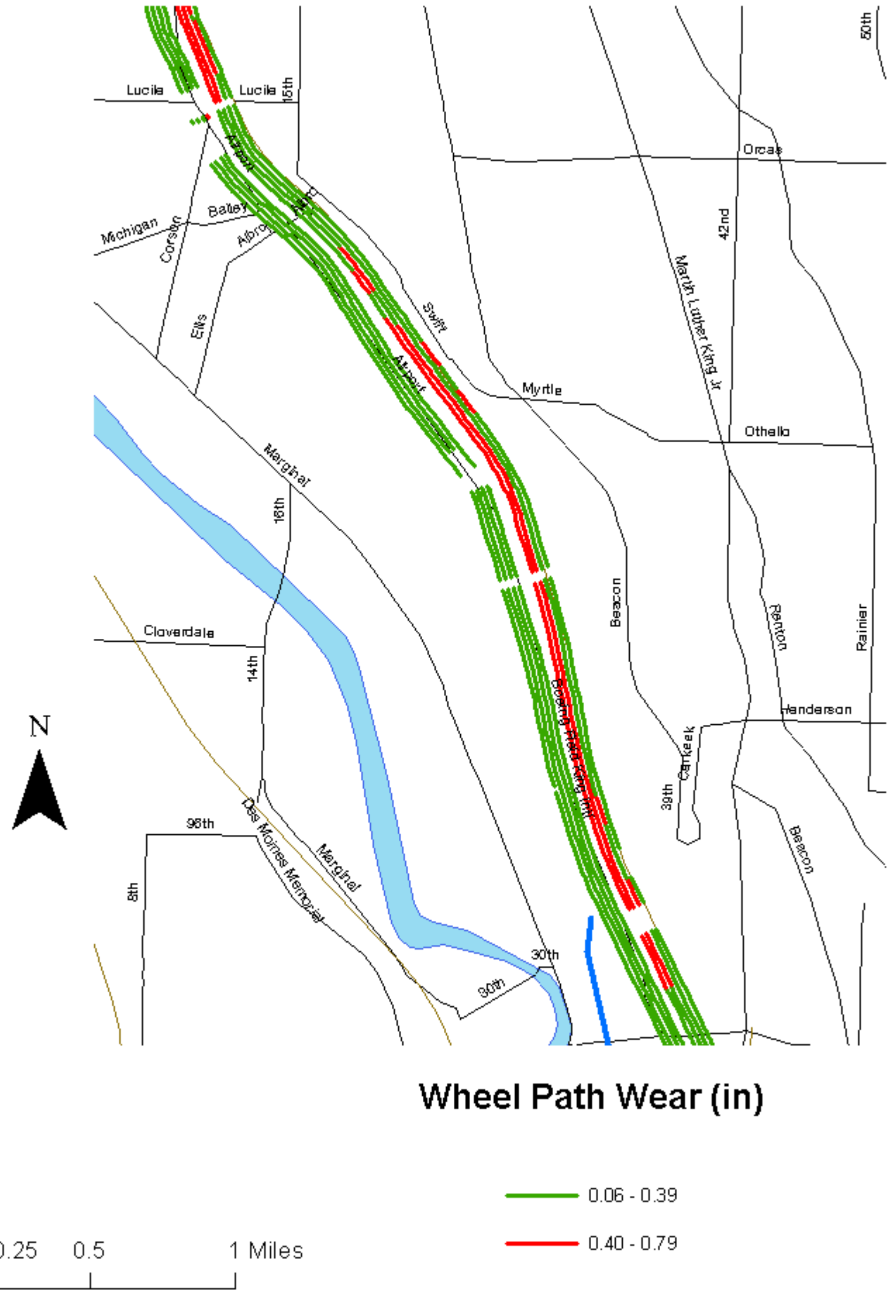
Wheel Path Wear 216th to I-405



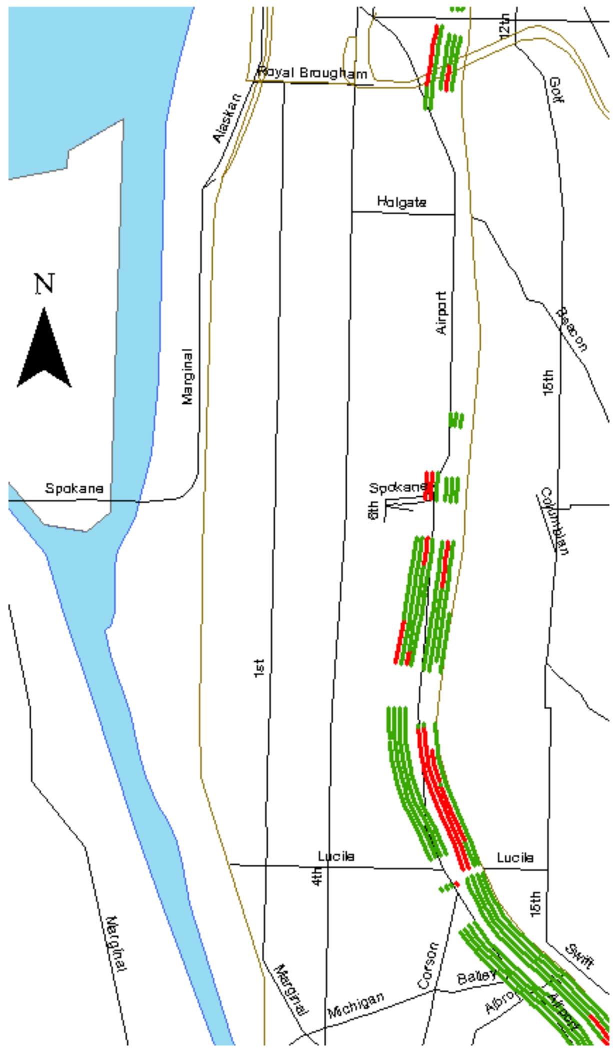
Wheel Path Wear
I-405 to South Boeing Access Rd.



Wheel Path Wear
South Boeing Access Rd. to Michigan St.



Wheel Path Wear
Michigan St. to I-90

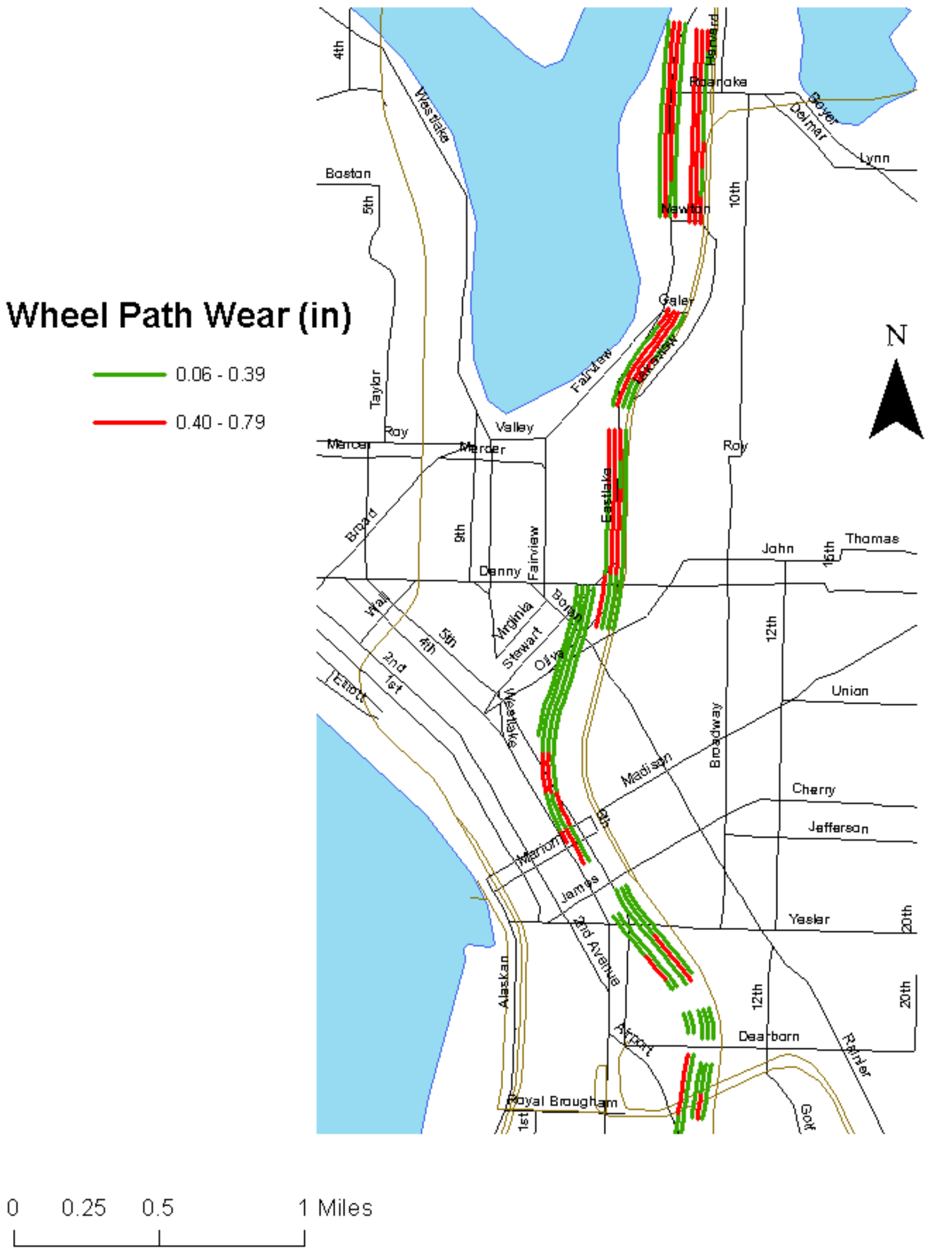


Wheel Path Wear (in)

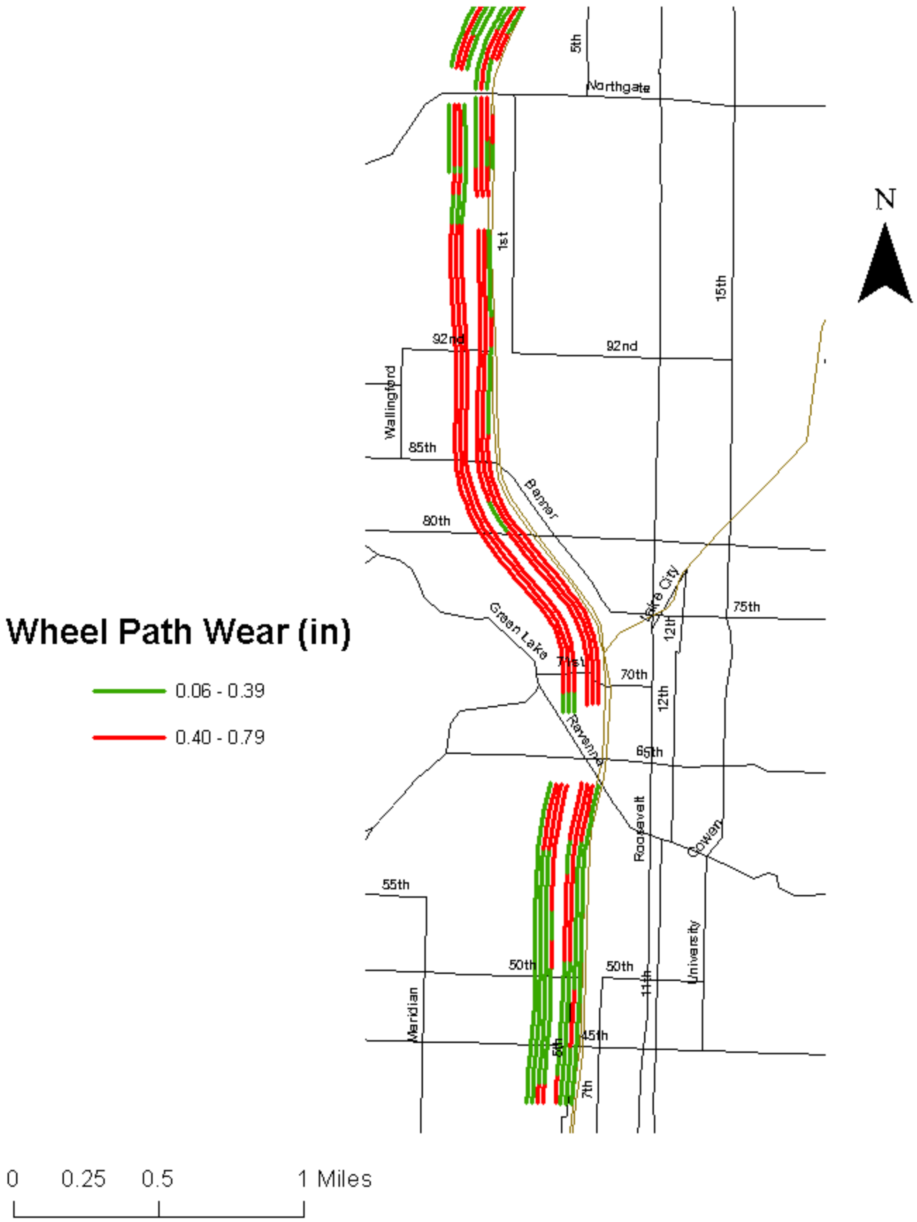
- 0.06 - 0.39
- 0.40 - 0.79

0 0.25 0.5 1 Miles

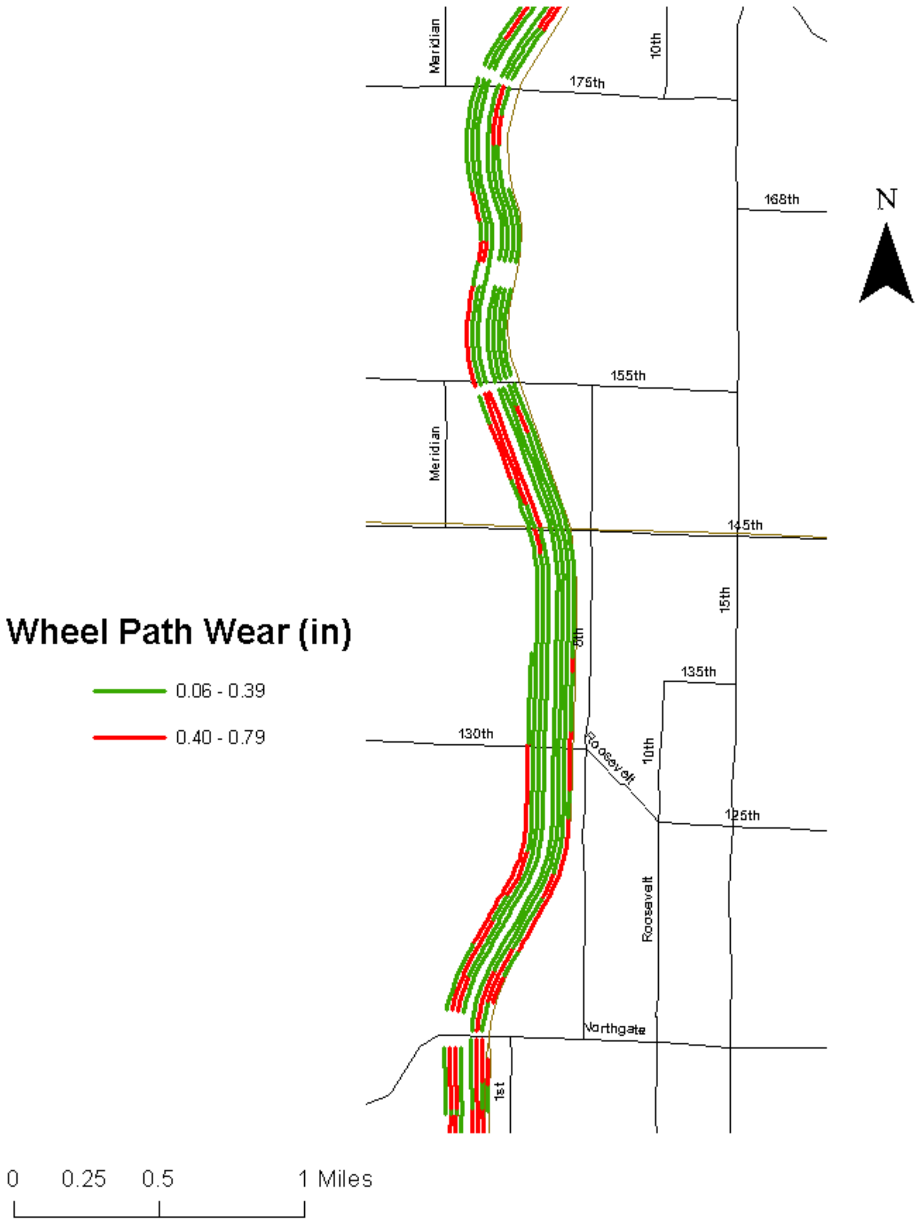
Wheel Path Wear
I-90 to Ship Canal Bridge



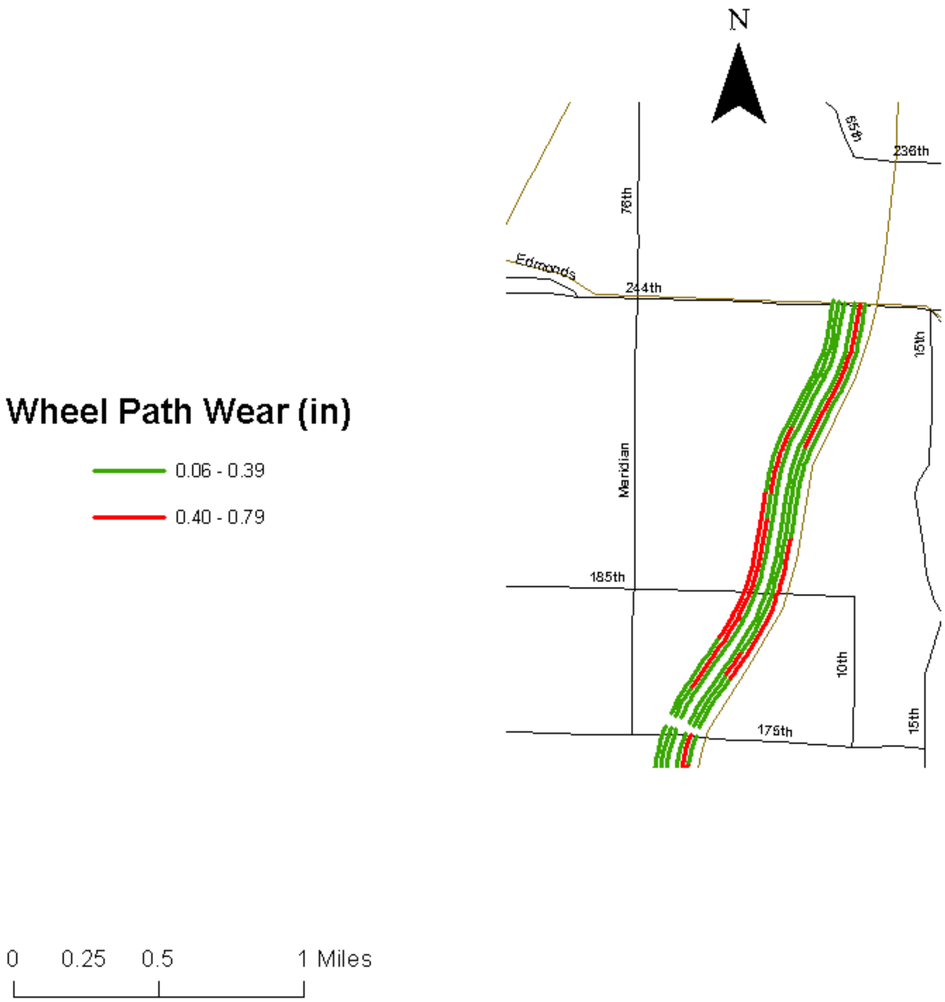
Wheel Path Wear
Ship Canal Bridge to Northgate Way



Wheel Path Wear
Northgate Way to 175th



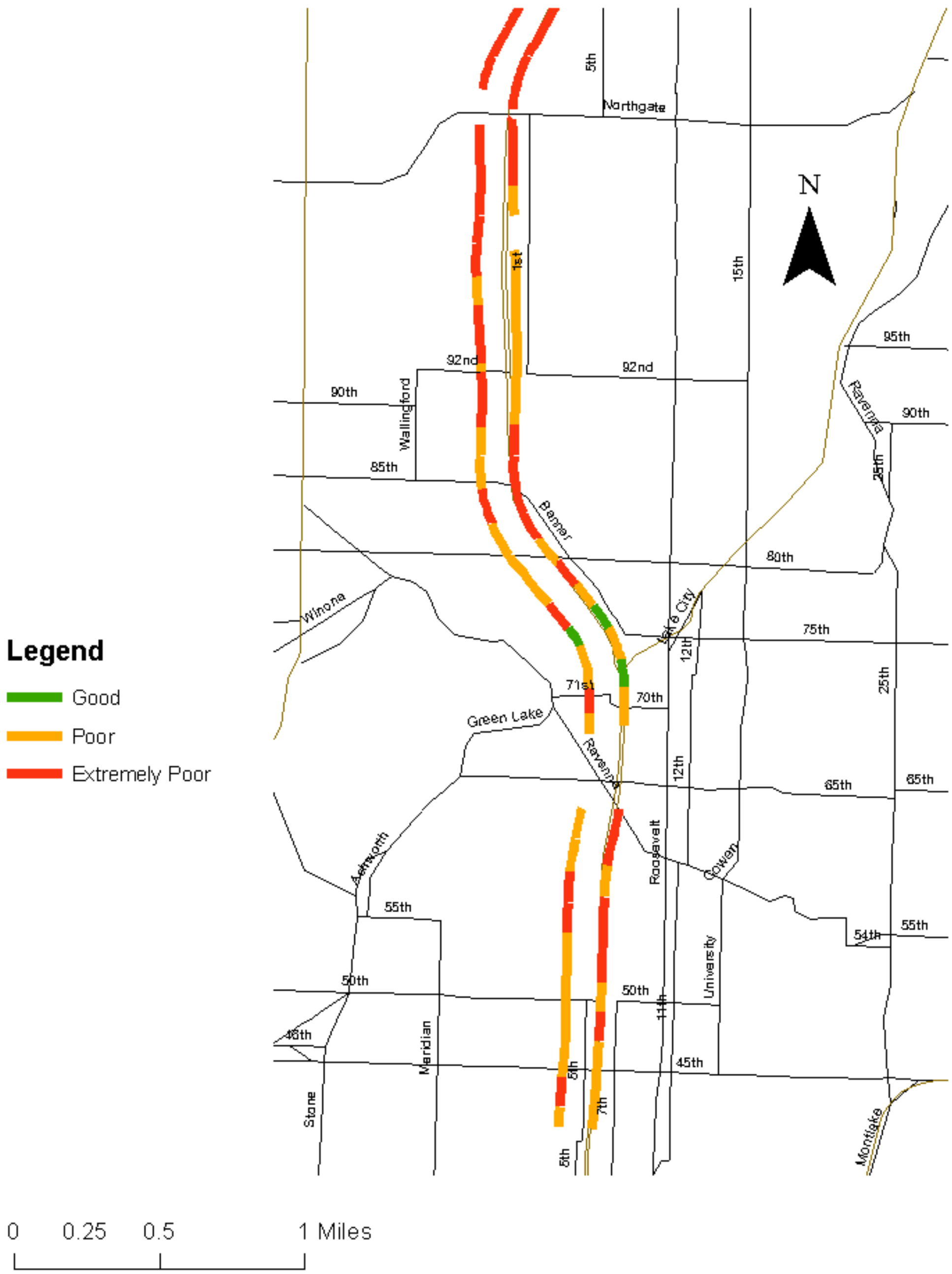
Wheel Path Wear
175th to 244th



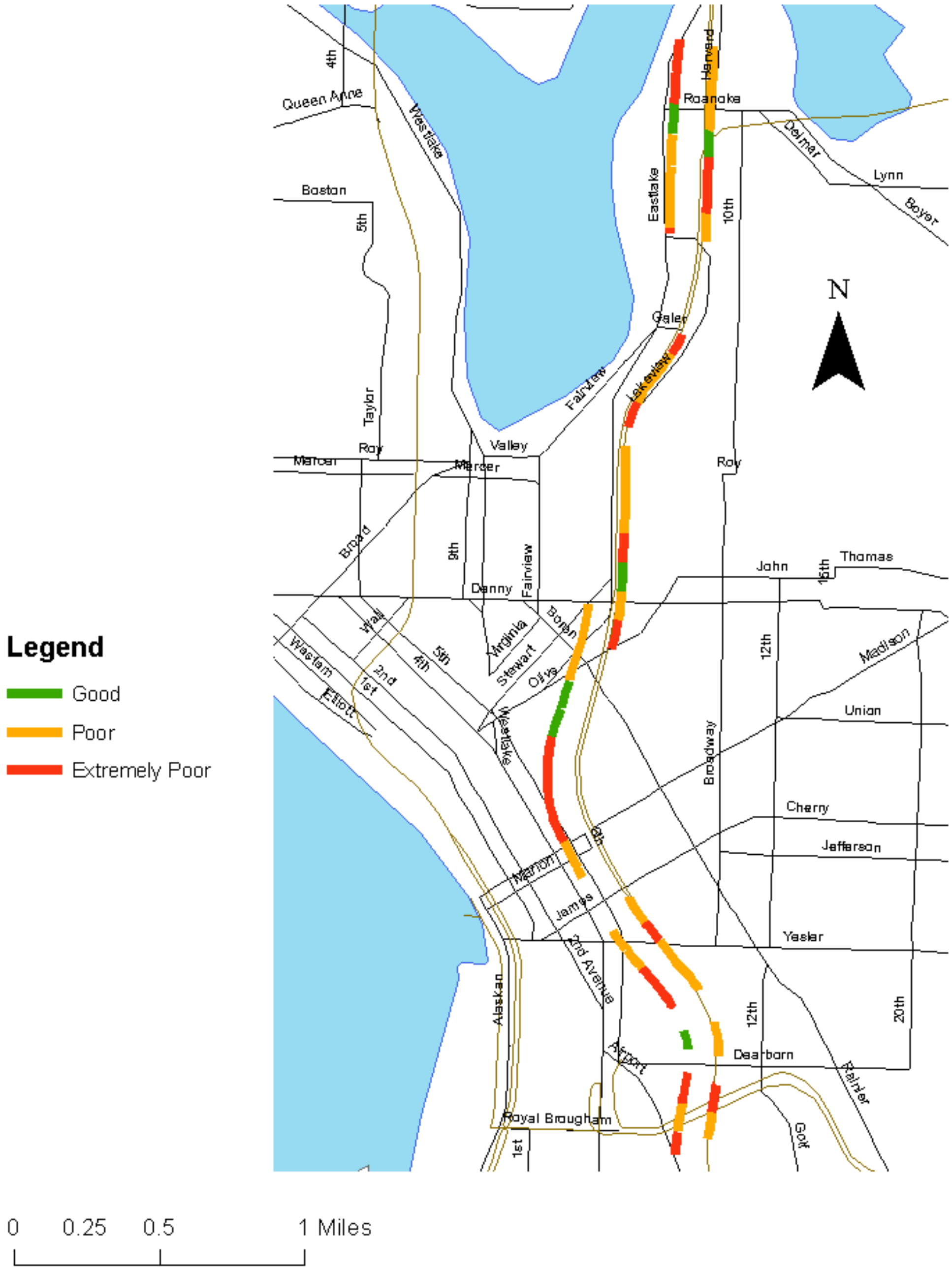
Appendix S –

Arc GIS General Conditions Images

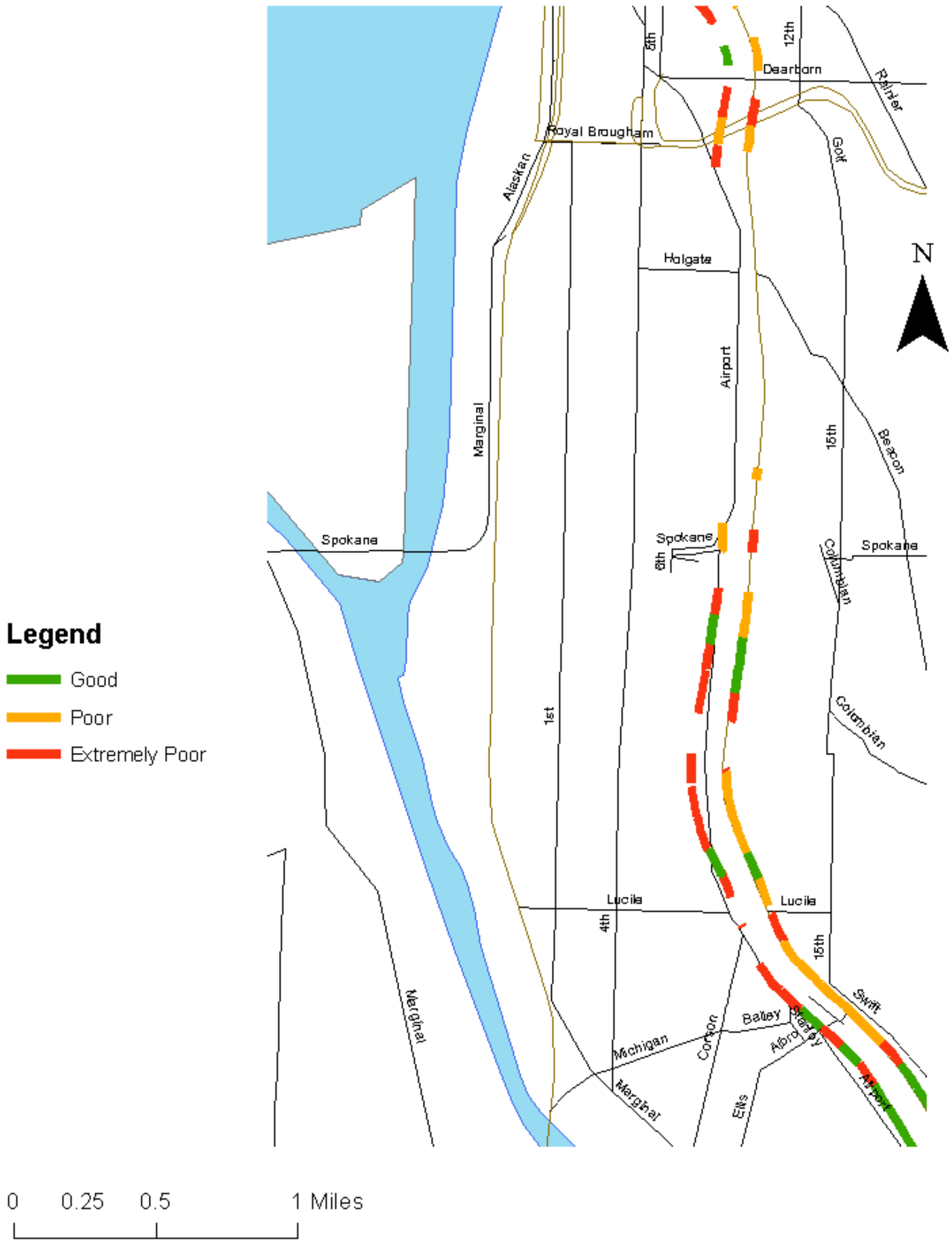
I-5 Pavement Condition
Ship Canal Bridge to Northgate Way



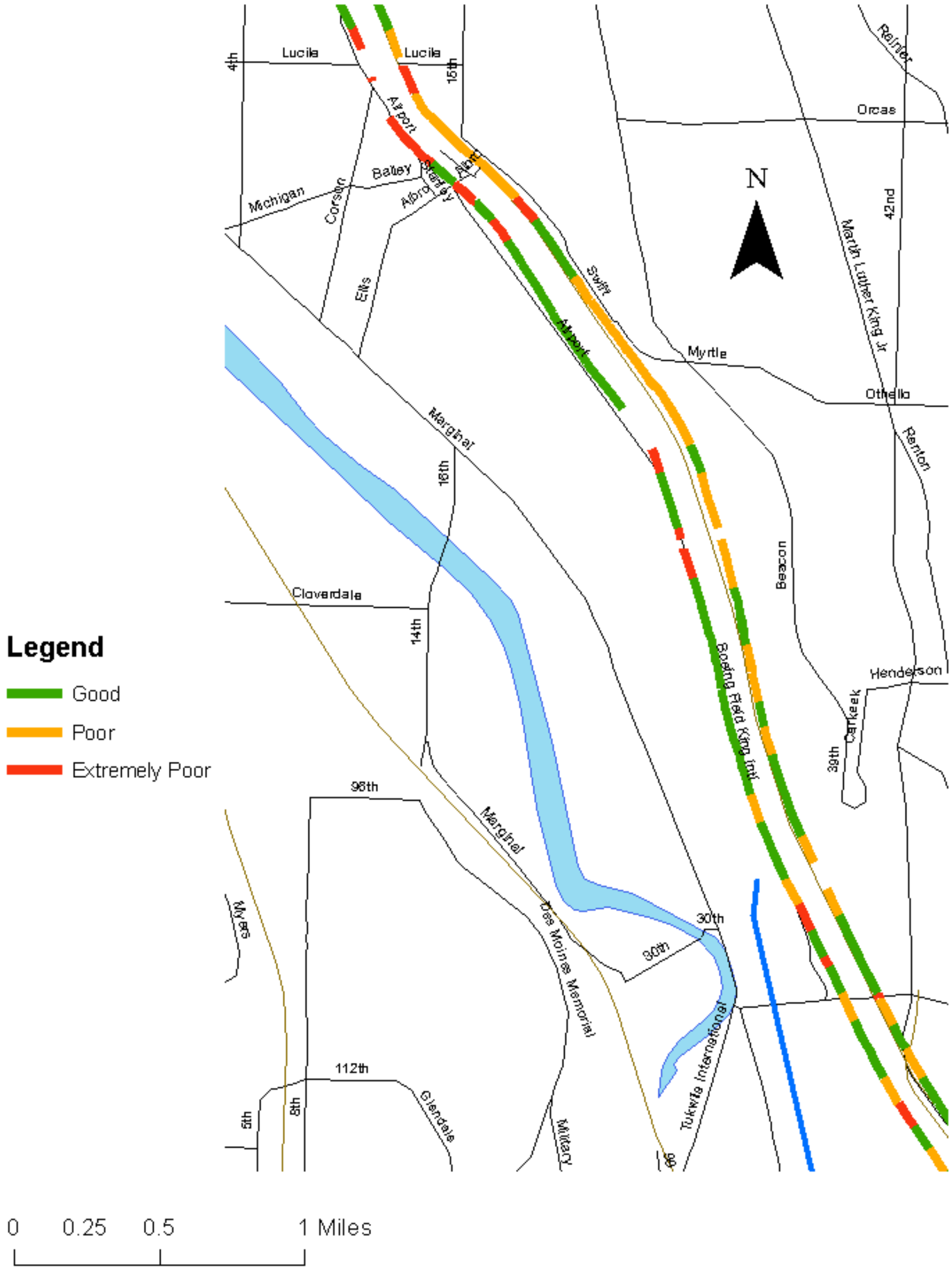
I-5 Pavement Condition
I-90 to Ship Canal Bridge



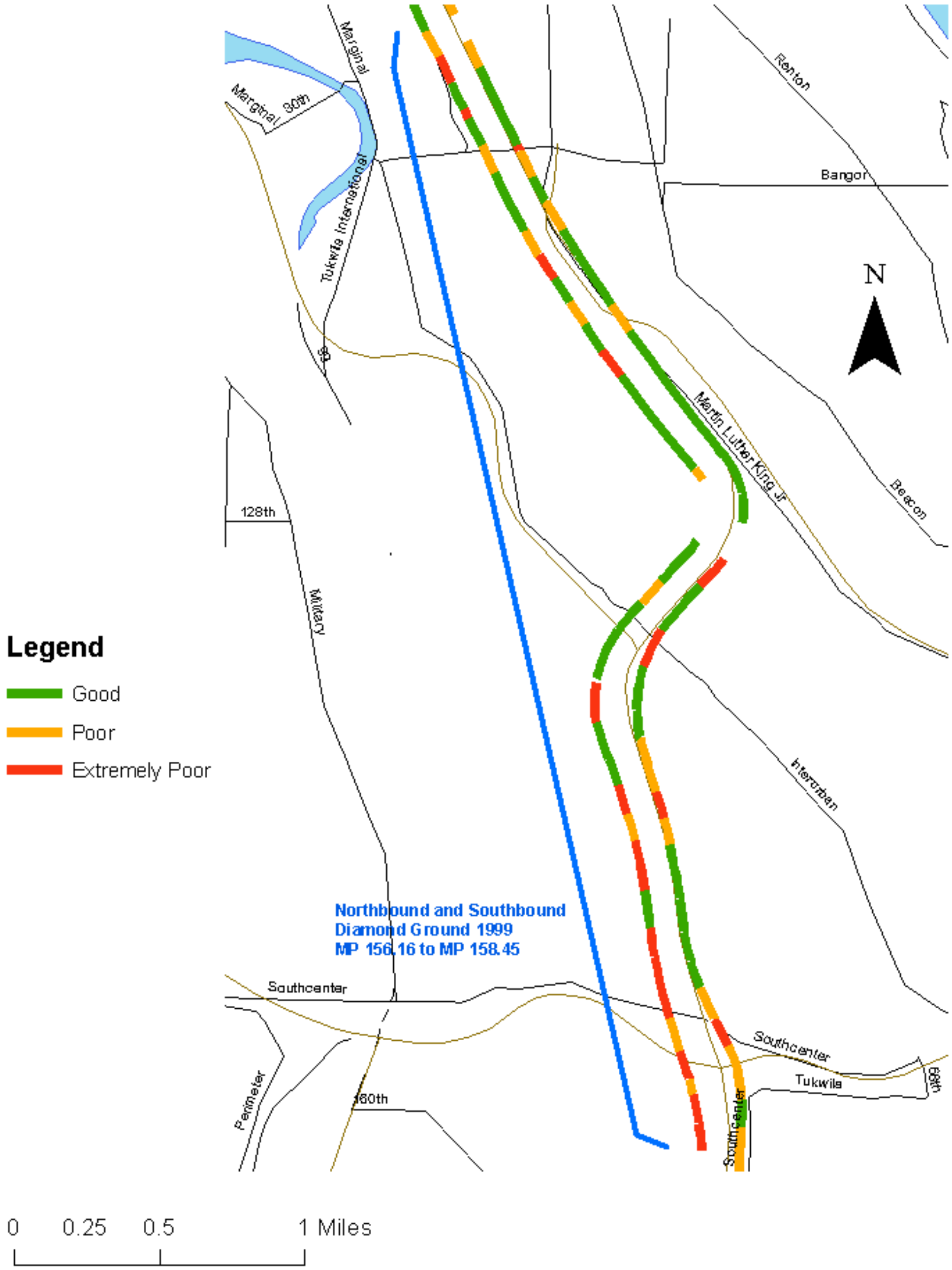
I-5 Pavement Condition
Michigan St. to I-90



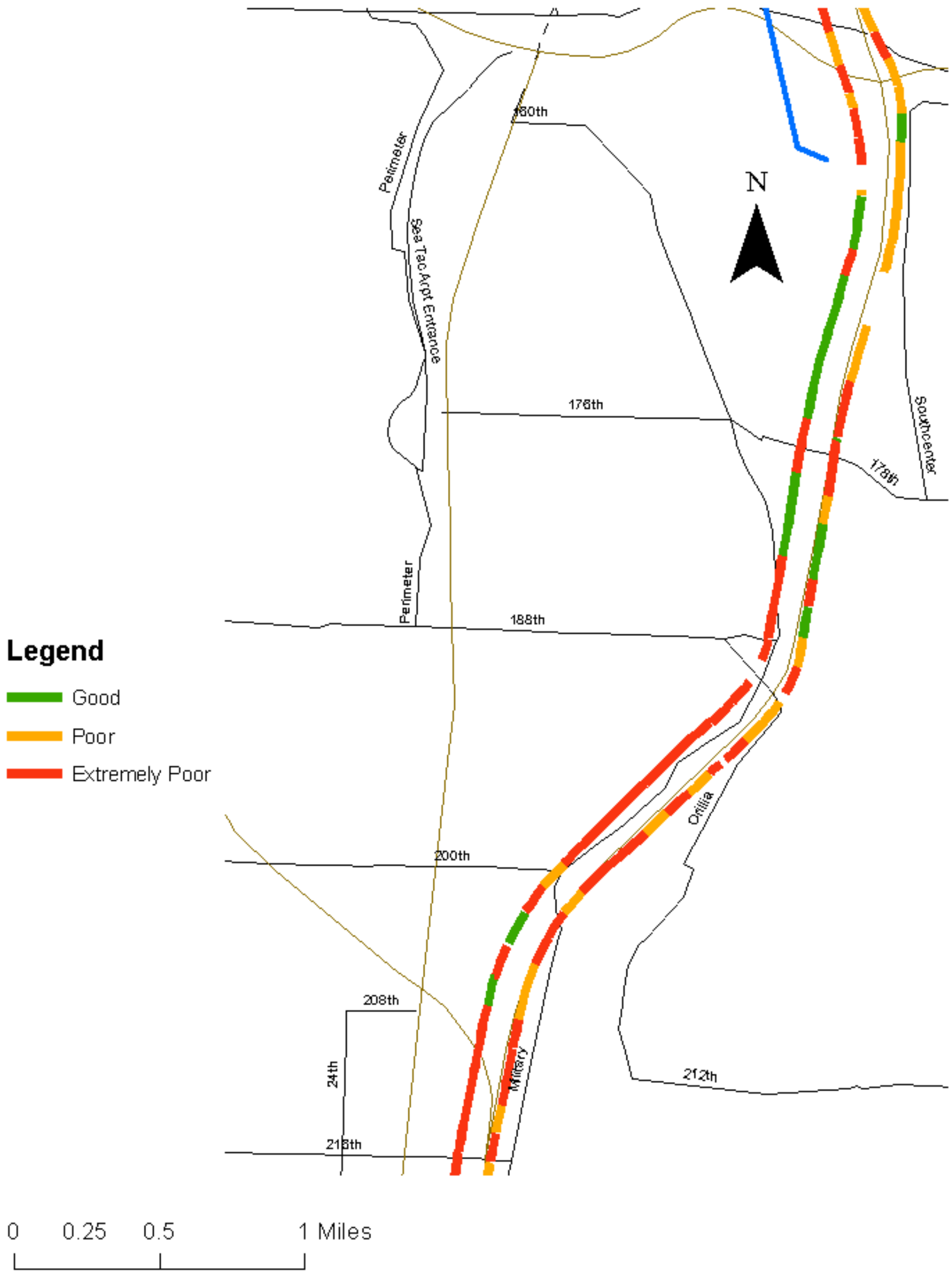
I-5 Pavement Condition
South Boeing Access Rd. to Michigan St.



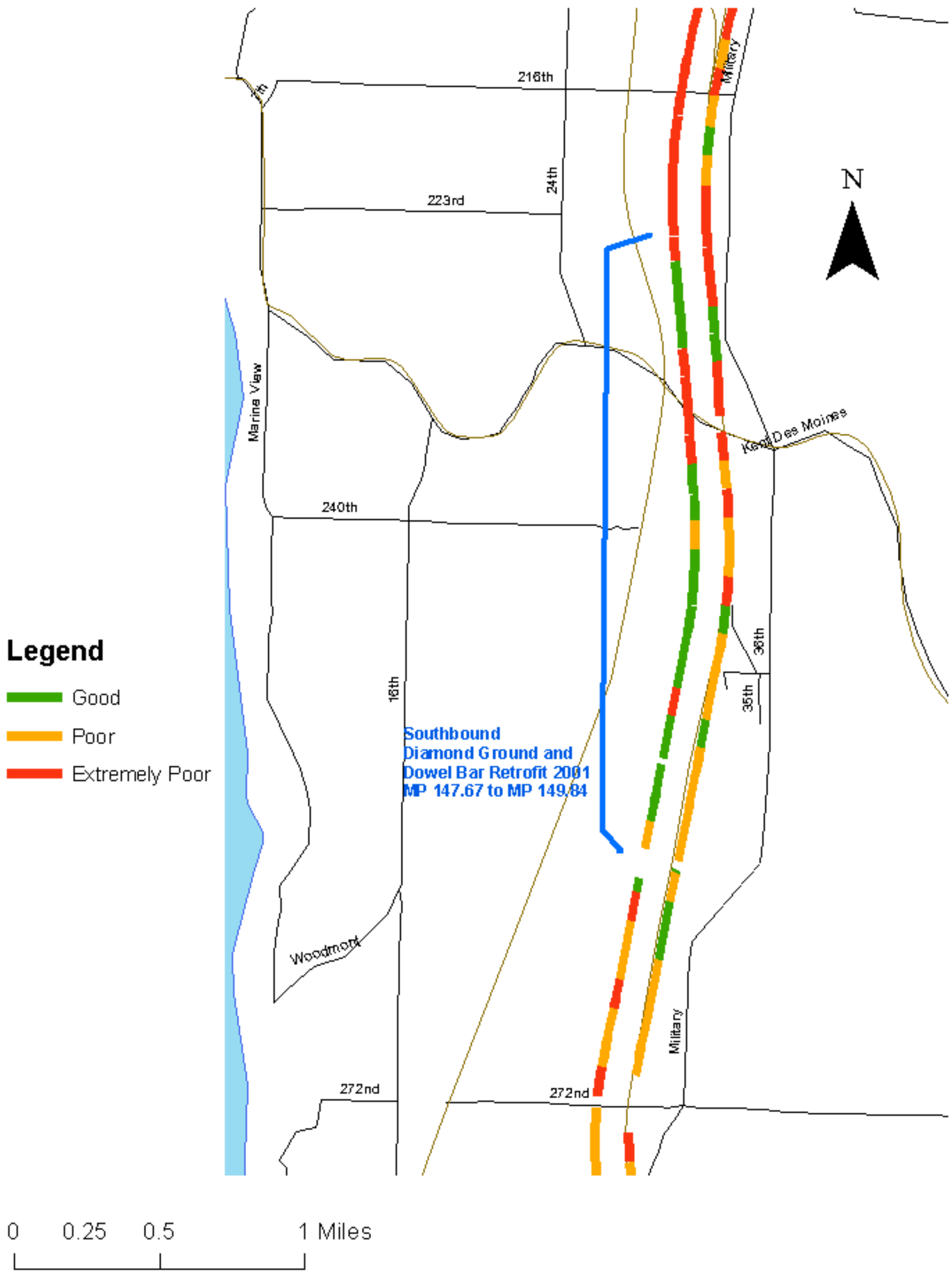
I-5 Pavement Condition
I-405 to South Boeing Access Rd.



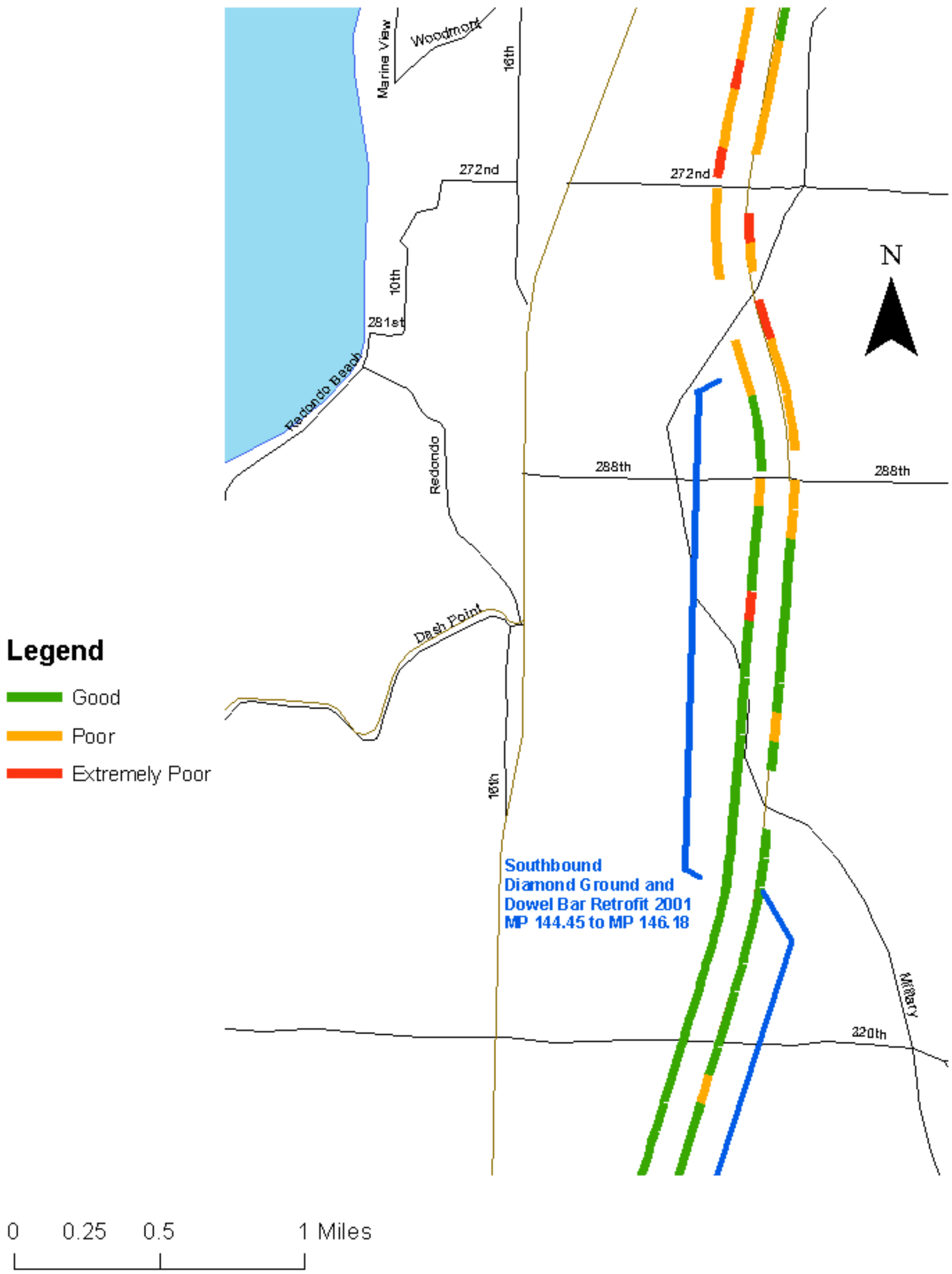
I-5 Pavement Condition
216th to I-405



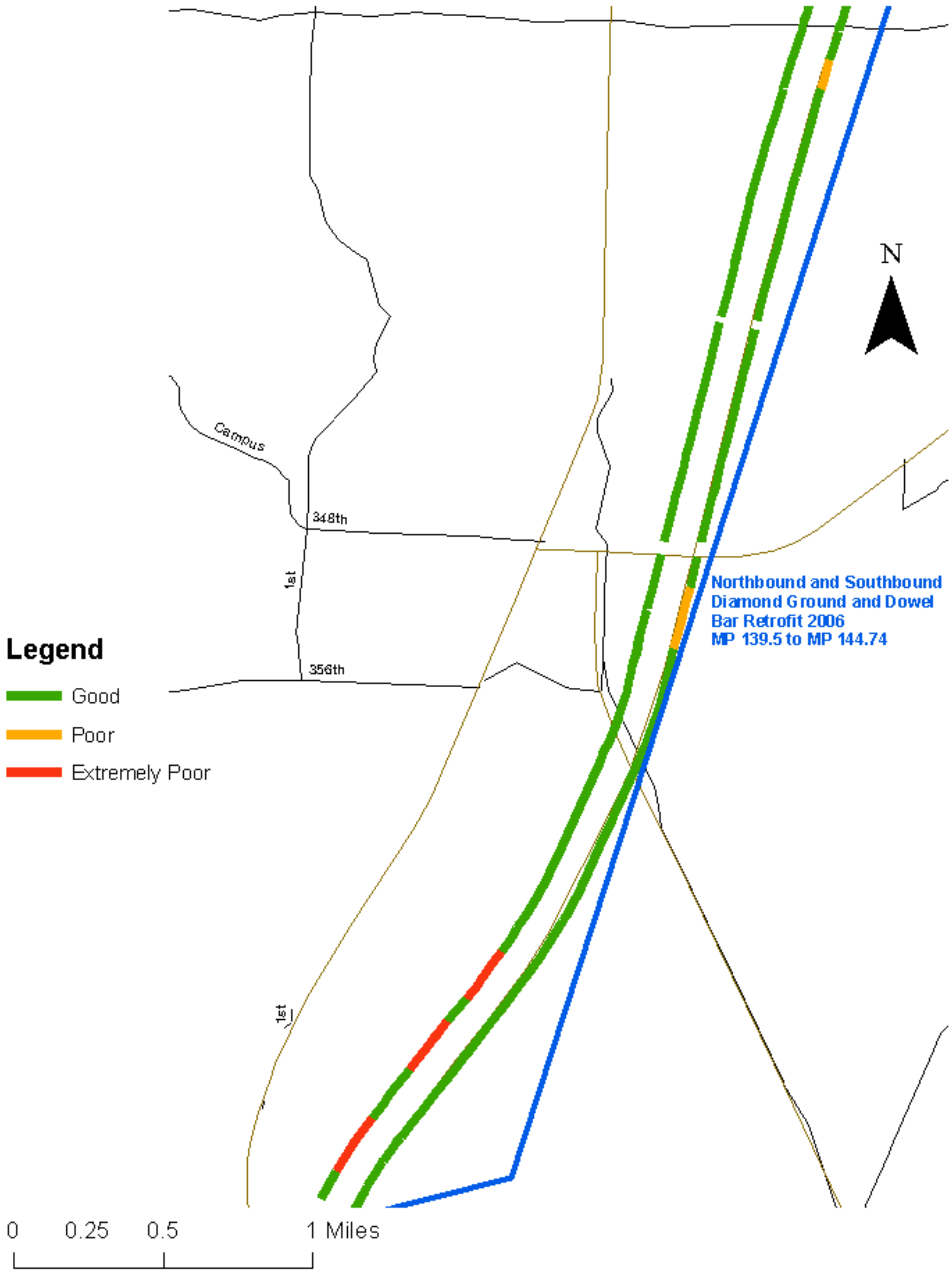
I-5 Pavement Condition
272nd to 216th



I-5 Pavement Condition
320th to 272nd

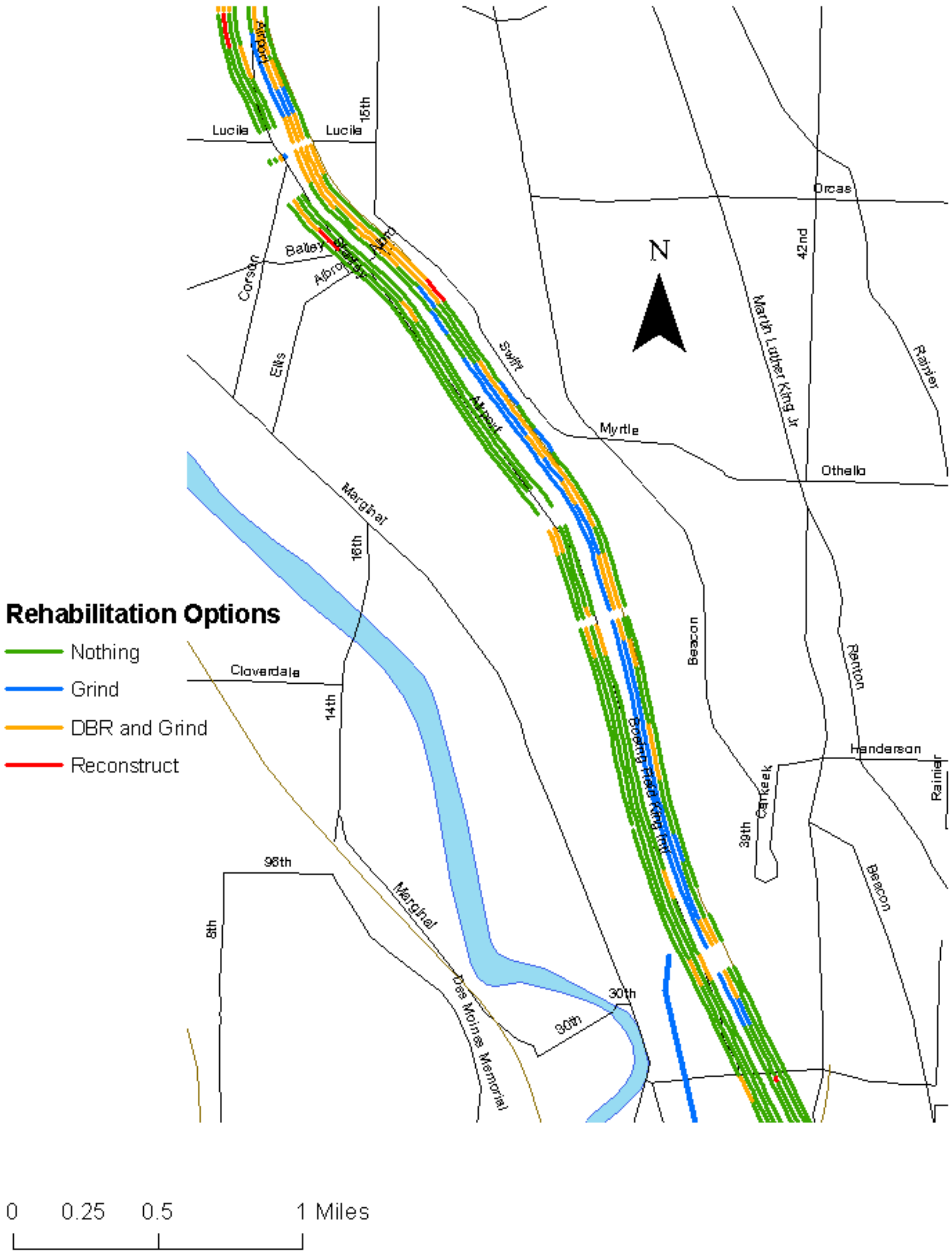


I-5 Pavement Condition
King-Pierce County Line to 320th

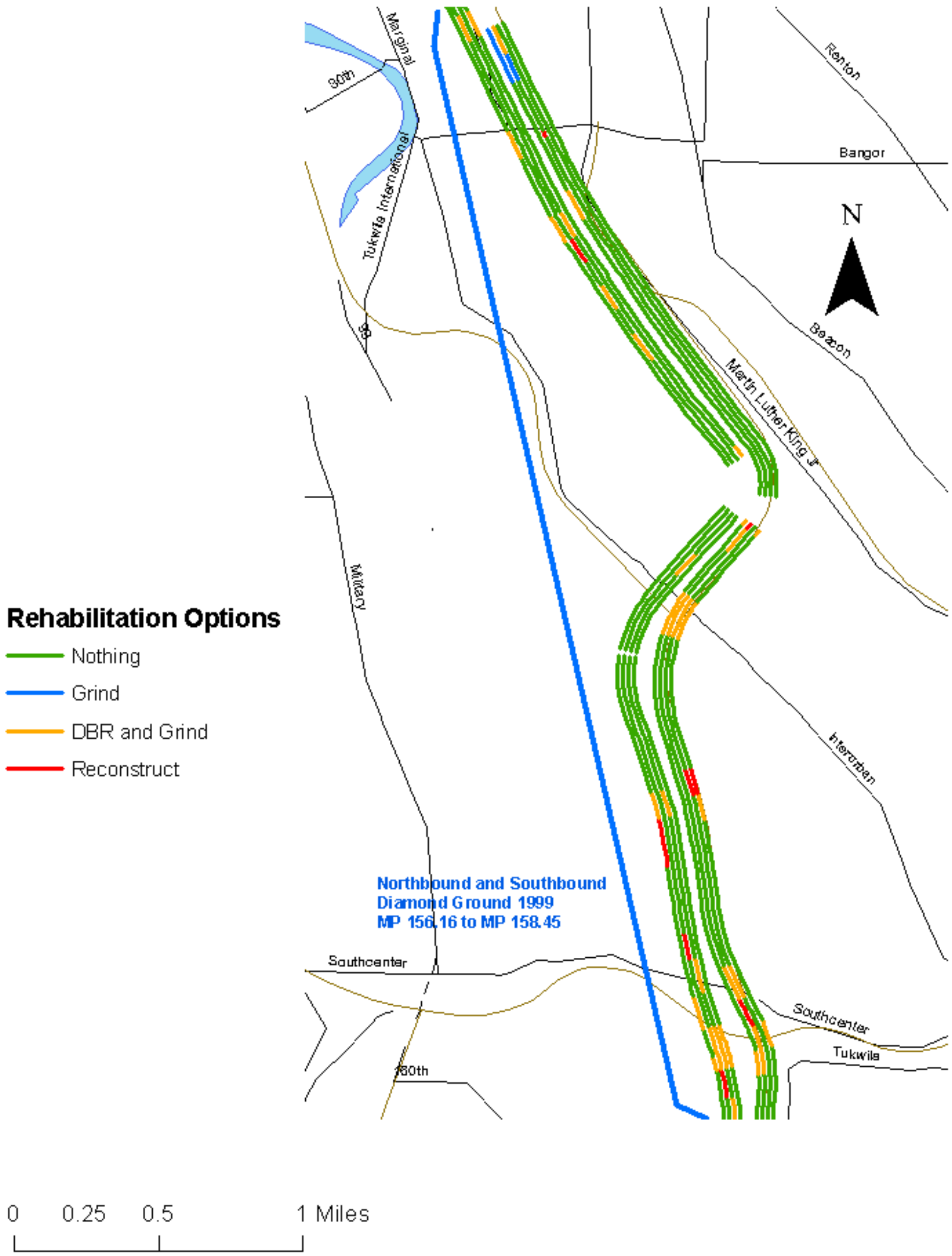


Appendix T –
Arc GIS WSDOT Trigger Rehabilitation Options Images

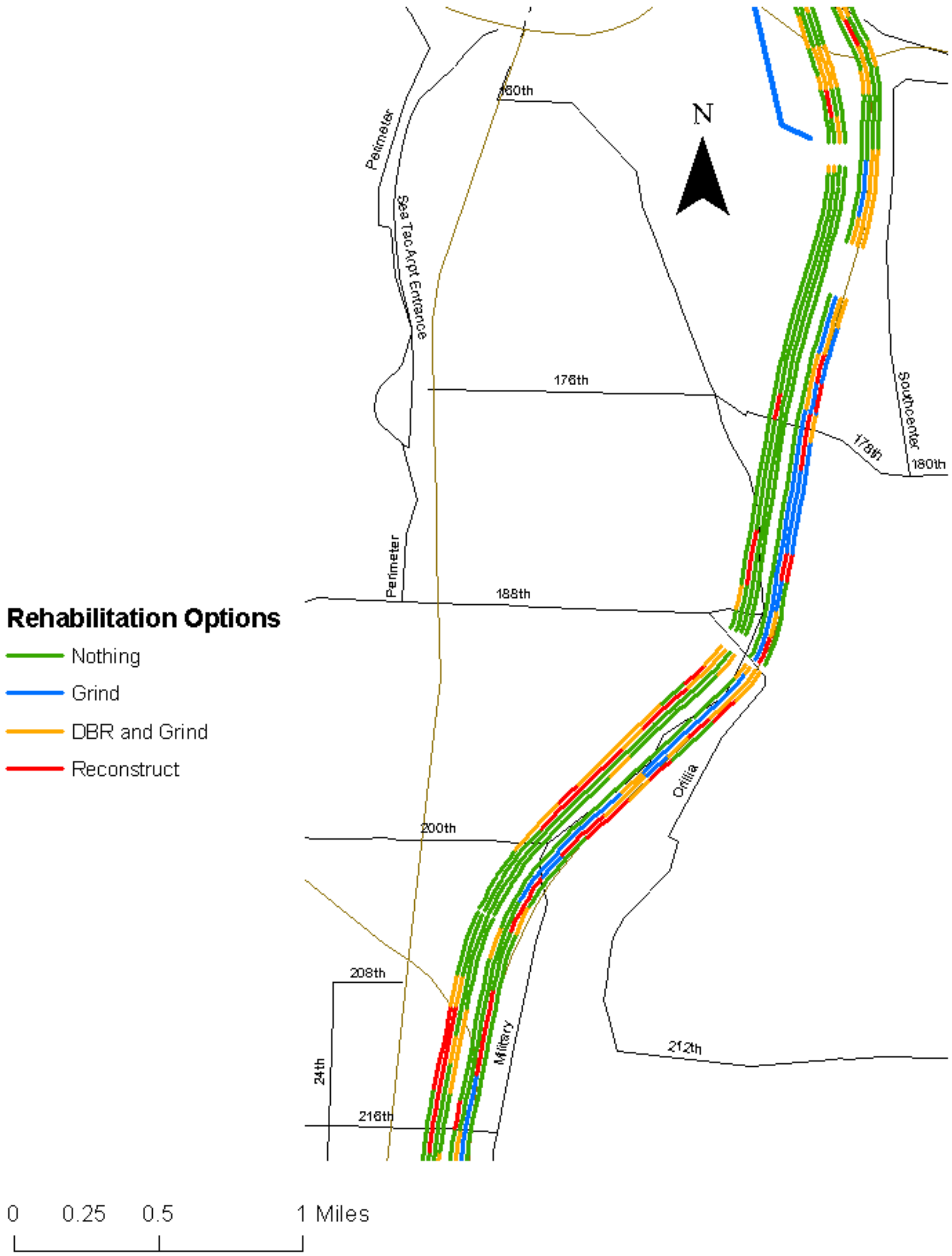
I-5 Pavement Distress Based Rehabilitation South Boeing Access Rd. to Michigan St.



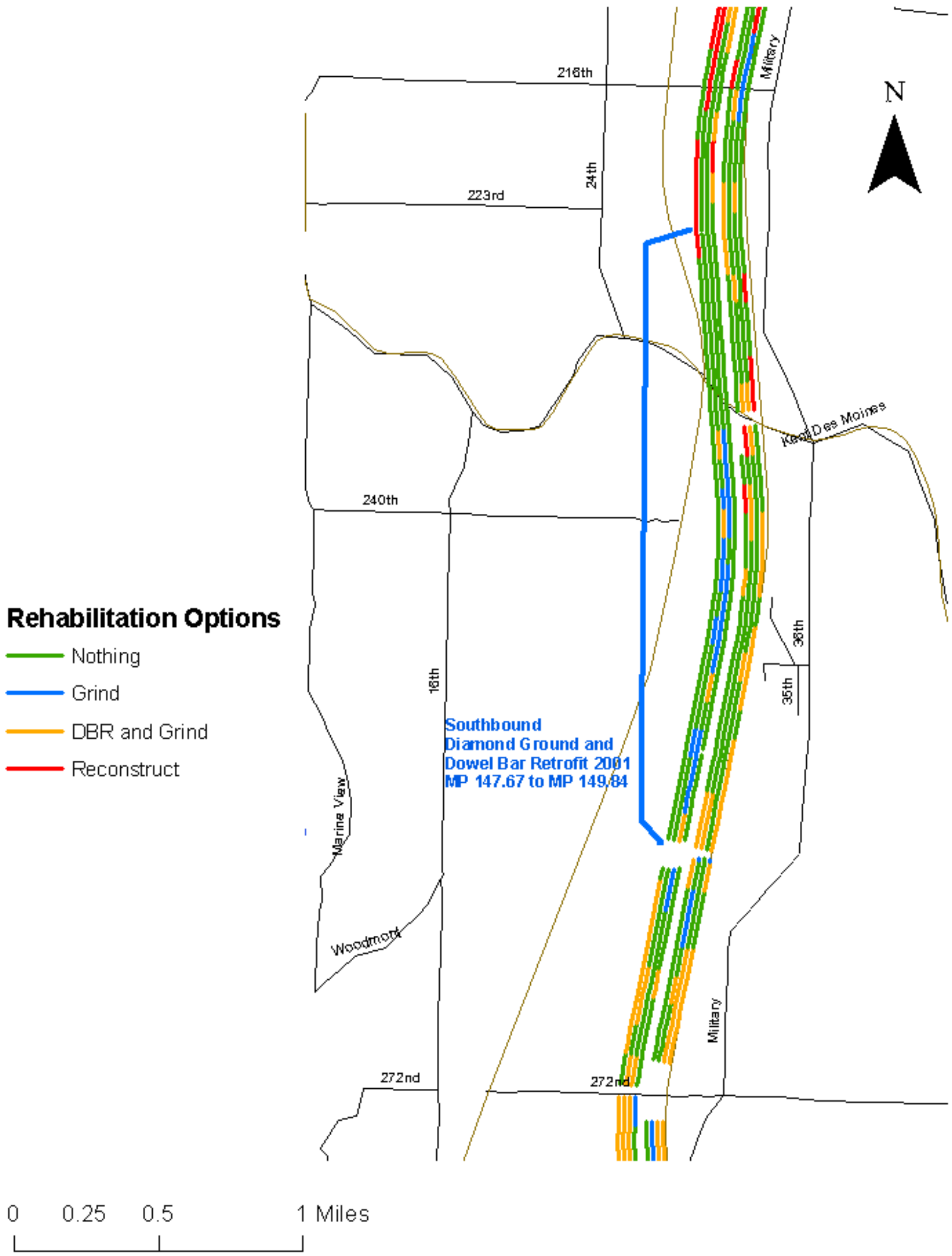
I-5 Pavement Distress Based Rehabilitation
I-405 to South Boeing Access Rd.



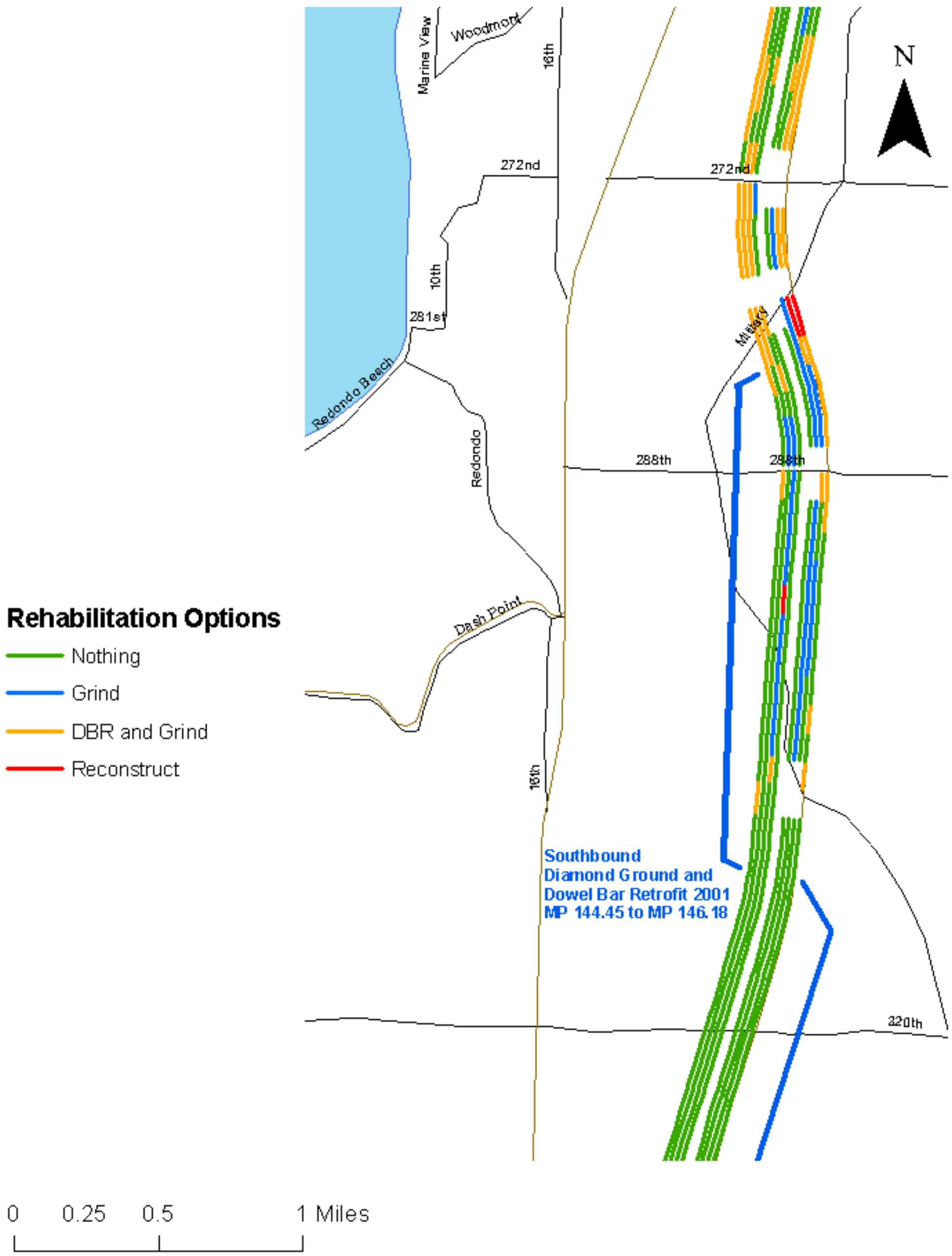
I-5 Pavement Distress Based Rehabilitation
216th to I-405



I-5 Pavement Distress Based Rehabilitation
272nd to 216th

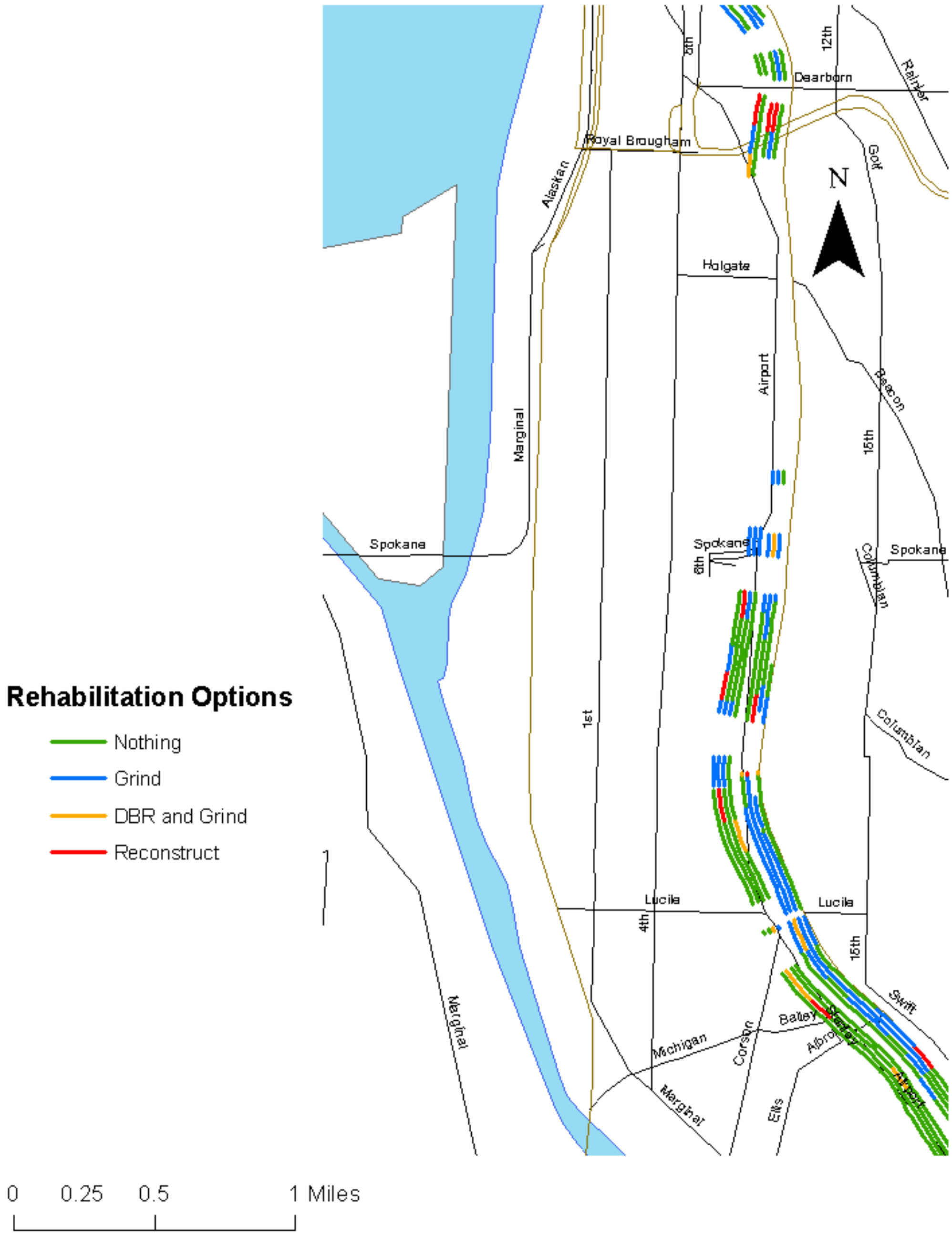


I-5 Pavement Distress Based Rehabilitation
320th to 272nd

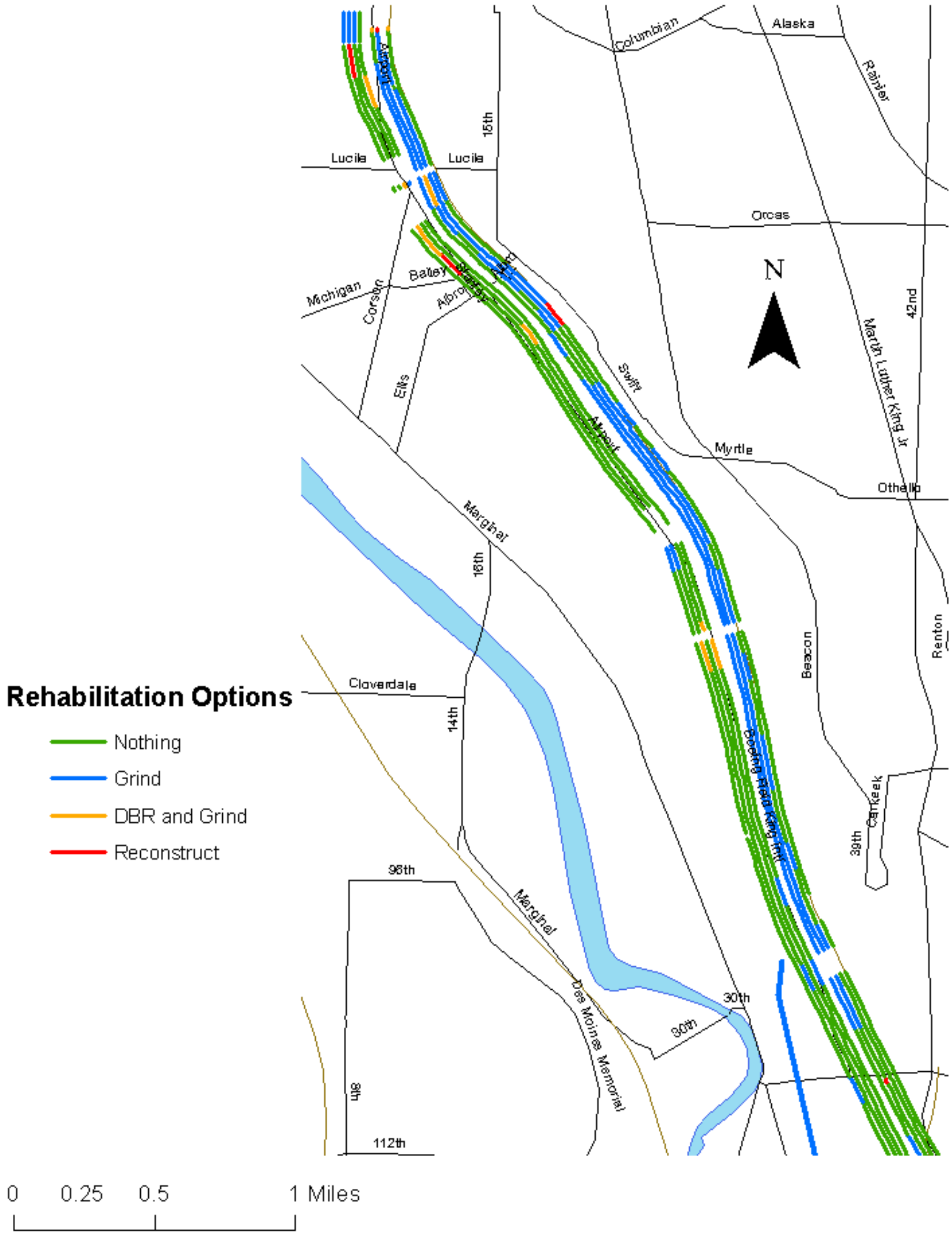


Appendix U –
Arc GIS Triage Project Rehabilitation Options Images

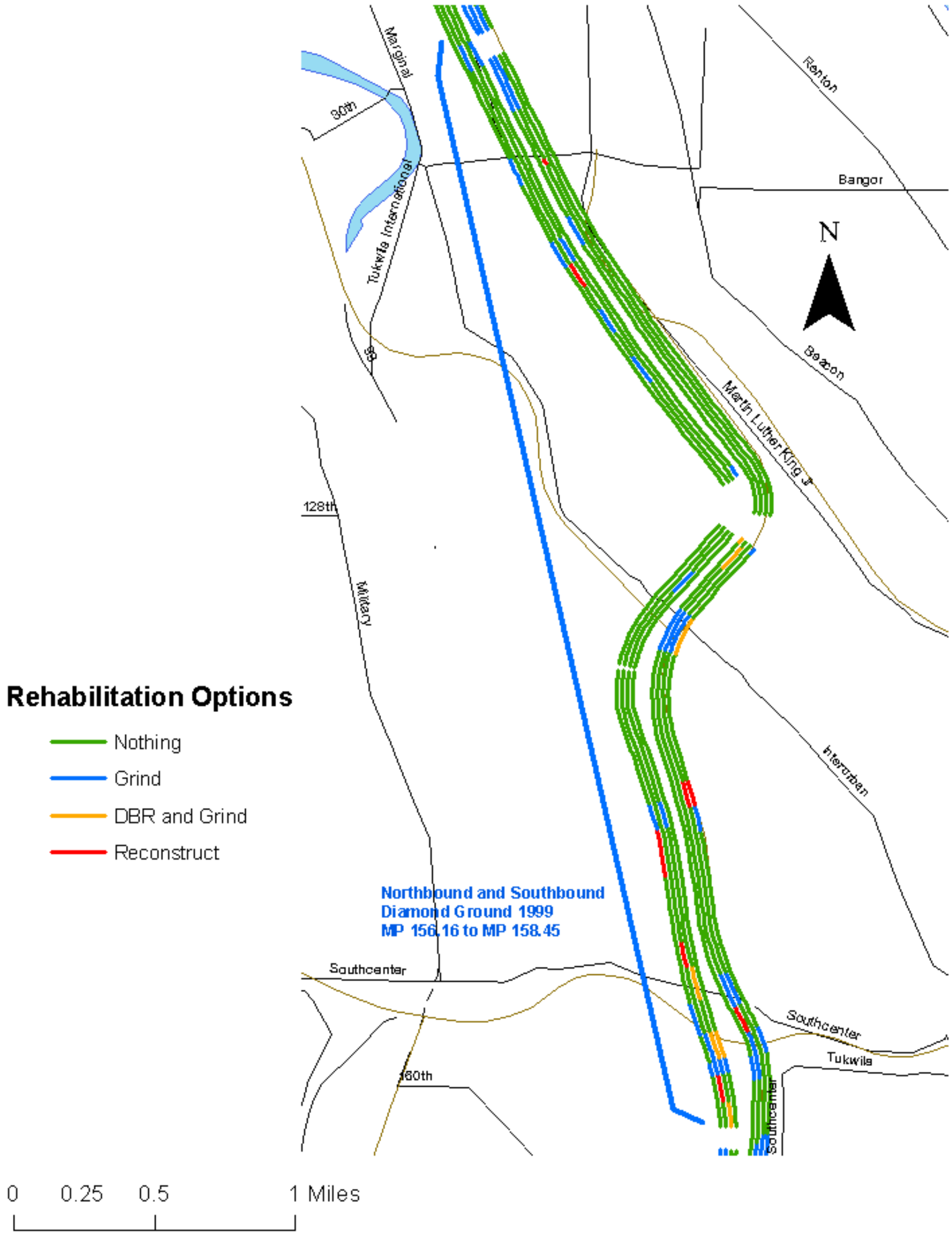
I-5 Triage Pavement Distress Based Rehabilitation
Michigan St. to I-90



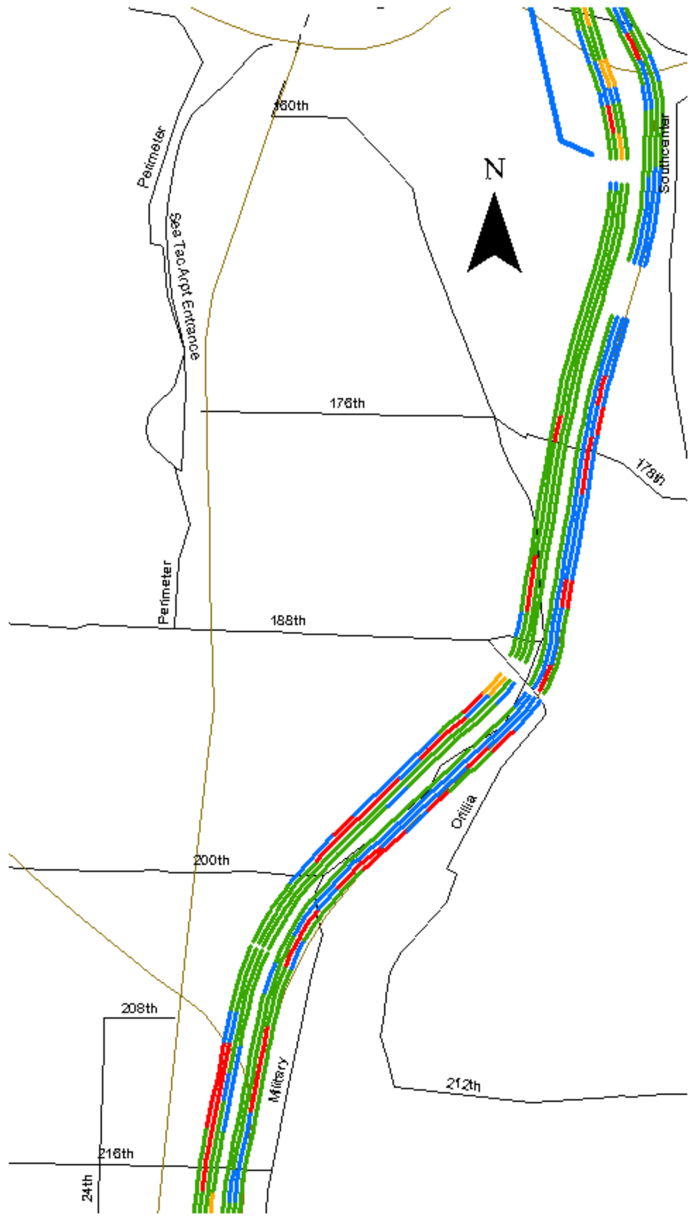
I-5 Triage Pavement Distress Based Rehabilitation
South Boeing Access Rd. to Michigan St.



I-5 Triage Pavement Distress Based Rehabilitation
I-405 to South Boeing Access Rd.



I-5 Triage Pavement Distress Based Rehabilitation
216th to I-405

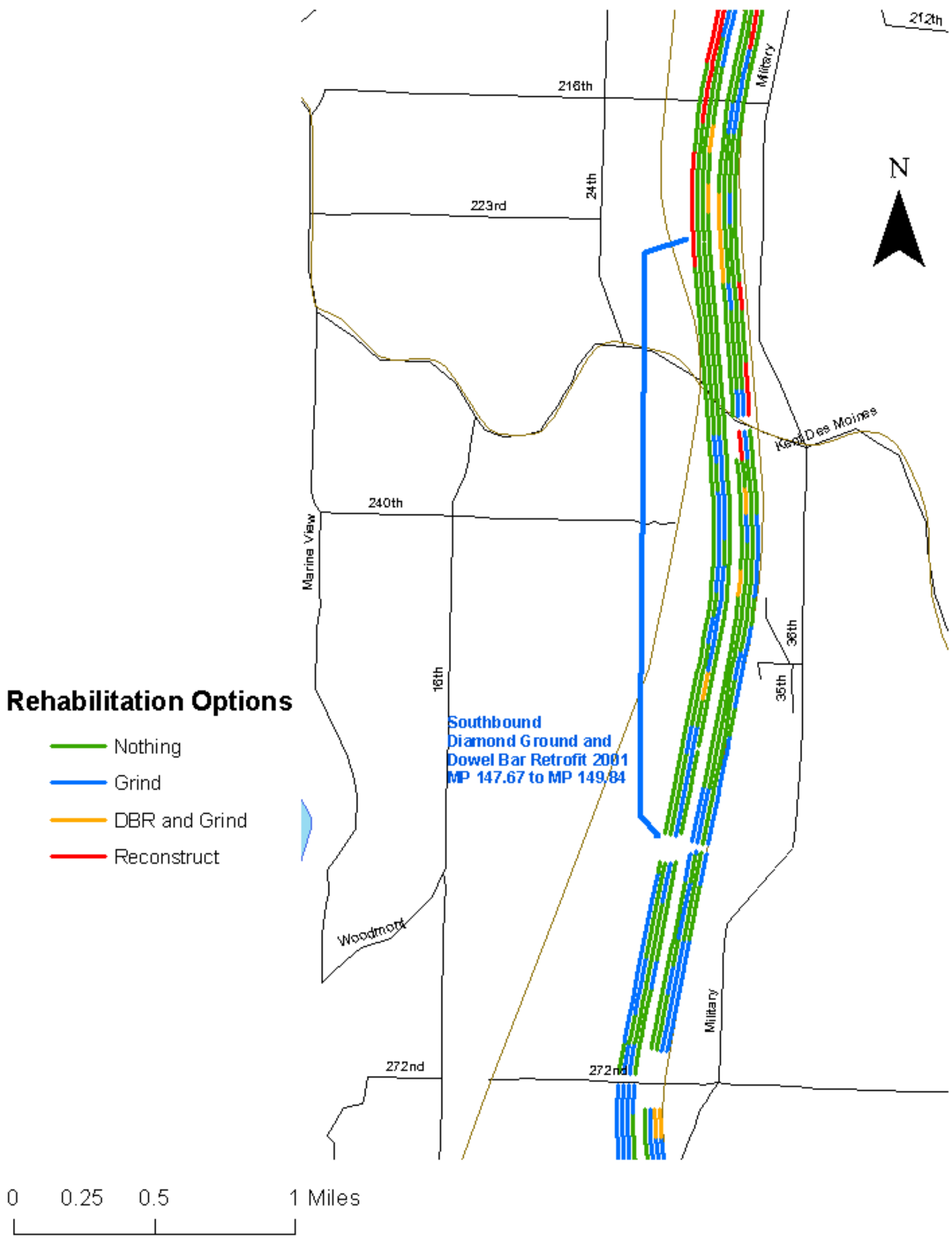


Rehabilitation Options

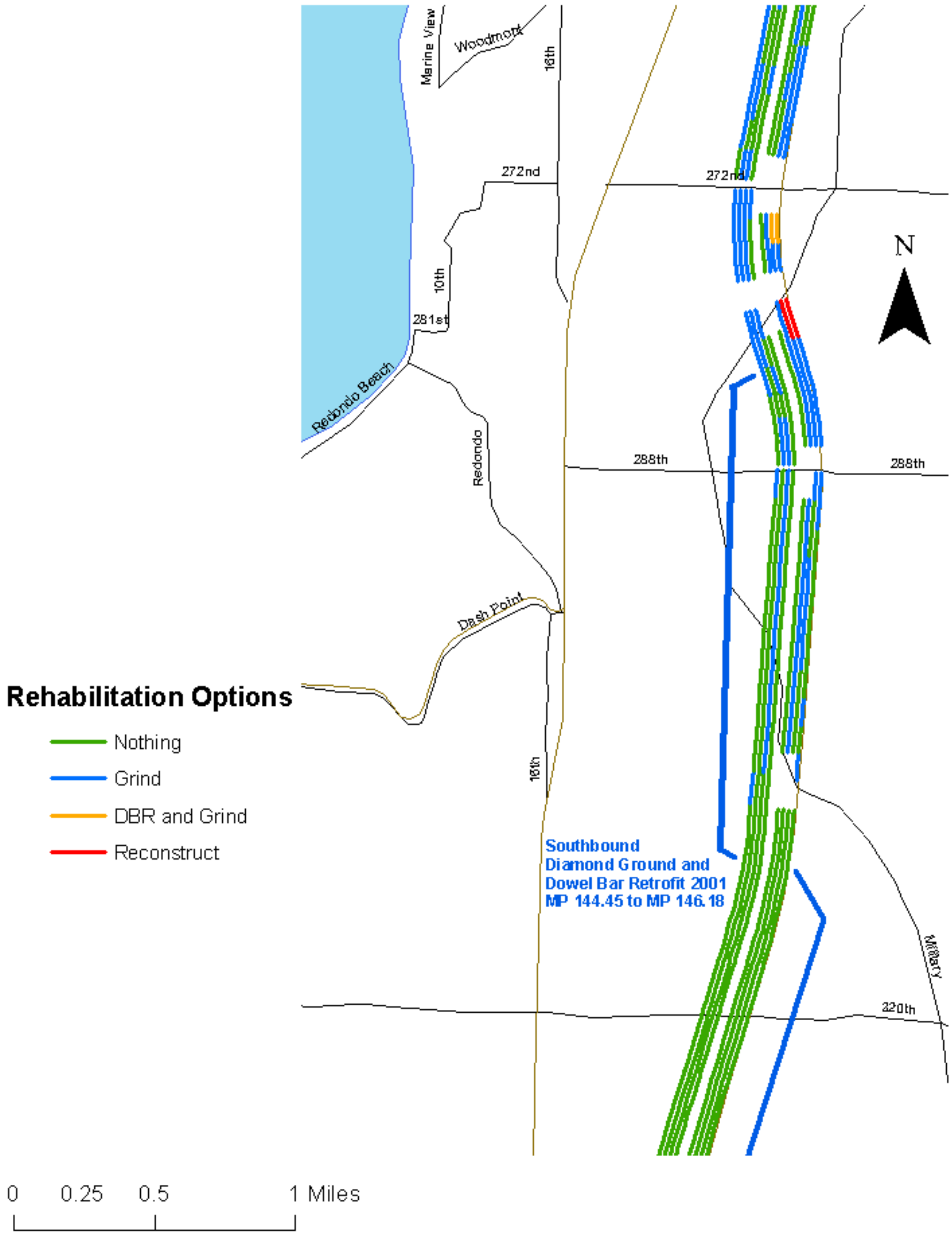
- Nothing
- Grind
- DBR and Grind
- Reconstruct

0 0.25 0.5 1 Miles

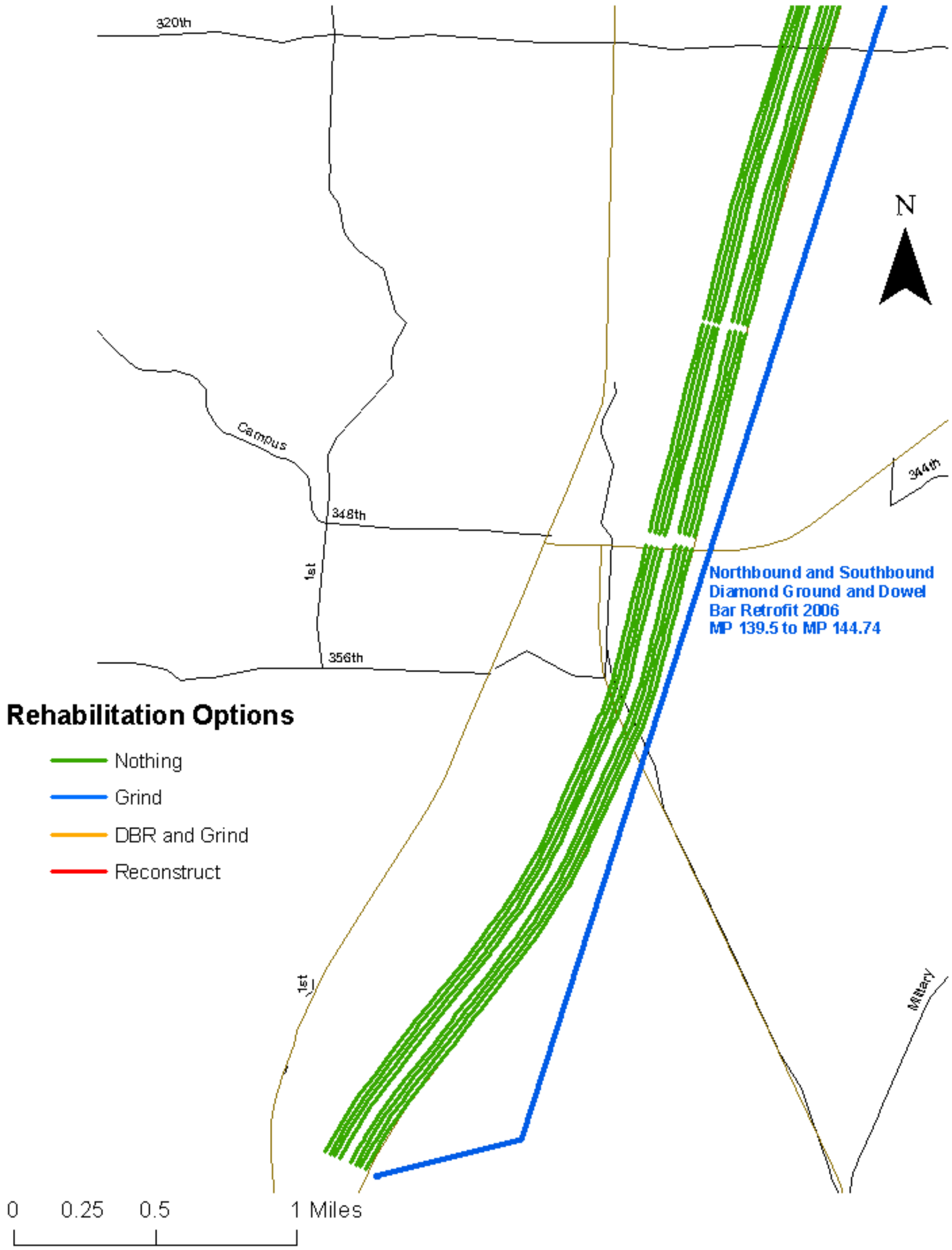
I-5 Triage Pavement Distress Based Rehabilitation
272nd to 216th



I-5 Triage Pavement Distress Based Rehabilitation
320th to 272nd

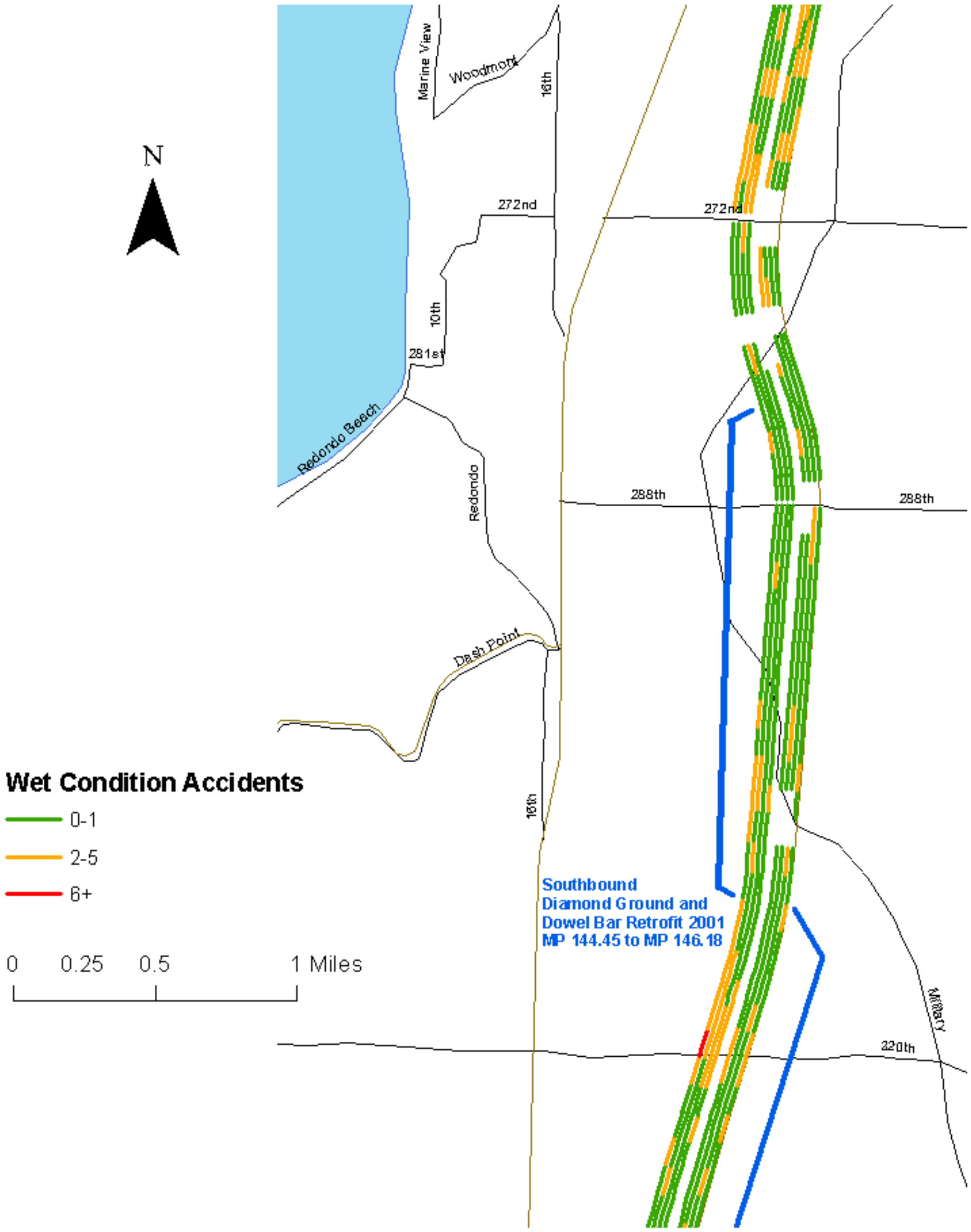


I-5 Triage Pavement Distress Based Rehabilitation
King-Pierce County Line to 320th

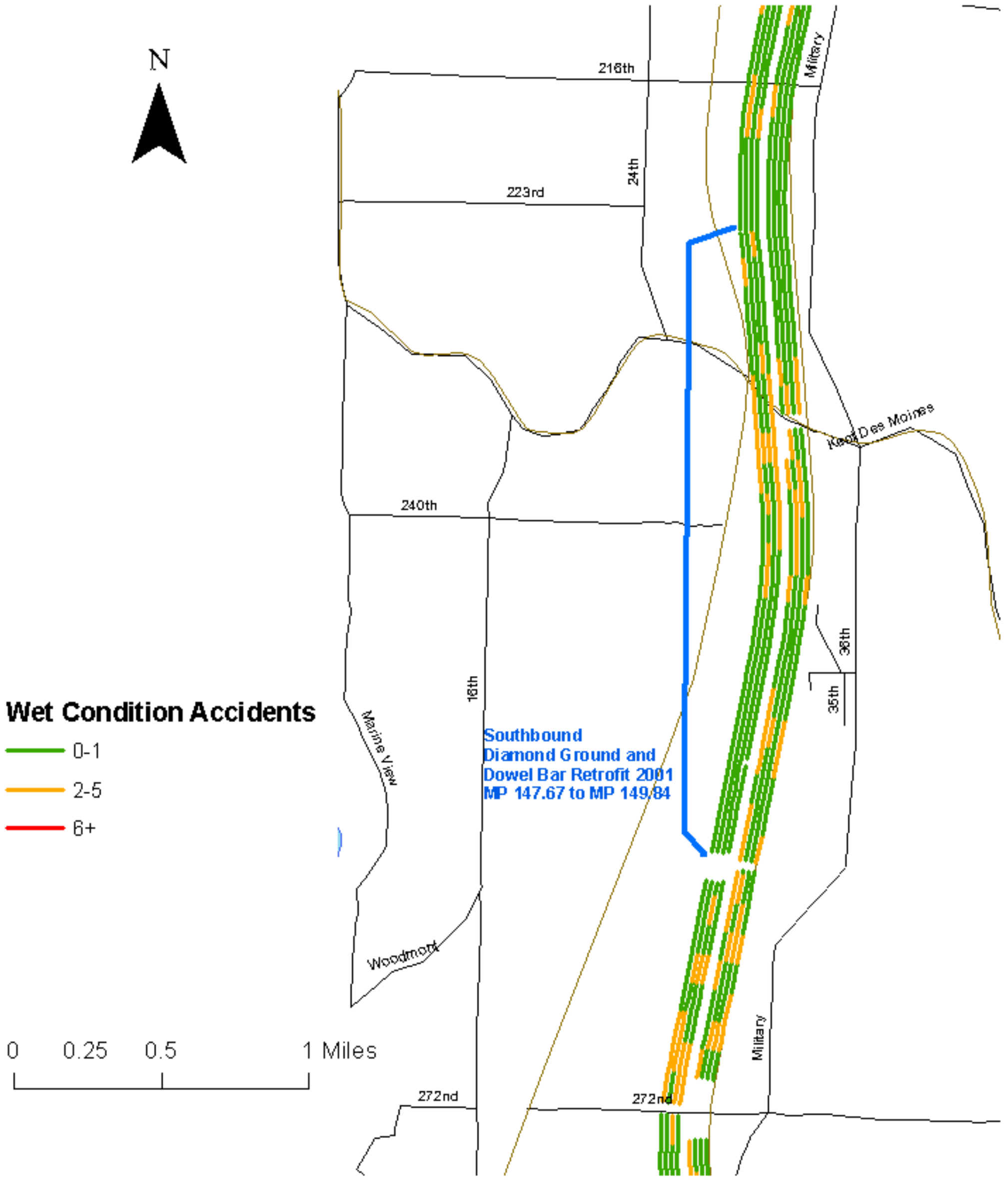


Appendix V –
Arc GIS Wet Conditions Images

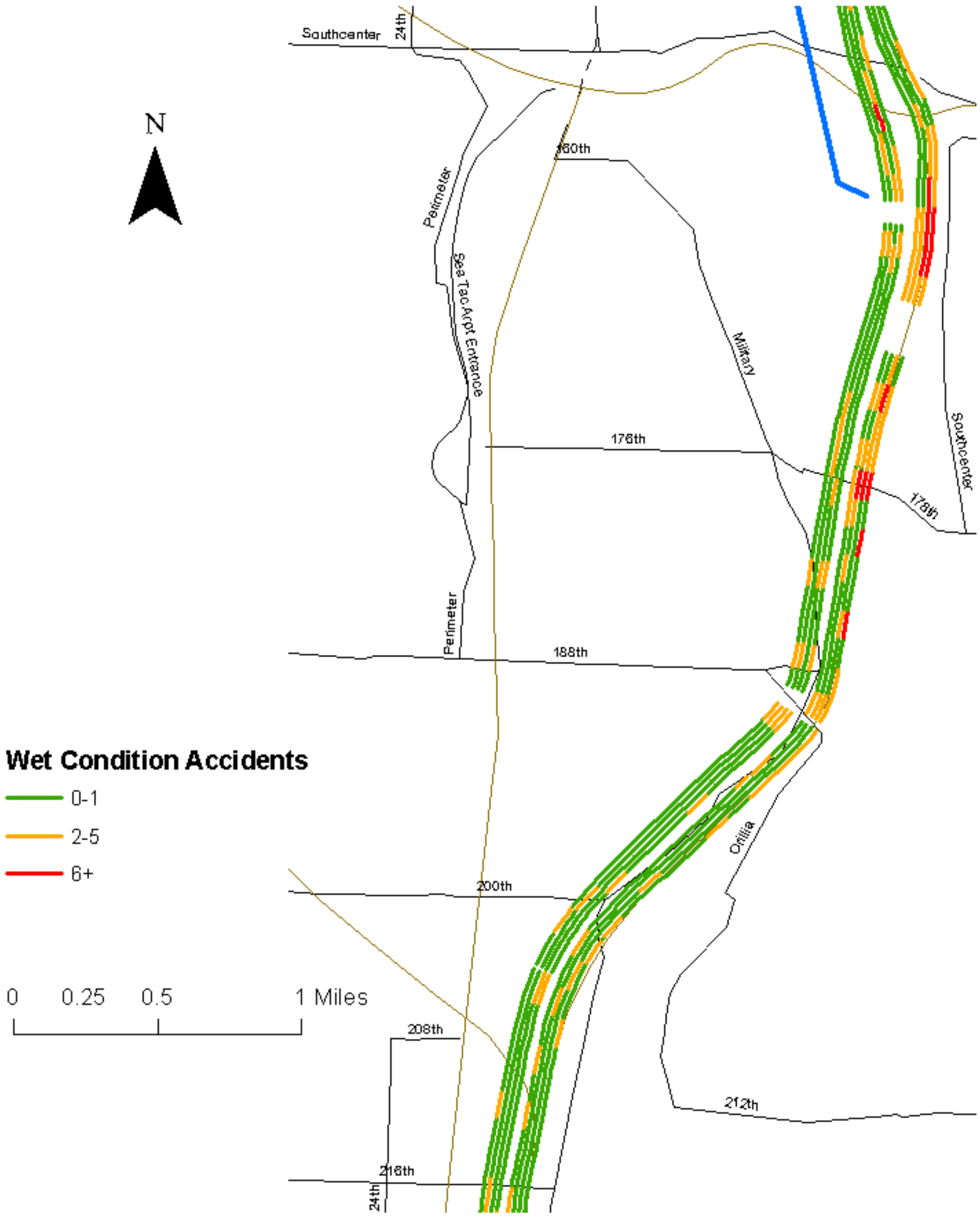
I-5 Wet Condition Accidents
320th to 272nd



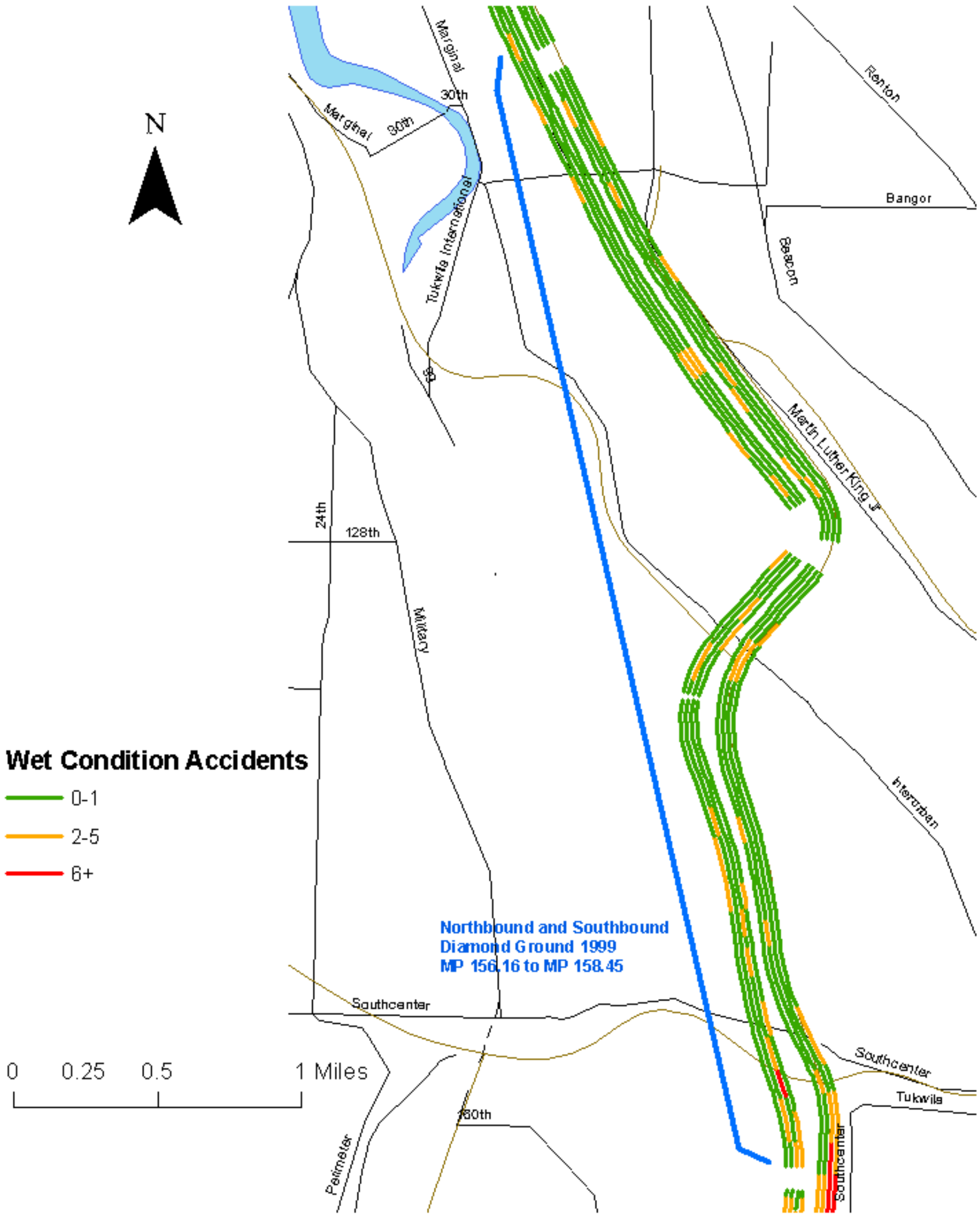
I-5 Wet Condition Accidents
272nd to 216th



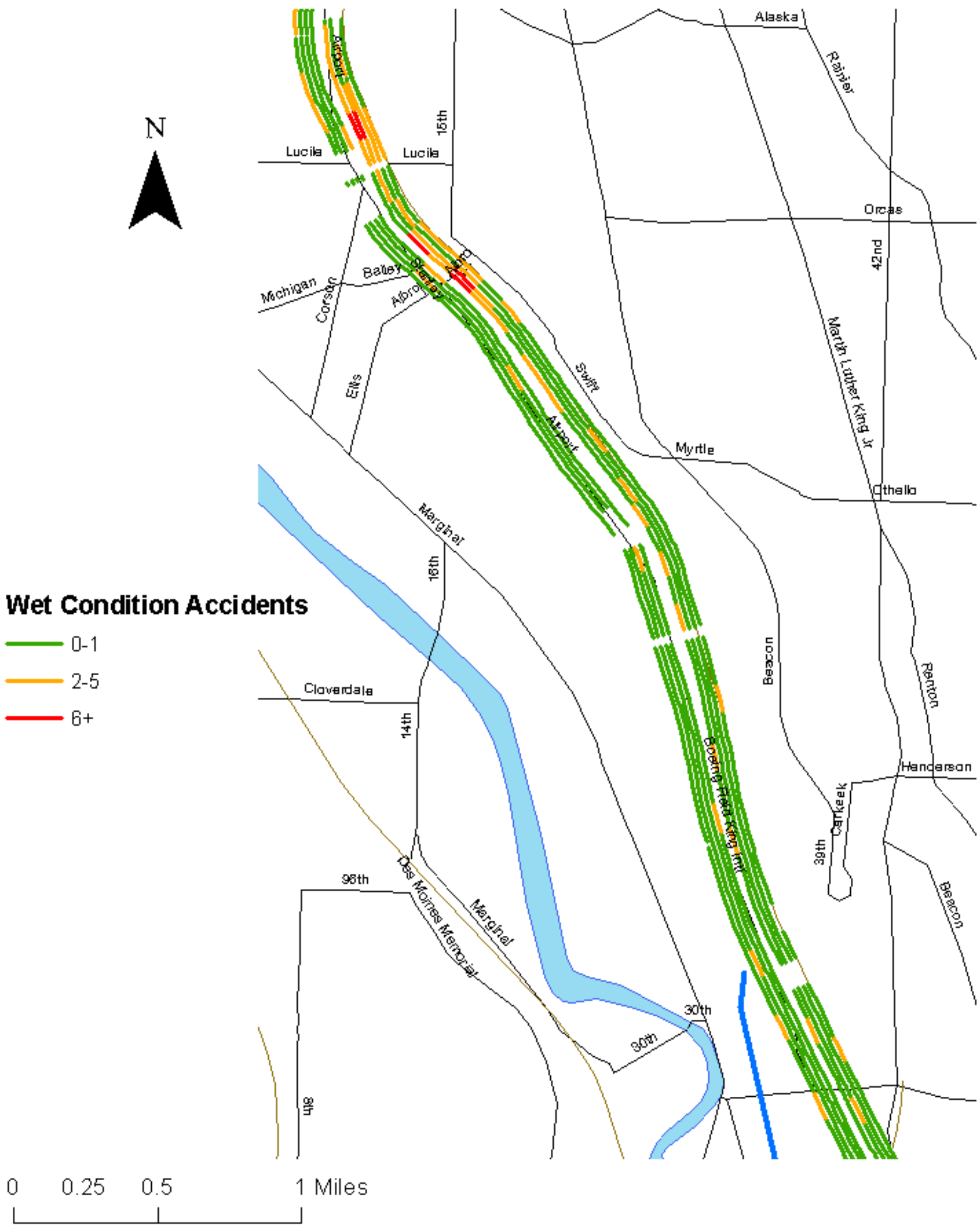
I-5 Wet Condition Accidents
216th to I-405



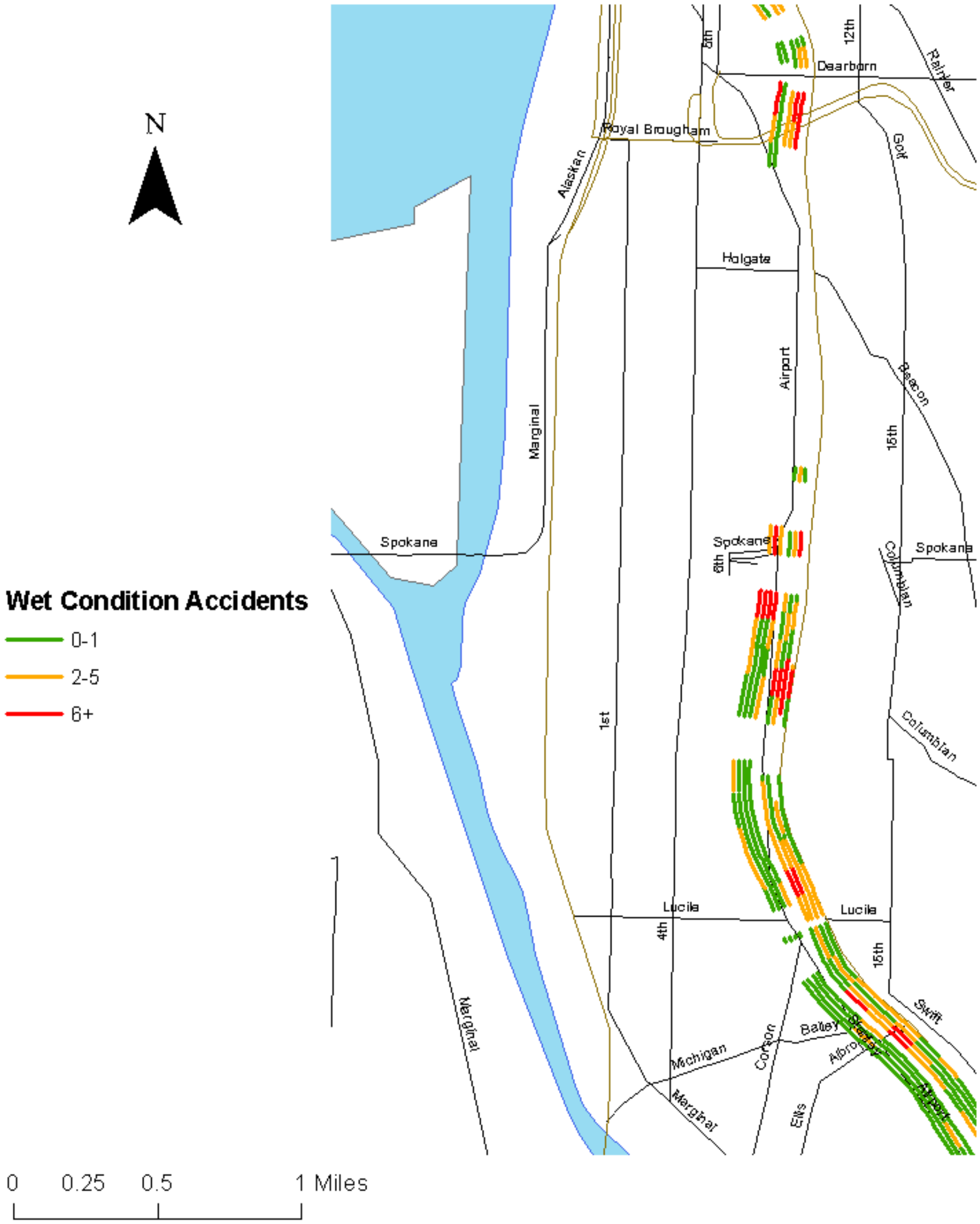
I-5 Wet Condition Accidents
I-405 to South Boeing Access Rd.



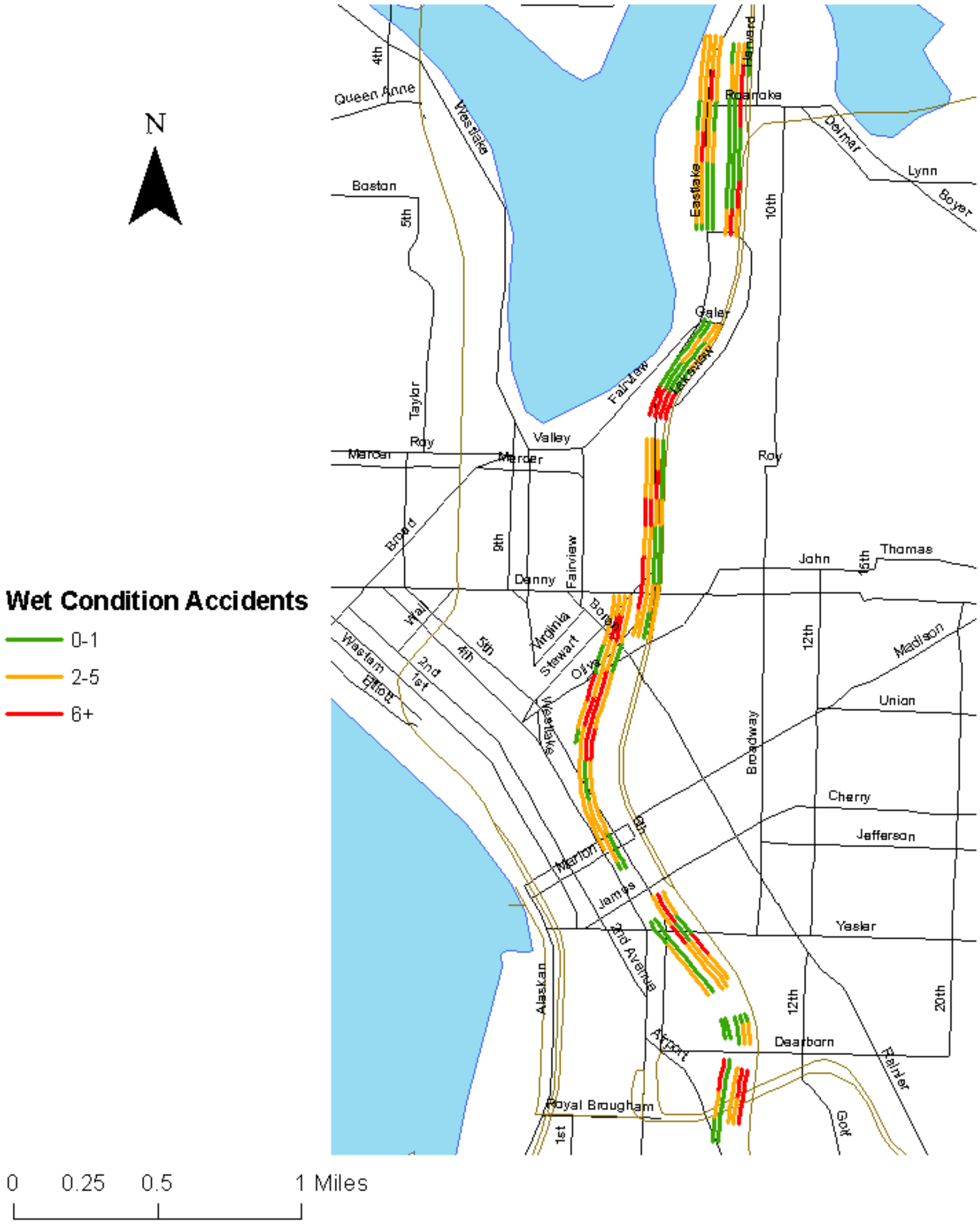
I-5 Wet Condition Accidents
South Boeing Access Rd. to Michigan St.



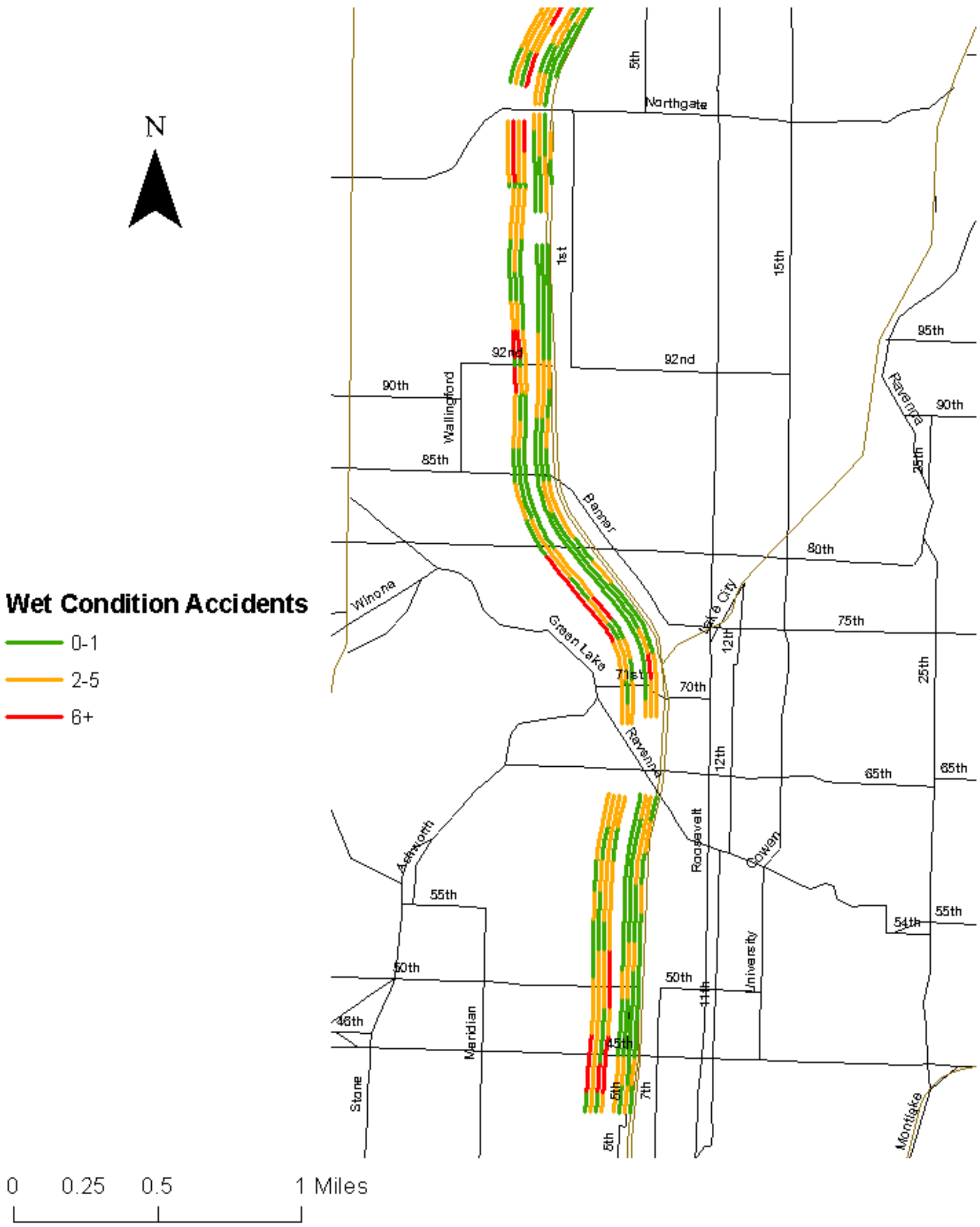
I-5 Wet Condition Accidents
Michigan St. to I-90



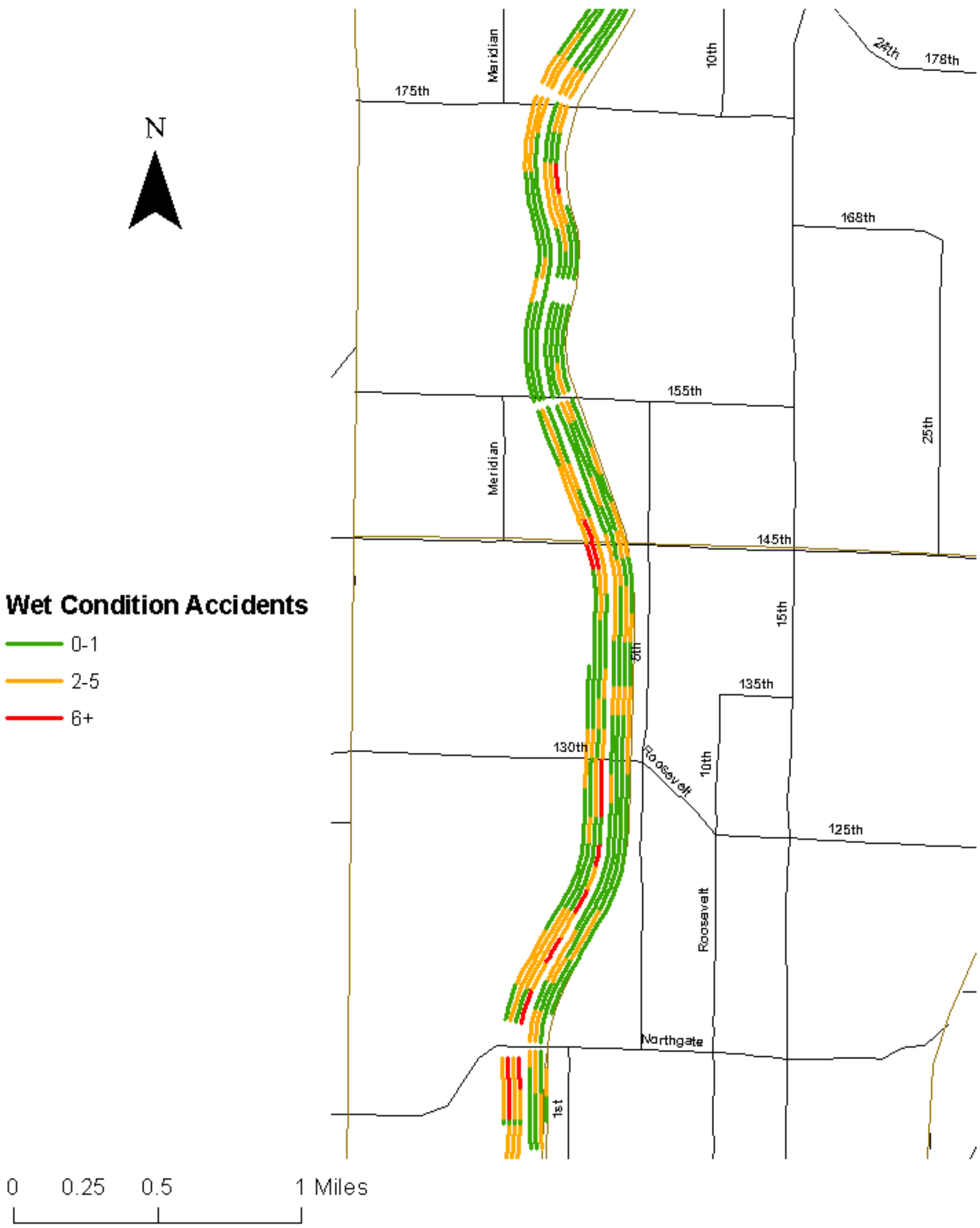
I-5 Wet Condition Accidents
I-90 to Ship Canal Bridge



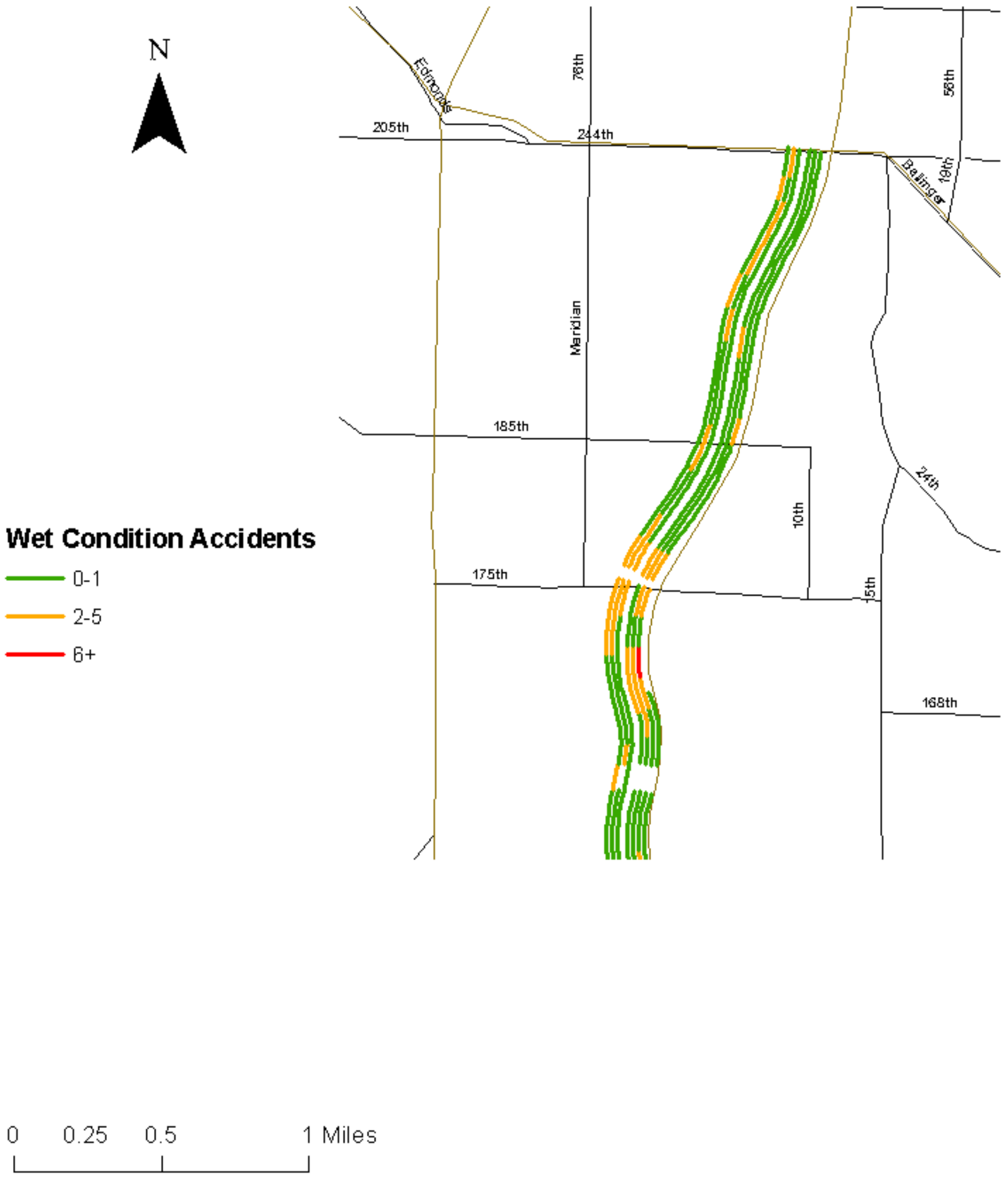
I-5 Wet Condition Accidents
Ship Canal Bridge to Northgate Way



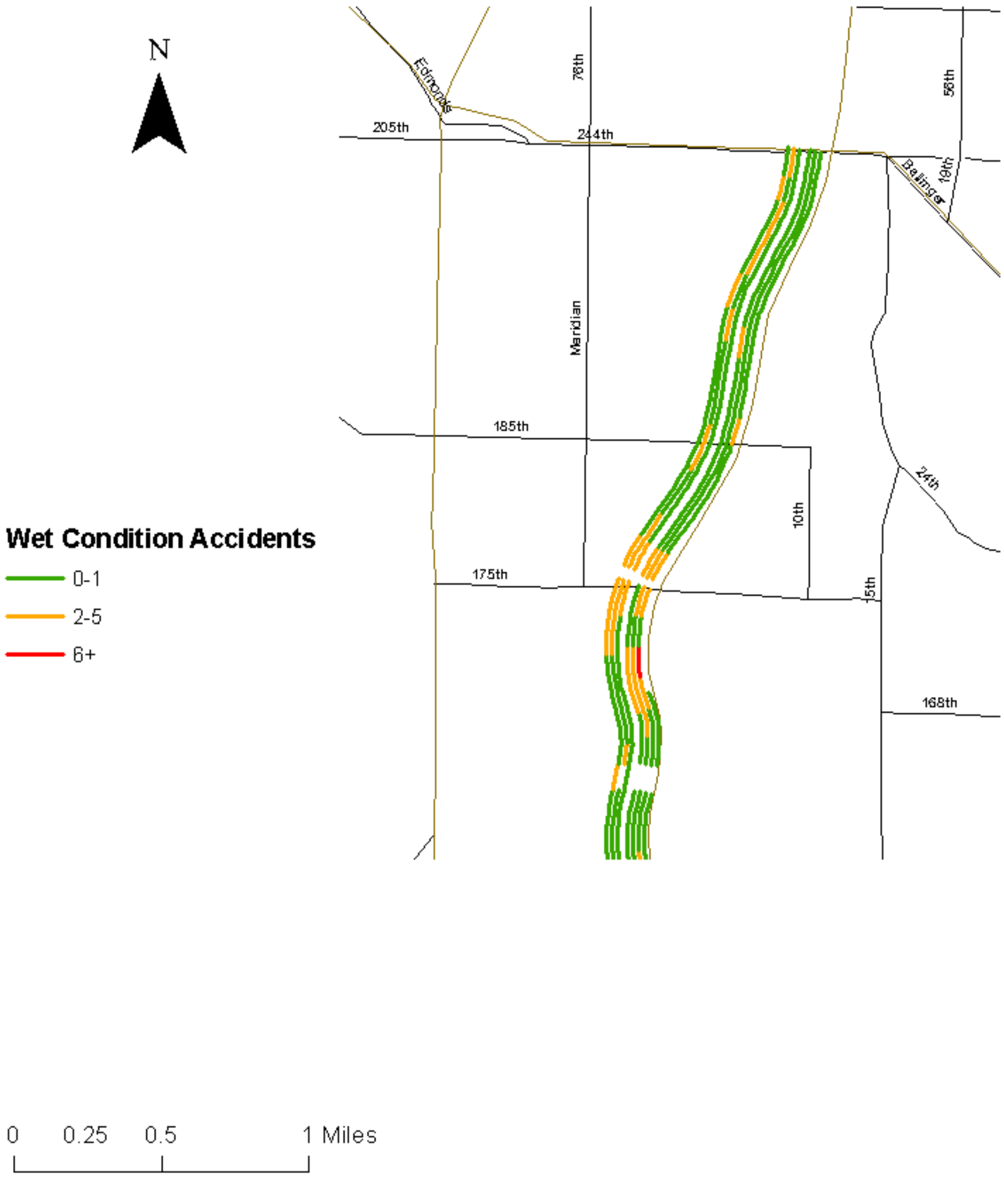
I-5 Wet Condition Accidents
Northgate Way to 175th



I-5 Wet Conditon Accidents
175th to 244th



I-5 Wet Conditon Accidents
175th to 244th



Appendix W –
Existing and Post-Overlay Bridge Clearances

Existing and Post-Overlay Bridge Clearances (Source: WSDOT)

No.	Bridge No.	Milepost	Crossing Name	Existing Clearance		4” HMA Overlay		5” HMA Overlay	
		139.50	Pierce Co/King Co Line	I	D	I	D	I	D
1	5/501	140.15	S 376th St UC	16.75	18.83	16.40	18.48	16.30	18.38
2	161/102	141.25	SR 161 UC	17.08	16.08	16.73	15.73	16.63	15.63
3	5/505	143.83	S 320th Street UC	16.83	15.83	16.48	15.48	16.38	15.38
4	5/513	150.33	S 216th Street UC	20.33	18.17	19.98	17.82	19.88	17.72
5	5/515	151.18	Military Road UC	19.50	19.67	19.15	19.32	19.05	19.22
6	5/518	153.15	S 178th Street UC	18.25	15.92	17.90	15.57	17.80	15.47
7	5/520E	154.12	Klickitat DR UC	16.25		15.90		15.80	
8	405/1	154.56	I-405 UC	16.17	20.58	15.82	20.23	15.72	20.13
9	5/524	155.32	S 144th Street UC	17.25	16.58	16.90	16.23	16.80	16.13
10	5/525N-N	155.91	N-N Ramp UC	16.50	16.75	16.15	16.40	16.05	16.30
11	5/526.1	156.48	Archie Codeba Bridge	18.50	16.92	18.15	16.57	18.05	16.47
12	900/13W	157.34	SR 900 UC	18.67	16.83	18.32	16.48	18.22	16.38
13	900/12W	157.77	SR 900 UC	17.08	16.50	16.73	16.15	16.63	16.05
14	5/528	158.01	S 107th Street UC	17.08	18.50	16.73	18.15	16.63	18.05
15	5/532.5	161.26	Albro Street UC	16.33	16.67	15.98	16.32	15.88	16.22
16	5/533E-N	161.37	E-N Ramp UC	16.33	16.50	15.98	16.15	15.88	16.05
17	5/536N-W	162.92	N-W Ramp UC	19.25	28.42	18.90	28.07	18.80	27.97
18	5/537S	163.05	EB Lanes UC	28.42	29.33	28.07	28.98	27.97	28.88
19	5/537E-N	163.09	E-N Ramp UC	16.67	24.58	16.32	24.23	16.22	24.13
20	5/537W-S	163.10	W-S Ramp UC	40.67	44.00	40.32	43.65	40.22	43.55
21	5/538S-E	163.10	S-E Ramp UC	16.25	18.75	15.90	18.40	15.80	18.30
22	5/539.5	163.96	Beacon-Holgate UC	16.83	26.25	16.48	25.90	16.38	25.80
23	5/540N-W	164.39	N-W Ramp UC	17.25	40.08	16.90	39.73	16.80	39.63
24	90/10W-S	164.50	W-S Ramp UC	16.92	16.42	16.57	16.07	16.47	15.97
25	90/10WB	164.50	I-90 UC	19.00	17.92	18.65	17.57	18.55	17.47
26	90/10E-N	164.51	E-N Ramp UC	17.92	24.83	17.57	24.48	17.47	24.38
27	5/542S-E	164.57	S-E Ramp UC	28.00	20.25	27.65	19.90	27.55	19.80
28	5/544	165.16	Yestler Street UC	23.17	15.50	22.82	15.15	22.72	15.05
29	5/546	165.64	Madison Street UC	22.33	39.25	21.98	38.90	21.88	38.80
30	5/547	165.69	Spring Street UC	21.42	31.42	21.07	31.07	20.97	30.97
31	5/549CNC	165.73	Convention Center UC	16.08	16.17	15.73	15.82	15.63	15.72
32	5/549	165.85	8th Ave. - Trade Center UC	15.92	16.17	15.57	15.82	15.47	15.72
33	5/550	166.12	Pike Street UC	16.75	20.42	16.40	20.07	16.30	19.97
34	5/552	166.16	Olive Way UC	15.42	18.00	15.07	17.65	14.97	17.55
35	5/553	166.26	Denny Way UC	15.92	19.58	15.57	19.23	15.47	19.13
36	5/564	167.11	Lakeview Boulevard UC	24.75	20.00	24.40	19.65	24.30	19.55
37	520/1W-S	168.10	W-S Ramp UC	15.50		15.15		15.05	
38	5/569	168.18	Roanoke Street UC	14.92	16.92	14.57	16.57	14.47	16.47
39	5/572	169.42	NE 45th Street UC	15.83	20.67	15.48	20.32	15.38	20.22
40	5/574	169.67	NE 50th Street UC	14.75	16.17	14.40	15.82	14.30	15.72
41	5/580	170.66	NE 70th-NE 71st Street UC	29.67	20.33	29.32	19.98	29.22	19.88
42	522/14W-S	170.79	W-S Ramp UC SR-522	23.33	25.67	22.98	25.32	22.88	25.22
43	5/582	170.83	5th Avenue NE UC	17.50	17.58	17.15	17.23	17.05	17.13
44	5/583	171.09	NE 80th Street UC	19.00	19.50	18.65	19.15	18.55	19.05
45	5/584N-W	171.32	N-85th Ramp UC	18.25	16.17	17.90	15.82	17.80	15.72
46	5/585	171.58	NE 92nd Street UC	17.50	15.92	17.15	15.57	17.05	15.47
47	5/589	173.15	NE 117th Street UC	18.25	17.00	17.90	16.65	17.80	16.55
48	5/590	173.83	NE 130th Street UC	16.25	17.00	15.90	16.65	15.80	16.55
49	523/5	174.58	SR 523 UC	16.42	20.33	16.07	19.98	15.97	19.88
50	5/596	176.72	NE 185th Street UC	16.25	20.25	15.90	19.90	15.80	19.80
51	5/598	177.21	Pedestrian UC NE 195th St	21.08	18.08	20.73	17.73	20.63	17.63
		177.77	King /Snohomish Co Line						

Relevant Sources:

1. WSDOT (2002), “2002 Bridge List,” M23-09, Washington State Department of Transportation.
2. RCW 46.44.020, “Maximum Height—Impaired Clearance Signs:” This RCW notes that maximum vehicle height is 14 ft. above the roadway.
3. WASHTO (1995), “Western Regional Agreement for Issuance of Permits for Oversize and Overweight Vehicles Involved in Interstate Travel,” Western Association of State Highway and Transportation Officials, July 21, 1995. This reference notes that the maximum vehicle height is 14 ft.