

Genesee County

"Shaping our Transportation Future Together"

2035 Long Range Transportation Plan





Congestion Management Process and LRTP Projects Summary

Congestion Management Process

One of the main components of the Long Range Transportation Plan is an analysis of congested roadways in Genesee County and the Management Process to address these congested areas. The Congestion Management Process is a guideline for the development of capacity improvement (widening) projects in Genesee County. Because of the limited financial resources available to communities in Genesee County to address roadway congestion, GCMA carefully reviews projects to determine their suitability for widening and selects only the most critical areas recommended by road and transit agencies to become part of the list of capacity improvements or widening projects in Genesee County. The Congestion Management Process is a tool used by road and transit agencies to determine what level of capacity improvement is most suitable for a corridor and uses data from the Genesee County Travel Demand Model to analyze the submitted capacity improvement projects included in this document.

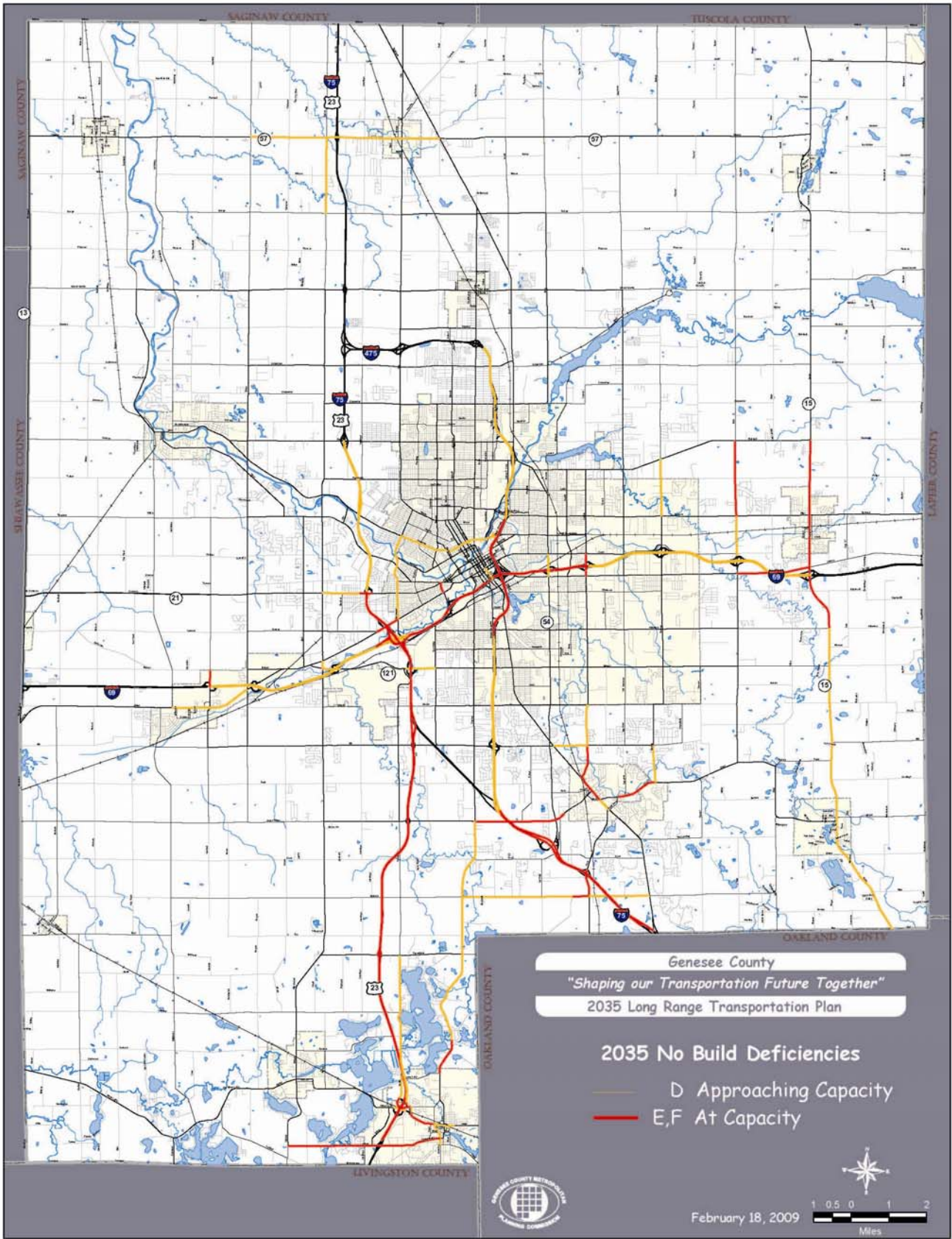
Volume to Capacity Severity Ranges

To measure congestion through the congestion management process, the GCMA uses “level of service” (LOS) as the sole performance measure. The LOS is derived from volume to capacity ratios as illustrated in the table below.

Volume to Capacity Severity Ranges	Volume to Capacity Ratio	Operating Conditions Severity	Level of Service (LOS)	STABLE FLOW
	0 to 0.84	Traffic at free to stable flow	A-C	
	0.85 to 0.99	High density of traffic, but stable flow (Approaching Congestion)	D	
	1.00 to 1.24	Unstable flow – lower speed some stops	E	
	1.25 and greater	Forced or breakdown traffic flow – many stops	F	CONGESTED

Deficiency Analysis

The Genesee County Travel Demand Model was used to project future congestion for the year 2035. Areas were considered approaching congestion if they were at a level of service D and over capacity if the level of service was E or F. Areas that were congested during AM or PM peak periods or areas that were showing congestion from the entire 24-hour period were treated as a congested corridor.



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2035 No Build Deficiencies

- D Approaching Capacity
- E,F At Capacity



February 18, 2009



Long Range Transportation Plan Project Alternative Analysis

Staff compared alternative congestion management strategies for the capacity improvement projects that were submitted as part of the Long Range Transportation Plan Call for Projects. Of the projects listed above 20 projects were analyzed for their appropriate congestion strategies using alternatives described in the Congestion Management Process. Below is a brief description of the scenarios:

No-Build Scenario

The 2011 transportation network using the socio-economic data for 2035 provides us with a look at what would happen if no new capacity projects were completed, this is the do-nothing scenario.

Signal Timing Scenario

The signal timing scenario represents the impact on the roadway system if all the signals on the 20 corridor projects were optimized for an increase of 5 mph in speed.

Adding a Center Turn Lane Scenario

In this scenario, all of the 2 to 5 lane capacity improvement projects were modeled as a three-lane roadway to see if the projects could reach an acceptable level of service with on the addition of a center-turn lane.

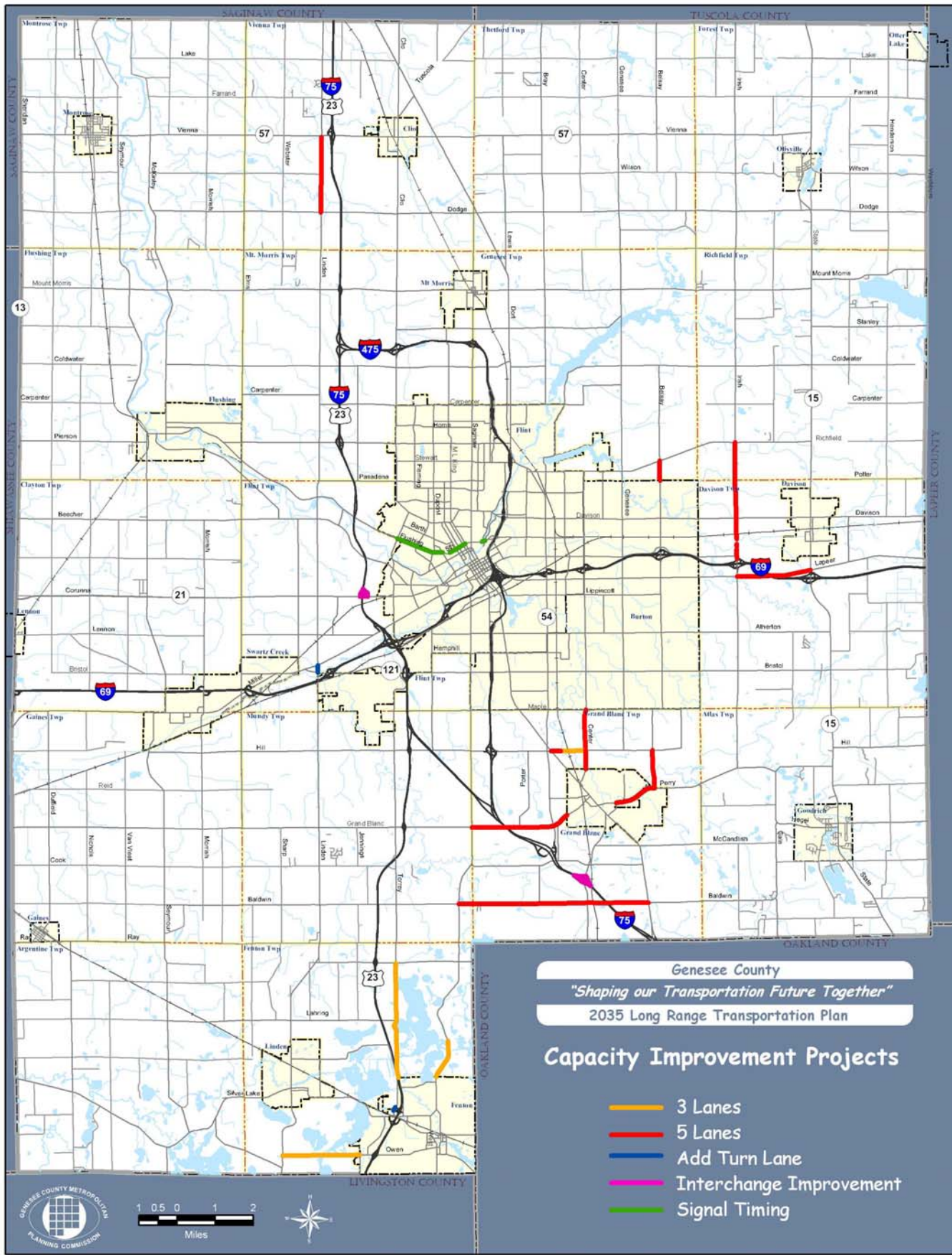
Long Range Transportation Project Scenario

The Long Range Transportation Project scenario included the full list of capacity improvement projects with the proposed projects submitted by local road and transit agencies.

Long Range Transportation Plan Capacity Improvement Project Scenario Analysis				2035 No-Build Scenario	Signal Timing Scenario	Adding Center-turn Lane Scenario	L RTP Project Scenario
Agency	Project	Description	Limits	Level of Service	Level of Service	Level of Service	Level of Service
GCRC	Torrey Road	2 to 3	Fenton City Limits to Thompson Road	D	D (slight imp)	1-see below	C-D
GCRC	Owen Road	2 to 3	Linden Road to Jennings Road	E	E	1-see below	D
GCRC	Belsay Road	2 to 5	Burton City Limits to Richfield Road	D	D	D (slight imp)	B
GCRC	Belsay Road	2 to 5	Perry Road to Hill Road	D	D	D (slight imp)	B
GCRC	Baldwin Road	2 to 5	Fenton Road to Saginaw Road	D-F	D-E	D	B
GCRC	Center Road	2 to 5	Grand Blanc City Limits to Maple Avenue	D-E	D-E	D	B
GCRC	Grand Blanc Road	2 to 5	Fenton Road to Grand Blanc City Limits	E-F	E	D-E	B
GCRC	Irish Road	2 to 5	Davison Road to Richfield Road	E	E	E (slight imp)	B
GCRC	Lapeer Road	2 to 5	Irish Road to State Road	F	F	E	B
GCRC	Linden Road	3 to 5	Dodge Road to Vienna Road	D	D	2-see below	A
GCRC	Irish Road	4 to 5	I-69 WB Ramps to Davison Road	D	D (slight imp)	2-see below	C
GCRC	Perry Road	5 Lanes	Bella Vista Avenue to Belsay Road	E	E (slight imp)	D	B-C
MDOT	Holly Road @ I-75	Interchange Improvement	Holly Road at I-75	F	F (slight imp)	3-see below	C
MDOT	M-21/I-75 Interchange Improvement Project	Interchange Improvement	M-21 at I-75	F	F	3-see below	D
GCRC	Linden Road	Right Turn Lane Construction	Bristol Road to Miller Road	D	D	2-see below	C
GCRC	Hill Road	Saginaw Rd to Thread Creek Bridge 2 to 5 Thread Creek Bridge to Center Rd 2 to 3	Saginaw Road to Center Road	D	D	D-C	B-C
City of Flint	5th Avenue	Traffic Signal Upgrade and Interconnect	James P. Cole to E. Boulevard Dr	D	D (slight imp)	4-see below	4-see below
City of Flint	5th Avenue	Traffic Signal Upgrade and Interconnect	Patrick to ML King	D	D (slight imp)	4-see below	4-see below
City of Flint	Flushing Road	Traffic Signal Upgrade and Interconnect	Ballenger Road to Stevenson Street	D	D (slight imp)	4-see below	4-see below
GCRC	North Road	Turn Lane Construction	Fenton City Limits to US-23 Ramps	E	E	1-see below	D

Additional Comments from the chart above on the alternative analysis

- 1: These projects were proposed as a project adding a center turn-lane; therefore adding a center turn-lane could not be considered an alternative to the proposed project.
- 2: These projects already included a center-turn lane and therefore adding a center turn-lane scenario was not a valid alternative.
3. These projects included large interchange improvements and both areas already have a center turn-lane, therefore adding a center turn-lane is not a valid alternative.
4. These projects were proposed as a signal timing project and in the hierarchy of roadway improvements the center turn-lane scenario was deemed to excessive for an alternative.



2035 Long Range Transportation Plan List of Projects (Page 1 of 5)

Agency	Project	Description	Limits	Estimated Cost	Year
City of Burton	Center Road	Pavement Rehabilitation	Court to Davison	\$ 1,600,830	2010
City of Burton	Davison Road	Pavement Rehabilitation	Center Road to Genesee Road	\$ 1,280,664	2010
City of Fenton	Adelaide Street	Pavement Rehabilitation	State Road to North Road	\$ 717,595	2010
City of Flint	Clio Road	Pavement Rehabilitation	West Stewart Avenue to West Pierson Road	\$ 800,415	2010
City of Flint	Martin Luther King Avenue	Pavement Rehabilitation	West Pierson Road to Carpenter Road	\$ 1,290,940	2010
City of Flint	West 12th Street	Pavement Rehabilitation	Hammerberg Road to Fenton Road	\$ 896,465	2010
GCRG	Seymour Rd	Pavement Rehabilitation	Ray to Baldwin	\$ 367,683	2010
MDOT	I-475	Bridge Work	7 bridges on I-475	\$ 2,930,929	2010
MDOT	I-475	Bridge Work	3 Bridges on I-475	\$ 2,103,584	2010
MDOT	I-475	Bridge Work	I-475 under 14th Street	\$ 502,579	2010
MDOT	I-475	Bridge Work	3 bridges on I-475	\$ 2,411,356	2010
MDOT	I-475	Bridge Work	3 Bridges on I-475	\$ 878,429	2010
MDOT	I-475 Bridge	Pavement Rehabilitation	I-475 under 2nd Street	\$ 550,000	2010
MDOT	M-21	Construct Carpool Lot	M-21 @ I-75	\$ 40,000	2010
MDOT	M-21	Bridge Work	M-21 over Mistequay Creek	\$ 956,000	2010
MDOT	M-21	Bridge Work	M-21 over Mistequay Creek	\$ 1,900,000	2010
MDOT	M-21	Bridge Work	over Swartz Creek	\$ 331,083	2010
MTA	Enhancement	Transit Services	Genesee County	\$ 68,750	2010
GCMPC	I-475 Extension Feasibility Study - HPP#1762	Study	Genesee County	\$ 600,000	2010
MTA	ITS Deployment	Transit Services	Genesee County	\$ 2,500,000	2010
MTA	Job Access Reverse Commute	Transit Services	Genesee County	\$ 526,000	2010
MTA	Lease Service Centers	Transit Services	Genesee County	\$ 62,500	2010
MTA	Preventive Maintenance	Transit Services	Genesee County	\$ 3,000,000	2010
MTA	Purchase Capital Maintenance Items	Transit Services	Genesee County	\$ 1,125,000	2010
MTA	Purchase Computer Hardware	Transit Services	Genesee County	\$ 50,000	2010
MTA	Purchase Computer Software	Transit Services	Genesee County	\$ 130,000	2010
MTA	Purchase Transit Vehicles	Transit Services	Genesee County	\$ 2,000,000	2010
MTA	Purchase Transit Vehicles	Transit Services	Genesee County	\$ 4,875,000	2010
MTA	Purchase Transit Vehicles	Transit Services	Genesee County	\$ 167,500	2010
MTA	Security	Transit Services	Genesee County	\$ 68,750	2010
MTA	Service Center Updates	Transit Services	Genesee County	\$ 1,421,061	2010

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Agency	Project	Description	Limits	Estimated Cost	Year
City of Burton	Atherton Road	Pavement Rehabilitation	Dort Hwy to Center Road	\$ 1,272,346	2011
City of Burton	Belsay Road	Pavement Rehabilitation	Court Road to Davison Road	\$ 1,046,817	2011
City of Burton	Bristol Road	Pavement Rehabilitation	Belsay Road to Vassar Road	\$ 427,858	2011
City of Burton	Lapeer Road	Pavement Rehabilitation	Belsay Road to Vassar Road	\$ 643,408	2011
City of Flint	Glenwood Avenue	Pavement Rehabilitation	Court Street to Stevenson Street	\$ 427,858	2011
City of Flint	Lippincott Boulevard	Pavement Rehabilitation	Burr Boulevard to Averill	\$ 802,326	2011
City of Flint	West Second Street	Pavement Rehabilitation	Grand Traverse Street to Harrison Street	\$ 256,715	2011
City of Flint	West Second Street	Pavement Rehabilitation	Chase Street to Grand Traverse Street	\$ 320,893	2011
City of Flint	West Stewart Avenue	Pavement Rehabilitation	Clio Road to Dupont Street	\$ 398,917	2011
City of Flushing	Coutant Street (Kelly Road)	Pavement Rehabilitation	McKinley Road to Luce Street	\$ 556,215	2011
City of Linden	Ripley Road	Pavement Rehabilitation	Roilston Rd to Silver Lake Road	\$ 213,929	2011
GCRC	Ballenger Hwy	Pavement Rehabilitation	Swartz Creek Bridge to Flint CTL	\$ 1,181,286	2011
GCRC	Coldwater Rd	Pavement Rehabilitation	Neff to Saginaw	\$ 855,716	2011
GCRC	Davison Rd	Pavement Rehabilitation	Cummings to County Line	\$ 628,127	2011
GCRC	Fenton Rd	Pavement Rehabilitation	Grand Blanc to Hill	\$ 1,639,081	2011
GCRC	Fenton Rd.	2 to 3	North Fenton City Limits to Butcher Road	\$ 3,767,948	2011
GCRC	Mott Lake Pathway	Trail Construction	Carpenter and Bray Road to circle around CS Mott Lake to beginning	\$ 687,340	2011
GCRC	Perry Rd	Pavement Rehabilitation	Belsay to Twp Line	\$ 905,262	2011
GCRC	Perry Rd	Pavement Rehabilitation	Irish To Gale	\$ 388,584	2011
GCRC	Saginaw (N) Rd	Pavement Rehabilitation	I-475 to Stanley	\$ 520,352	2011
GCRC	Seymour Rd	Pavement Rehabilitation	Roilston to Lahring	\$ 339,184	2011
GCRC	Seymour Rd	Pavement Rehabilitation	Lahring to Smith	\$ 339,184	2011
GCRC	Silver Lake Rd	Pavement Rehabilitation	McCasin Lk to Lobdell	\$ 933,329	2011
GCRC	Silver Lake Road	Pavement Rehabilitation	Lobdell to Linden City Limits	\$ 642,481	2011
GCRC	Van Slyke Rd	Pavement Rehabilitation	Maple to Bristol	\$ 855,716	2011
GCRC	Washburn Road	Pavement Rehabilitation	Sister Lake Road to Howell Road	\$ 1,008,522	2011
MDOT	I-75	Bridge Work	3 bridges on I-75	\$ 4,351,421	2011
MDOT	I-75	Bridge Work	3 bridges on I-75	\$ 3,134,365	2011
MDOT	M-13	Bridge Work	M-13 over I-69	\$ 538,043	2011
MTA	Customer Service Facilities Enhancement	Transit Services	Swartz Creek, Clio, Flushing & Otisville	\$ 1,779,279	2011
MTA	ITS Project(s)	Transit Services	Genesee County	\$ 175,250	2011
MTA	ITS Project(s)	Transit Services	Genesee County	\$ 1,250,000	2011
MTA	ITS Project(s)	Transit Services	Genesee County	\$ 2,500,000	2011

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Agency	Project	Description	Limits	Estimated Cost	Year
MTA	Job Access Reverse Commute	Transit Services	Genesee County	\$ 526,000	2011
MTA	Lease Service Centers	Transit Services	Genesee County	\$ 140,000	2011
MTA	Preventive Maintenance	Transit Services	Genesee County	\$ 3,000,000	2011
MTA	Purchase Fuel Cell Vehicle	Transit Services	Genesee County	\$ 2,500,000	2011
MTA	Purchase Hybrid Buses (40ft)	Transit Services	Genesee County	\$ 2,500,000	2011
MTA	Purchase Support Equipment	Transit Services	Genesee County	\$ 1,031,250	2011
MTA	Purchase Vehicles	Transit Services	Genesee County	\$ 167,500	2011
MTA	Purchase Vehicles	Transit Services	Genesee County	\$ 581,250	2011
MTA	Security	Transit Services	Genesee County	\$ 73,750	2011
MTA	Security	Transit Services	Genesee County	\$ 312,500	2011
Village of Gaines	Lansing/Ray Rd	Pavement Rehabilitation	S Elm St to Village Limits East	\$ 327,320	2011
Village of Orisville	East Main Street	Pavement Rehabilitation	State Street (M-15) to Village DDA Limits (West of Lake St)	\$ 67,234	2011
GCRC	Genesee Road Extension Study	Study	Norhly End of Genesee Road to Hill Road	\$ 250,000	2011
MTA	Technology applications in Transit	Transit Services	Various Locations	\$ 10,000,000	2010-2011
MTA	Hybrid Conversion of new Flyer Buses	Transit Services	Various Locations	\$ 10,000,000	2010-2011
MTA	Purchase CNG Hybrid Medium Duty Buses	Transit Services	Various Locations	\$ 5,277,778	2010-2011
MTA	Purchase CNG Cutway Buses	Transit Services	Various Locations	\$ 2,222,222	2010-2011
MTA	Purchase Hybrid Intercity Coaches	Transit Services	Various Locations	\$ 1,666,667	2010-2011
MTA	Construct Hydrogen/CNG Fueling Station	Transit Services	Various Locations	\$ 2,500,000	2010-2011
MTA	Retrofit Storage and Fueling at Existing Buildings	Transit Services	Various Locations	\$ 2,500,000	2010-2011
City of Flint	5th Avenue	Traffic Signal Upgrade and Interconnect	James P. Cole to E. Boulevard Dr	\$ 100,000	2012-2018
City of Flint	Flushing Road	Traffic Signal Upgrade and Interconnect	Ballenger Road to Stevenson Street	\$ 100,000	2012-2018
City of Flint	Clio Road	Traffic Signal Upgrade and Interconnect	Dayton Street to Pierson Road	\$ 100,000	2012-2018

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Agency	Project	Description	Limits	Estimated Cost	Year
City of Flint	5th Avenue	Traffic Signal Upgrade and Interconnect	Patrick to ML King	\$ 100,000	2012-2018
City of Flint	Pierson Road	Traffic Signal Upgrade and Interconnect	Clio Road to Dort Hwy	\$ 100,000	2012-2018
City of Swartz Creek	Morrish Road Bridge Over the Swartz Creek	Bridge Work	40 ft S of bridge deck to 40 ft N of bridge deck	\$ 540,500	2012-2018
GCRC	North Road	Turn Lane Construction	Fenton City Limits to US-23 Ramps	\$ 700,000	2012-2018
GCRC	Grand Blanc Road	2 to 5	Fenton Road to Grand Blanc City Limits	\$ 9,800,000	2012-2018
GCRC	Irish Road	2 to 5	Davison Road to Richfield Road	\$ 7,500,000	2012-2018
GCRC	Belsay Road	2 to 5	Burton City Limits to Richfield Road	\$ 627,000	2012-2018
MTA	I-75 Corridor Bus Rapid Transit (BRT) - Study	Transit Services	Bay City to Detroit	\$ 450,000	2012-2018
MTA	I-75 Corridor Bus Rapid Transit (BRT) - Alternative	Transit Services	Bay City to Detroit	\$ 450,000	2012-2018
MTA	I-75 Corridor Bus Rapid Transit (BRT) - Preliminary Engineering	Transit Services	Bay City to Detroit	\$ 7,500,000	2012-2018
MTA	Purchase CNG Hybrid Medium Duty Buses	Transit Services	Various Locations	\$ 18,472,222	2012-2018
MTA	Purchase CNG Cutway Buses	Transit Services	Various Locations	\$ 7,777,777	2012-2018
MDOT	M-21/I-75 Interchange Improvement Project	Interchange Improvement	M-21 at I-75	\$ 30,000,000	2012-2018
MDOT	Holly Road @ I-75	Interchange Improvement	Holly Road at I-75	\$ 10,000,000	2012-2018
Transit Agency	Transit Services	Transit Services	Various Locations	\$ 123,842,668	2012-2018
Road Agency	Bridge Work	Bridge Work	Various Locations	\$ 16,512,356	2012-2018
Road Agency	Safety Improvements	Safety Improvements	Various Locations	\$ 21,761,650	2012-2018
Road Agency	Pavement Rehabilitation	Pavement Rehabilitation	Various Locations	\$ 69,682,604	2012-2018
Road Agency	Trail Construction	Trail Construction	Various Locations	\$ 12,384,267	2012-2018
Transportation Agency	Air Quality Improvements	Air Quality Improvements	Various Locations	\$ 32,484,138	2012-2018
GCRC	Hill Road	Saginaw Rd to Thread Creek Bridge 2 to 5 Thread Creek Bridge to Center Rd 2 to 3	Saginaw Road to Center Road	\$ 2,550,000	2019-2025
GCRC	Perry Road	4 to 5	Bella Vista Avenue to Belsay Road	\$ 2,600,000	2019-2025

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Agency	Project	Description	Limits	Estimated Cost	Year
MTA	I-75 Corridor Bus Rapid Transit (BRT) - Construction	Transit Services	Bay City to Detroit	\$ 75,000,000	2019-2025
GRC	Lapeer Road	2 to 5	Irish Road to State Road	\$ 6,500,000	2019-2025
GRC	Owen Road	2 to 3	Linden Road to Jennings Road	\$ 4,500,000	2019-2025
GRC	Torrey Road	2 to 3	Fenton City Limits to Thompson Road	\$ 3,700,000	2019-2025
MTA	Purchase Hybrid Intercity Coaches	Transit Services	Various Locations	\$ 5,833,333	2019-2025
MTA	Purchase Fuel Cell Buses	Transit Services	Various Locations	\$ 3,000,000	2019-2025
Transit Agency	Transit Services	Transit Services	Various Locations	\$ 172,636,793	2019-2025
Road Agency	Bridge Work	Bridge Work	Various Locations	\$ 23,018,239	2019-2025
Road Agency	Safety Improvements	Safety Improvements	Various Locations	\$ 30,335,760	2019-2025
Road Agency	Pavement Rehabilitation	Pavement Rehabilitation	Various Locations	\$ 97,622,080	2019-2025
Road Agency	Trail Construction	Trail Construction	Various Locations	\$ 17,263,679	2019-2025
Transportation Agency	Air Quality Improvements	Air Quality Improvements	Various Locations	\$ 45,282,918	2019-2025
GRC	Baldwin Road	2 to 5	Fenton Road to Saginaw Road	\$ 8,500,000	2026-2035
GRC	Linden Road	Add Right Turn Lane	Bristol Road to Miller Road	\$ 660,000	2026-2035
GRC	Linden Road	3 to 5	Dodge Road to Vienna Road	\$ 5,500,000	2026-2035
GRC	Irish Road	2 to 5	I-69 WB Ramps to Davison Road	\$ 3,095,000	2026-2035
GRC	Center Road	2 to 5	Grand Blanc City Limits to Maple Ave.	\$ 9,000,000	2026-2035
GRC	Belsay Road	2 to 5	Perry Road to Hill Road	\$ 2,300,000	2026-2035
Transit Agency	Transit Services	Transit Services	Various Locations	\$ 371,854,144	2026-2035
Road Agency	Bridge Work	Bridge Work	Various Locations	\$ 49,580,553	2026-2035
Road Agency	Safety Improvements	Safety Improvements	Various Locations	\$ 65,342,260	2026-2035
Road Agency	Pavement Rehabilitation	Pavement Rehabilitation	Various Locations	\$ 211,166,801	2026-2035
Road Agency	Trail Construction	Trail Construction	Various Locations	\$ 37,185,414	2026-2035
Transportation Agency	Air Quality Improvements	Air Quality Improvements	Various Locations	\$ 97,537,962	2026-2035