Arizona State Freight Plan – Freight Bottlenecks

September 30, 2022

1.1 Current Arizona Freight Bottlenecks

Based on freight-related trends, strengths, weaknesses, and current and future conditions, ADOT identified a set of specific freight bottlenecks. Bottlenecks occur on Truck Freight Economic Corridors, affecting trucks and general traffic. These bottlenecks result in highway and road congestion that delay the movement of freight. ADOT recognizes that there is a wide array of other regional and local freight bottlenecks throughout the state which can be categorized as:

- **Recurring Bottlenecks:** Occurs when traffic demand during peak periods exceeds roadway capacity and occurs at predictable times of the day and at specific locations.
- **Non-recurring Bottlenecks:** Happens when incidents related to extreme weather, crashes, special events, and work zones result in reduced roadway capacity.

To identify and evaluate bottlenecks in Arizona's freight system, ADOT used a screening process that included:

- **Recurring Bottlenecks**
  - **Step 1 – Data Assessment.** Using National Performance Management Research Data Set (NPMRDS), the study network was analyzed to determine locations with reduced travel time reliability.
  - **Step 2 – Validated Bottlenecks.** ADOT coordinated with the Freight Advisory Committee (FAC), local MPOs, COGs and other local stakeholders and experts to help validate and expand the bottleneck locations list.
- **Non-recurring Bottlenecks:**
  - **Step 1 – Collect Non-Rampable Bridge Locations.** ADOT special permits group provided a comprehensive list of non-rampable bridges that served as the baseline for non-recurring bottlenecks.
  - **Step 2 – Identify Locations with Freight Movement Restrictions.** Coordinated with ADOT, the Freight Advisory Committee (FAC), and local stakeholders to identify locations with freight restrictions.
  - **Step 3 – Safety Issues.** Conducted an assessment of areas with historically high freight-related crash issues that may limit freight movement.
  - **Step 4 – Validated Bottlenecks.** Coordinated with the Freight Advisory Committee (FAC) and other local stakeholders and experts to help validate the bottleneck locations list.

Based on the above framework, bottlenecks on the NHS were identified and ranked based on the total delay per mile per segment. Most of the high-ranking bottlenecks are located in the urbanized Phoenix metropolitan area. Table 1, Table 2 and Figure 1 outline the bottleneck locations and their related priority.

Figure 1: Priority Bottleneck Locations

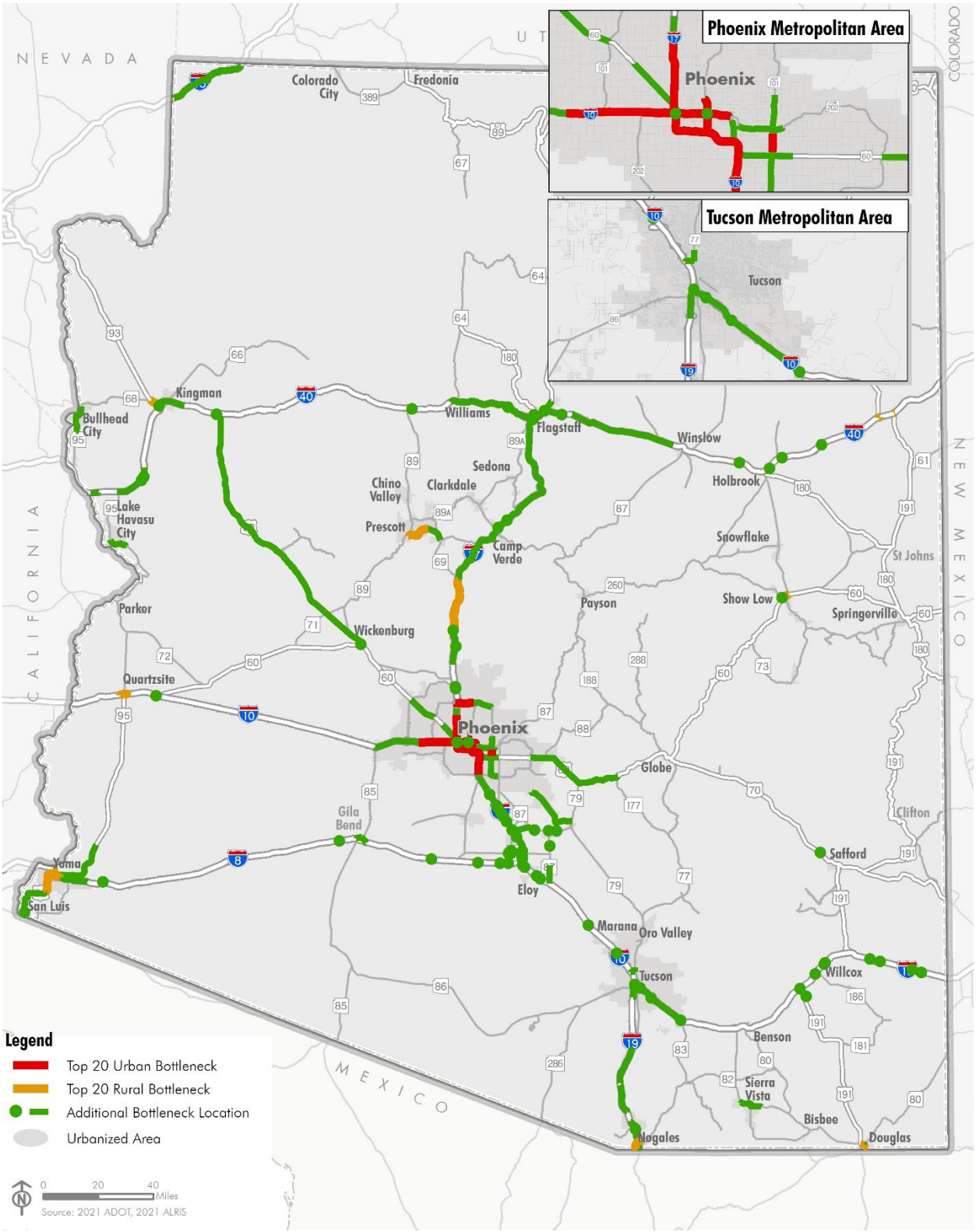

Table 1. Priority Bottleneck Locations – Top 20 Urban Bottlenecks

Bottleneck Location	Potential Cause for Bottleneck	TTTR (Worst Condition)	Delay Per Mile Per Segment	Total Delay Per Segment (Hours Per Year)	Bottleneck Rank (Delay/Mile)
I 10 WB: 27th Ave to 51st Ave	Congestion	5.56	48,254	160,526	1
I 10 WB: Buckeye Rd to 19th Ave	Congestion	3.39	47,936	290,415	2
I 10 WB: 19th Ave to 27th Ave	Congestion	4.45	43,630	57,272	3
I 10 EB: I 17 to SR 143	Congestion	3.12	42,909	171,914	4
I 10 EB: 51st Ave to 27th Ave	Congestion	2.5	41,962	140,269	5
I 10 EB: 19th Ave to 16th St	Congestion	2.88	36,289	116,398	6
I 10 EB: 27th Ave to 19th Ave	Congestion	2.85	30,556	30,997	7
I 10 WB: SR 143 to I 17	Congestion	3.6	25,999	107,375	8
I 10 EB: Litchfield Rd to 51st Ave	Congestion	2.64	25,185	259,089	9
I 10 WB: SR 202 to US 60	Congestion	3.31	25,171	163,490	10
SR 202 WB: SR 143 to I 10	Congestion	3.81	23,373	71,146	11
I 10 EB: Sky Harbor Cir to 24th St	Congestion	5.88	22,421	28,325	12
I 10 EB: US 60 to Elliot Rd	Congestion	1.79	19,237	33,238	13
I 10 WB: US 60 to SR 143	Congestion	2.56	17,567	35,195	14
SR 101 SB: Southern Ave to SR 202	Congestion	2.64	16,869	39,921	15
I 17 NB: I 10 to Indian School Rd	Congestion	2.81	16,238	48,528	16
SR 101 NB: SR 51 to I 17	Congestion	2.45	15,795	107,909	17
SR 51 SB: I 10 to Indian School Rd	Congestion	3.17	15,438	28,858	18
I 17 NB: I 10 to 24th St	Congestion	2.34	14,880	105,952	19
I 17 SB: Thunderbird Rd to Indian School Rd	Congestion	2.64	14,696	117,941	20

Table 2: Priority Bottleneck Locations – Top 20 Rural Bottlenecks

Bottleneck Location	Potential Cause for Bottleneck	TTTR (Worst Condition)	Delay per Mile per Segment	Total Delay per Segment (Hours/ Year)	Bottleneck Rank (Delay/ Mile)
US 191 at I 40: EB On-Ramp at West US 191/I 40 TI; EB Off-Ramp at East US 191/I 40 TI	Congestion	3.86	52,991	30,815	1
US 93 NB: SR 68 to I 40	Congestion	4.49	11,549	42,560	2
I 10/Riggles Ave TI and I 10/Quartzsite Ave TI @ Quartzsite - EB	Congestion	2.35	7,407	21,057	3
I-10/Riggles Ave TI and I-10/Quartzsite Ave TI @ Quartzsite - WB	Congestion	2.33	7,246	20,597	4
US 95 SB: I 8 to Svenue 3E	Congestion	2.49	7,165	10,406	5
US 93 NB: SR 68 to I 40	Terrain, Congestion	2.06	7,018	24,188	6
US 95 SB: County 15th St to I 8	Congestion	1.88	5,065	43,585	7
US 95 NB: County 15th St to I 8	Congestion	1.99	5,003	42,437	8
SR 69 NB: Prescott Lake Pkwy to Glassford Hill Rd	Congestion	1.76	4,918	24,875	9
SR 69 SB: SR 89 to Robert Rd	Congestion	1.84	4,115	34,412	10
I 8 EB: CA State Line to US 95	Congestion	2.74	4,012	7,562	11
SR 69 NB: SR 89 to Prescott Lakes Pkwy	Congestion	1.71	3,974	8,370	12
SR 189 NB: Nogales LPOE to I 19	LPOE, Congestion	2.99	3,906	11,897	13
I 10 EB: I 10 EB to SR 101 NB Ramp	Congestion	1.73	3,056	3,117	14
I 17 NB: Black Canyon City to SR 69	Terrain, Congestion	1.19	3,005	60,124	15
US 191 SB: SR 80 to Douglas LPOE	LPOE, Congestion	2.22	2,882	3,322	16
I 8 WB: US 95 to Avenue 3E	Congestion	1.22	2,755	4,756	17
US 60 WB: SR 77 to SR 260	Congestion	1.98	2,726	7,109	18
SR 189 SB: Nogales LPOE to I 19	LPOE, Congestion	2.5	2,649	8,105	19
I 8 EB: US 95 to Avenue 3E	Congestion	1.22	2,612	6,347	20