

ADOT/Flagstaff Route Transfer Study Update

Update December 2023

A reference document for MetroPlan member agencies:

A staff update to the 2008 report originally prepared by:

**HDR Engineering with
Engineering and Environmental Consultants, Inc.**



METROPLAN

GREATER † FLAGSTAFF

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Purpose

This report provides decision makers with information to determine if pursuing a route transfer is in the interest of their agency or community. **It does *not* make recommendations on whether any transfer should take place.** It is primarily a narrative update to the 2008 Route Transfer Study that identified implications of transferring state highways to the jurisdiction of the City of Flagstaff.

Summary of Costs

Expenses borne by either agency will ultimately be negotiated at the time of transfer. Annual operations and maintenance costs for the City of Flagstaff are estimated at \$15,700 per lane mile, slightly higher than ADOT's \$15,250. The **higher** figure is used in this report for estimating costs. There are five ADOT study segments of varying lengths and annual O&M costs ranging from \$165,000 to \$260,000. Capital improvement costs range from \$10,000,000 to \$16,000,000 with needs varying for each segment. These may be incurred in phases over many years.

Need

This report addresses a possible solution to policy differences between ADOT and the City of Flagstaff related to highway operations. Route transfer has been raised in the context of transit operations, access management, and pedestrian and bicycle facility provision to unify policy and administrative procedures under a single jurisdiction. ADOT policy is often not compatible with City urban design and active transportation objectives. It is noted that no staff at the City or ADOT are advocating for nor against? a transfer at this time.

Content Overview

This report updates the route transfer process, transfer advantages and disadvantages, costs associated with operations and maintenance and future capital needs.

Methodology

Methods for this update are not comprehensive but are on an “order of magnitude” basis. The fact that any transfer request once initiated requires extensive analysis and may take over 2-years to execute, as speculated in the original study (OS), justifies this high-level approach.

For operations and maintenance expenses, the 2008 report conducted staff interviews and evaluated budgets and available financial system reports. The 2008 report also undertook extensive analysis of traffic operations and drainage conditions to establish prospective capital needs.

This report evaluates operations and maintenance expenses differently for ADOT and the City. For ADOT, expenses from 2008 are inflated using ADOT's cost of construction tables. Costs

for activities added since 2008 are estimated or addressed narratively. These were then submitted to the ADOT Northcentral District office for review.

City expenses are based on City streets operations and maintenance budgets. A series of reasonable assumptions are made to distribute these costs across different classes of roadways. The intent is to estimate expenses for arterial and collector streets – those most similar in size and traffic volume to ADOT facilities. These were submitted to the City Public Works Department and Engineering Division for review.

Background and History

The impetus for the 2008 study was the desire by the City to advance construction of the E. Flagstaff Traffic Interchange to time its opening with that of the Marketplace commercial development. Ultimately, ADOT agreed with the conditions that the County willingly defer construction of state highway improvements at the entrance to Ft. Tuthill to free up ADOT funding, the City accept transfers of US 89 and old Route 66 (b40) around the mall, *and the City agree to conduct a transfer study.*

This report is prompted by the policy conflicts highlighted during the Milton Road Corridor Master Plan. That effort took more than five years with several issues taken through ADOT's escalation process – many pertaining to provision of multimodal facilities. Transferring Milton Road to the City was discussed as one means to resolve these matters.

MetroPlan is now embarking on the W Route 66 Operational Analysis, an ADOT highway. These policy differences remain unresolved and route transfer is anticipated as a solution. Staff hope it is constructive at this juncture that all parties understand the implications of route transfers for all involved.

Important changes in the community transpired since 2008 adding to considerations for future transfers. Arizona Snowbowl now makes snow and has predictable conditions that are driving attendance. Snow play congestion now occurs in the morning as well as when Arizona Snowbowl closes for the day. Also, several wildfires increased flooding on parts of the state highway system requiring additional maintenance and increasing the need – and cost – for future stormwater drainage improvements.

Advantages & Disadvantages

Stakeholders in any potential transfer were asked to review and update the advantages and disadvantages from the earlier report. The results are reported here:

Table 1 – Route Transfer Advantages & Disadvantages

Agency	Advantages	Disadvantages
ADOT	Reduced O&M costs	Transfer costs (financial and/or project commitments) could exceed savings
	Reduced risk exposure	Transfer costs will displace other priorities
	Reduced development review and permitting responsibility	No available or planned budget to implement study identified expenses
	Reduced regulatory responsibility (water quality compliance)	Loss of operational control could negatively impact adjoining ADOT highways or interstates
	Reduced administrative burden (public issues, data reporting)	
City of Flagstaff	Improved public responsiveness	Increased O&M costs
	Improved roadway development control	Increased risk exposure
	Improved development approval process by eliminating ADOT "third party" review	Increased regulatory responsibility (water quality compliance)
	Increased operational control	Increased administrative burden (public issues, data reporting)
	Transfer terms (financial and/or project commitments) could accelerate priority improvements	Ownership costs will displace other priorities

Process

Perhaps inspired or instructed by the 2008 study, ADOT developed the Route Transfer Guidebook, adopted in 2012. The Guidebook outlines several steps which are illustrated in Figure 2 from that document. The whole process is underpinned by state statute.

Arizona statutes give the Arizona State Transportation Board authority to remove routes on the state highway system that no longer serve a state function. Statute refers to such a removal as

abandonment, wherein the route reverts to the underlying city or county agency or to another agency identified in the intergovernmental agreement that implements the abandonment. To avoid the implication of a unilateral ADOT action, the term transfer is now generally used when referring to the abandonment process. The requirements for route transfer are contained in ARS 28-7209, as follows:

A. If the board vacates or abandons a portion of a state route or state highway pursuant to section 28-304, the board shall:

1. Vacate or abandon the portion of the route or highway in cooperation with an affected jurisdiction and in full recognition of the financial and administrative impacts of the changes on the affected jurisdiction.

2. Provide four years' advance notice to the affected jurisdiction, except as provided in paragraph 3 and except that, by mutual agreement, the board and the affected jurisdiction may waive this requirement for notification.

3. Provide at least one hundred twenty days' advance notice to the affected jurisdiction for the abandonment of new street improvements such as cul-de-sacs and reconnections of existing streets resulting from highway projects.

B. Before a paved highway is vacated or abandoned, the pavement before the vacating or abandonment shall be in such a condition that additional surface treatment and major maintenance of the highway are not required for at least five years, unless the board and the affected jurisdiction agree to waive the requirement of this subsection.

The transfer process these steps detailed in different sections of the Guidebook are :

- Identify and Define a Route Transfer Candidate Segment
- Initial Meeting
- Memorandum of Intent
- Preliminary Data Collection and Route Transfer Feasibility Evaluation
- Detailed Data Collection
- Route Transfer Report
- Initial Negotiations
- Public Involvement
- Final Negotiations
- Development of Intergovernmental Agreement (IGA)

A critical aspect throughout the process is the inclusion of decision makers to assure consensus and avoid surprises. The transfer terms will then be documented in an IGA in accordance with established ADOT procedures, and the IGA execution and compliance will need to be monitored.

A flow chart for the process is shown in Figure 2 from the Guidebook below:

Decision Making Process for Cooperative Permanent Route Transfer from State Highway System to a Local or Tribal Government

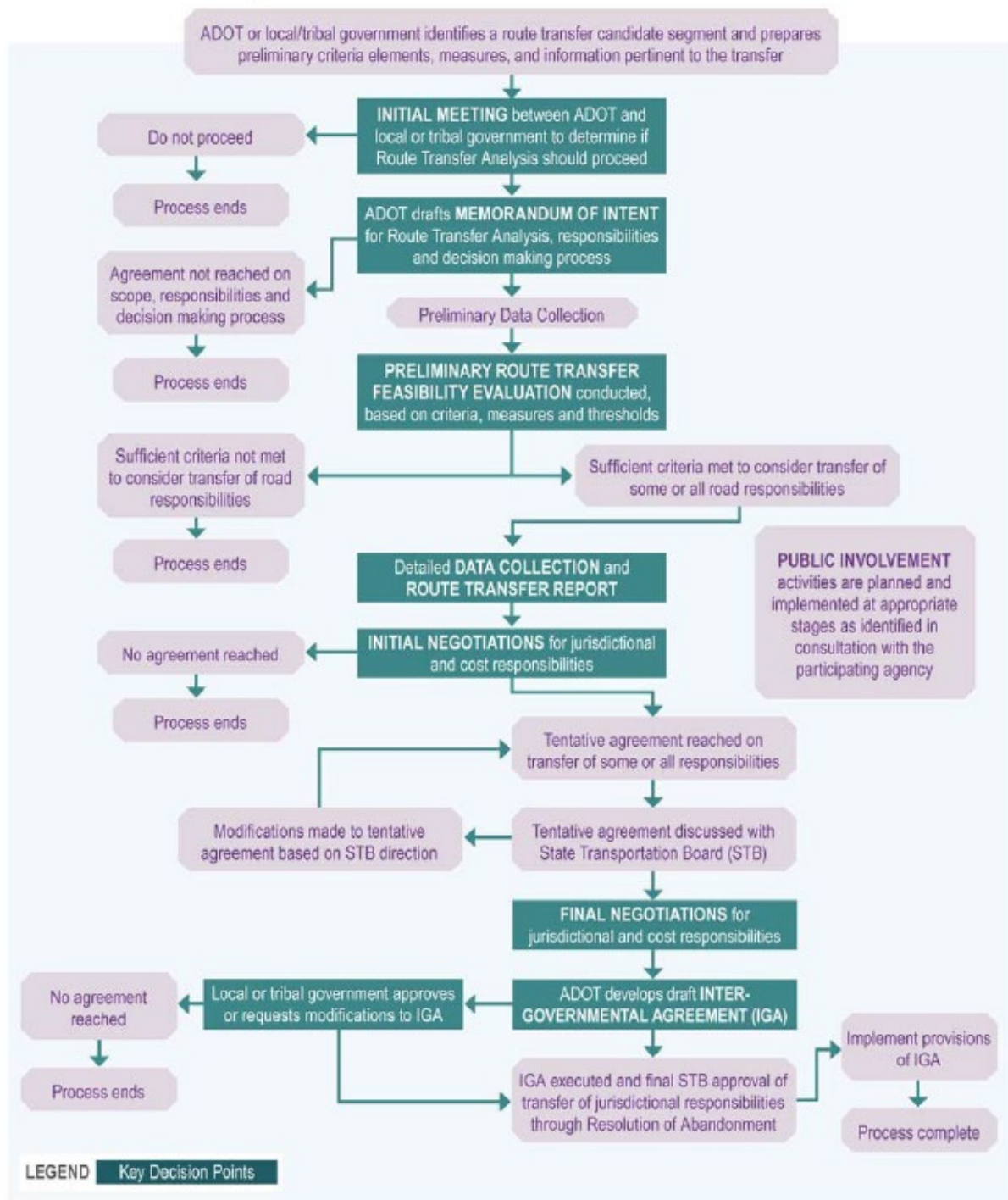


Figure 2 – Transfer from the State Highway System to a Local or Tribal Government

Operational Considerations & Segments

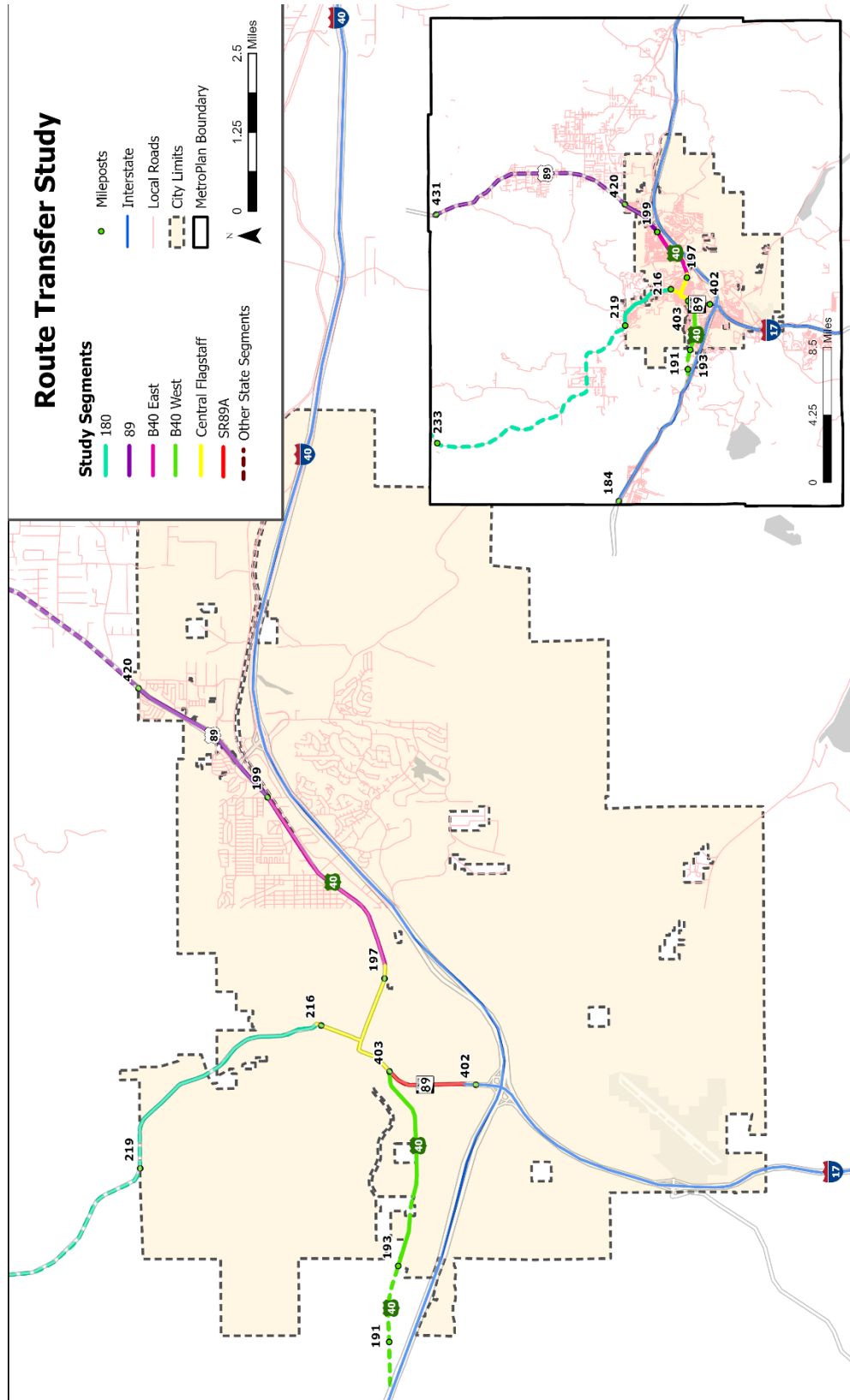
Safe and effective operations are paramount when considering transfers. Interstates are not subject to transfer but are the primary concern of ADOT and may be detrimentally influenced by the operation of surface streets including ADOT and non ADOT? arterials in the region. Poor operations could back traffic on to the interstate causing collisions. Transfers may involve all or part of a route (i.e., US89 between Fanning and Trails End). Cross-agency coordination of route operations should be enhanced or enabled by the segment(s) transferred. Public expectations should also be considered. Though the public does not always perceive the underlying ownership and management of the roads on which they travel they do expect safe and reasonable operations. The receiving agency should be able to demonstrate the ability to reasonably meet traveler expectations.

Stakeholders agree that the segments identified in 2008 still meet the need for effectiveness with one exception. ADOT Northcentral District no longer supports the transfer of Milton Road unless there are major changes to the I-40 and I-17 interchange. As an extension to I-17 it must be operated in a manner that maintains safety on the interstate.

The study includes the five state highway segments listed here and on the accompanying map:

- B40 WEST (West Route 66) – From Flagstaff City Limit to Junction SR 89A (Milton Road)
- Central Flagstaff – (Portions of Milton, Route 66 and Humphreys Street) From Junction SR 89A (Milton Road/Santa Fe Avenue) east to Switzer Canyon Drive and Humphreys Street north to Columbus Avenue.
- B40 EAST (East Route 66)– From Switzer Canyon Drive to Fanning Drive
- SR 89A (Milton Road) – From I-17 /I-40 Interchange to B40 West
 - *This segment is reported for continuity to the last report only*
- US 180 (Fort Valley Road) – From Columbus Avenue to Flagstaff City Limits.





This map augments that in the original study by extending the state highways through the MetroPlan region outside the City and within Coconino County. *Transfer of these routes from ADOT to the County, though technically possible, is unlikely for two reasons. Primarily, these routes support one of ADOT's primary purposes: travel between jurisdictions and states. Secondly, these are typically long stretches of highway, some with traffic signals, for which the County does not have the expertise to manage.* Even so, the County does operate a short section at the west end of W Route 66.

Costs

Costs for the transferring agency, typically ADOT, will be negotiated. They must meet the state mandated minimum maintenance standard but this is not typically enough to entice the potential receiving agency to the table. Consequently, maintenance funding or capital improvements are sometimes included in the terms of a transfer.

Transferring a route has many cost implications for the receiving agency. Primary among these are maintenance and operations of the route and assumed responsibility for future capital expenses for roadway improvements including drainage. These will fall primarily to the City Public Works Department for the former and the Engineering Division for the latter.

This section addresses these costs by segment and are presented as a basis for discussions on what represents fair or acceptable terms of agreement.

Two categories of cost were excluded from the original study: Administration and Roadway Rehabilitation. Administration includes these aspects (OS-page 15):

- Administrative and Legal Costs
- Permitting Activities
- Development Review
- Oversize Load Permitting
- Handling Public Complaints
- Traffic Counting Program
- Signal Timing/Operation
- After Hours Emergency Response (Note: included in Pecos 8550 maintenance costs)
- Overhead - Training Cost

ADOT currently addresses these administrative tasks for the subject state highways and the City would have to consider doing the same, balancing priorities and resources, should a route transfer be implemented. Some of these issues may overlap with and merge smoothly with existing City administrative efforts, while others may be new or require a measurable expanded effort to adequately administer the tasks.

Administration costs for City Public Works are added into this update on a basis proportional to the Street Maintenance Division share of its budget. This same proportion was added into the ADOT costs as its inclusion in the original report is unclear.

The original study generally excluded capital improvement costs for road rehabilitation (such as overlays, surface treatments, and reconstructions, see Page OS-9). Costs for such activities were included for some segments and are inflated for this update. ADOT now utilizes the planning-to-programming (P2P) process to prioritize pavement preservation investments across the state. The result is no routine track record of investment in the region making an annualized estimate nearly impossible to calculate. The City's process does not evaluate ADOT facilities, so an estimate of rehabilitation costs is difficult. ***These costs are significant and an important long-term implication for both agencies.***

Maintenance and Operations

This report updates costs in different ways for ADOT and the City. Interviews and other communications attempted to assure the same range of activities are included in the cost accounting for each agency. Interviews revealed that since 2008 ADOT added street sweeping to its activities and increased its level of drainage facility inspection and maintenance.

ADOT Cost Estimation: An attempt to replicate the 2008 PECOS maintenance management system report from the original report yielded unsatisfactory results. Consequently, the costs from the original report were inflated using ADOT's construction cost index for the years 2016 to 2022 (<https://azdot.gov/sites/default/files/2022/07/CCI-GRAPH.pdf>) and the following assumptions:

3% annual inflation applied from 2008 to 2016.

Street Sweeping Costs: Starting with the proportional cost of City street sweeping expenses then lowered based on road mileage. The City's greater local and collector system miles skews its numbers higher.

Administration Costs: The City estimate of 11% was made to account for this.

ADOT's cost per lane mile for operations and maintenance is estimated at **\$15,250**.

City Cost Estimation: Budgeted expenses reported for fiscal years 2021, 2022 and 2023 were originally evaluated as the basis for expenditures. Staff elected to use the most recent expenses instead of an average due to the high inflation levels experienced during this time. Working with Public Works staff these were allocated to these categories:

- General Admin
- Street Cleaning*
- Snow Control**
- Sign, Signal, etc.****
- Street Maintenance***
- Streetlights #
- Traffic Signal Maintenance

These costs were then distributed across roadway types based on lane miles and traffic volumes using these assumptions:

Vehicle Miles Travelled (VMT) are a reasonable proxy for wear and tear with implications for frequency of maintenance activity. They are also a reasonable proxy for the range of activities deployed such as traffic signals being present only on major streets.

** 80% on arterials and major collectors proportioned by centerline miles*

*** 90% based on lane miles and 10% on VMT*

**** 80% based on lane miles and 20% on VMT*

***** assuming no striping and marking on locals, small signs on locals*

assumes spacing of 300', 600', 1320', 2460' along respective road types

The City of Flagstaff operation and maintenance cost per lane mile is **\$15,700**. This is the average of costs for arterial and major collector streets. ADOT's facilities are classified as arterials and collectors and a field review shows that the north end of US180 and the west end of B40 West are smaller, lower volume roads with few facilities and amenities.

The following table summarizes annual operations and maintenance costs for each segment.

Table 2 – Route Transfer Operations and Maintenance Costs

Operations & Maintenance	Units	Study Segments				
		B40 West	Central Flagstaff	B40 East	SR 89A	US 180
	Lane Miles	11.60	13.24	16.44	18.70	10.50
	Annual Cost / Lane Mile	\$15,700	\$15,700	\$15,700	\$15,700	\$15,700
	Annual Cost	\$182,120	\$207,868	\$258,108	\$293,590	\$164,850

Lane miles from original study

Capital

Capital costs to improve roads to City of Flagstaff standards include prospective needs for road widening, intersection improvements, signal upgrades and edge improvements. The latter are also referred to as transportation elements. Drainage costs are addressed briefly in the following section. To test whether recommendations made in 2008 were still valid 2019 estimates interpolated from the earlier study's 2030 projections were compared to actual 2019 counts. They were found to be quite high. This means the capital improvements recommended in the original study remain reasonable to meet future demand.

For this report the following methodology is used as an update.

- Delete or reduce projects that have been completed since 2008
- For remaining projects inflate costs from 2008 using ADOT's cost inflation index

This table summarizes the quantity of improvements by type required for each study segment.

Table 3 – Study Segment Quantity of Improvements

Improvements	Units	Study Segments				
		B40 West	Central Flagstaff	B40 East	SR 89A	US 180
Length	Miles	2.32	2.75	2.74	1.27	3.51
Roadway	Miles	1.50	0.00	0.00	1.27	2.50
Intersection	# of Intersections	5.00	7.00	4.00	3.00	0.00
Signal Upgrade	# of Intersections	2.00	10.00	5.00	4.00	0.00
Drainage	# of Locations	1.00	1.00	3.00	3.00	2.00
Transportation Element	Miles	3.30	0.60	2.74	0.00	3.80

The following series of tables details the costs for each study segment. The original costs were inflated by a factor of 2.36, derived from ADOT's Construction Cost Index.

Table 4 – Capital Costs: B40 West (W. Route 66)

	Unit	Quantity	Unit Cost	2008 Cost	Inflation	2022 Cost
Roadway Improvements						
Widening from 2-4 lanes	Mile	0.75	\$5,000,000	\$3,750,000	2.36	\$8,850,000
Intersection Improvements						
Woody Mtn/66	Lump Sum	1	\$575,000	\$575,000	2.36	\$1,357,000
Thompson/66	Lump Sum	1	\$500,000	\$500,000	2.36	\$1,180,000
Woodlands/66	Lump Sum	1	\$1,250,000	\$1,250,000	2.36	Complete
Yale/66	Lump Sum	1	\$500,000	\$500,000	2.36	\$1,180,000
Signal Upgrade Cost						
Woodlands/66	Lump Sum	1	\$50,000	\$50,000	2.36	Complete
Milton/66	Lump Sum	1	\$50,000	\$50,000	2.36	\$118,000
Drainage Improvements**						
FEMA - Clay Ave Wash	Lump Sum	1	\$240,000	\$240,000	2.36	Complete
Transportation Element Improvements						
Type II Bikeway	Mile	1.9	\$50,000	\$95,000	2.36	\$224,200
FUTS Trail		1.4	\$725,000	\$101,500	2.36	\$239,540
Total Improvement Cost						\$13,148,740

** Does not account for wildfire impacts since 2008

Table 5 – Capital Costs: **Central Flagstaff**

	Unit	Quant- ity	Unit Cost	2008 Cost	Infla- tion	2022 Cost
Intersection Improvements						
Butler/Milton	Lump Sum	1	\$750,000	\$750,000	2.36	Complete
Humphreys/66	Lump Sum	1	\$1,075,000	\$1,075,000	2.36	\$2,537,000
Humphreys/Aspen	Lump Sum	1	\$600,000	\$600,000	2.36	\$1,416,000
Humphreys/Birch	Lump Sum	1	\$600,000	\$600,000	2.36	\$1,416,000
Leroux/66	Lump Sum	1	\$325,000	\$325,000	2.36	\$767,000
Lone Tree/66	Lump Sum	1	\$3,175,000	\$3,175,000	2.36	Programmed
Switzer/66	Lump Sum	1	\$1,075,000	\$1,075,000	2.36	\$2,537,000
Signal Upgrade Cost						
Butler/Milton	Lump Sum	1	\$50,000	\$50,000	2.36	\$118,000
Humphreys/66	Lump Sum	1	\$50,000	\$50,000	2.36	\$118,000
Humphreys/Aspen	Lump Sum	1	\$50,000	\$50,000	2.36	\$118,000
Humphreys/Birch	Lump Sum	1	\$50,000	\$50,000	2.36	\$118,000
Humphreys/Columbus	Lump Sum	1	\$50,000	\$50,000	2.36	\$118,000
Beaver/66	Lump Sum	1	\$50,000	\$50,000	2.36	\$118,000
Leroux/66	Lump Sum	1	\$50,000	\$50,000	2.36	\$118,000
San Francisco/66	Lump Sum	1	\$50,000	\$50,000	2.36	\$118,000
Verde/66	Lump Sum	1	\$50,000	\$50,000	2.36	\$118,000
Switzer/66	Lump Sum	1	\$50,000	\$50,000	2.36	\$118,000
Drainage Improvements*						
at Malpais	Lump Sum	1	\$20,000	\$20,000	2.36	\$47,200
Transportation Element Improvements						
Type II Bikeway	Mile	0.6	\$50,000	\$30,000	2.36	\$70,800
Total Improvement Cost						\$9,971,000

* Does not account for wildfire impacts since 2008

Table 6 – Capital Costs: **B40 East (East Route 66)**

	Unit	Quant - ity	Unit Cost	2008 Cost	Infla- tion	2022 Cost
Intersection Improvements						
Ponderosa Pkwy/66	Lump Sum	1	\$3,200,000	\$3,200,000	2.36	Complete
Arrowhead/66	Lump Sum	1	\$2,225,000	\$2,225,000	2.36	\$5,251,000
Postal/66	Lump Sum	1	\$1,725,000	\$1,725,000	2.36	\$4,071,000
Steves/66	Lump Sum	1	\$750,000	\$750,000	2.36	Complete
Signal Upgrade Cost						
Ponderosa Pkwy/66	Lump Sum	1	\$50,000	\$50,000	2.36	Complete
Fourth/66	Lump Sum	1	\$50,000	\$50,000	2.36	Complete
Arrowhead/66	Lump Sum	1	\$50,000	\$50,000	2.36	\$118,000
Postal/66	Lump Sum	1	\$50,000	\$50,000	2.36	\$118,000
Steves/66	Lump Sum	1	\$50,000	\$50,000	2.36	\$118,000
Drainage Improvements*						
at Arrowhead	Lump Sum	1	\$20,000	\$20,000	2.36	\$47,200
FEMA - Switzer Wash	Lump Sum	1	\$200,000	\$200,000	2.36	\$472,000
FEMA - Spruce Ave Wash	Lump Sum	1	\$180,000	\$180,000	2.36	\$424,800
Transportation Element Improvements						
Type II Bikeway	Mile	2.74	\$50,000	\$137,000	2.36	\$323,320
Total Improvement Cost						\$10,943,320

* Does not account for wildfire impacts since 2008

Table 7 – Capital Costs: **SR89A (Milton)**

	Unit	Quantity	Unit Cost	2008 Cost	Inflation	2022 Cost
Roadway Improvements						
Pavement Preservation	Mile	1.27	\$1,025,500	\$1,302,400	2.36	\$3,073,664
Intersection Improvements						
Plaza/Milton	Lump Sum	1	\$750,000	\$750,000	2.36	\$1,770,000
Chambers/Milton	Lump Sum	1	\$1,100,000	\$1,100,000	2.36	\$2,596,000
University/Milton	Lump Sum	1	\$2,400,000	\$2,400,000	2.36	Programmed
Signal Upgrade Cost						
Riordan/Milton	Lump Sum	1	\$50,000	\$50,000	2.36	\$118,000
Plaza/Milton	Lump Sum	1	\$50,000	\$50,000	2.36	\$118,000
University/Milton	Lump Sum	1	\$50,000	\$50,000	2.36	\$118,000
Forest Meadows/Milton	Lump Sum	1	\$50,000	\$50,000	2.36	Complete
Drainage Improvements*						
at Plaza	Lump Sum	1	\$40,000	\$40,000	2.36	\$94,400
at Forest Meadows	Lump Sum	1	\$20,000	\$20,000	2.36	\$47,200
Univ. Ave to B40	Lump Sum	1	\$1,600,000	\$1,600,000	2.36	\$3,776,000
Total Improvement Cost						\$11,711,264

* Does not account for wildfire impacts since 2008

Table 8 – Capital Costs: **US 180**

	Unit	Quantity	Unit Cost	2008 Cost	Inflation	2022 Cost
Roadway Improvements						
Pavement Preservation	Mile	2.5	\$615,300	\$2,153,600	2.36	\$5,082,496
Drainage Improvements*						
FEMA Schultz Creek Cross US 180	Lump Sum	1	\$60,000	\$60,000	2.36	\$141,600
US 180 adjacent to Coconino Estates	Lump Sum	1	\$3,000,000	\$3,000,000	2.36	\$7,080,000
Transportation Element Improvements						
Type II Bikeway	Mile	1.9	\$50,000	\$95,000	2.36	\$224,200
FUTS Trail	Mile	1.9	\$725,000	\$1,377,500	2.36	\$3,250,900
Total Improvement Cost						\$15,779,196

* Does not account for wildfire impacts since 2008

Searching by “Coconino County”, “Flagstaff”, and relevant route names, a review of the ADOT 5-year construction program and ADOT Northcentral District FY 24 2nd Quarter flier indicate these three projects are programmed for the region:

- 103904 Drainage Improvement on US 180 at Schultz Creek, \$3,000,000 design, FY24
- 103709 LED lighting various routes – Flagstaff area, \$2,200,000 construction, FY24
- F0517 US-89 Timberline to Deadman Flat Pavement Rehabilitation (Bid Opening Delayed)

The latter project is in the County, outside of the Flagstaff city limits and not likely to be considered for transfer.

Drainage

Drainage costs from the original study are inflated and included in the capital costs above. As stated earlier, wildfires created substantially worse flooding conditions since 2008. US89, US180, and B40 East are particularly impacted. B40 West is at risk. Emergency relief funds received by the City and County will cover some of the increased costs and federal grants have been applied for. At this time, estimates for all required improvements are not complete.