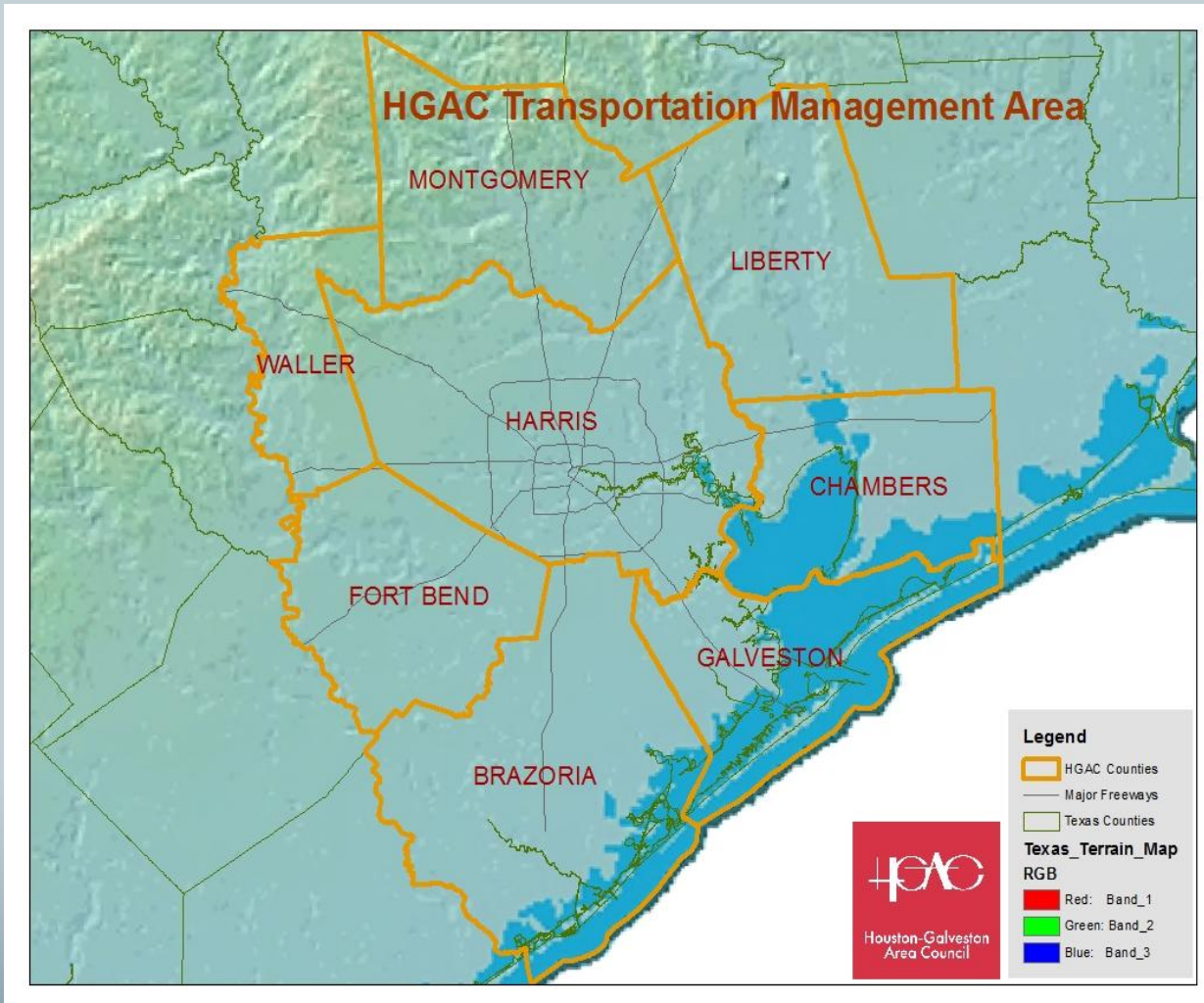


Tow and Go Program Benefits Analysis

REMI 41st User Conference
October 7-9, 2026, Asheville, North Carolina
Sharon Ju
Houston Galveston Area Council

H-GAC Service Region



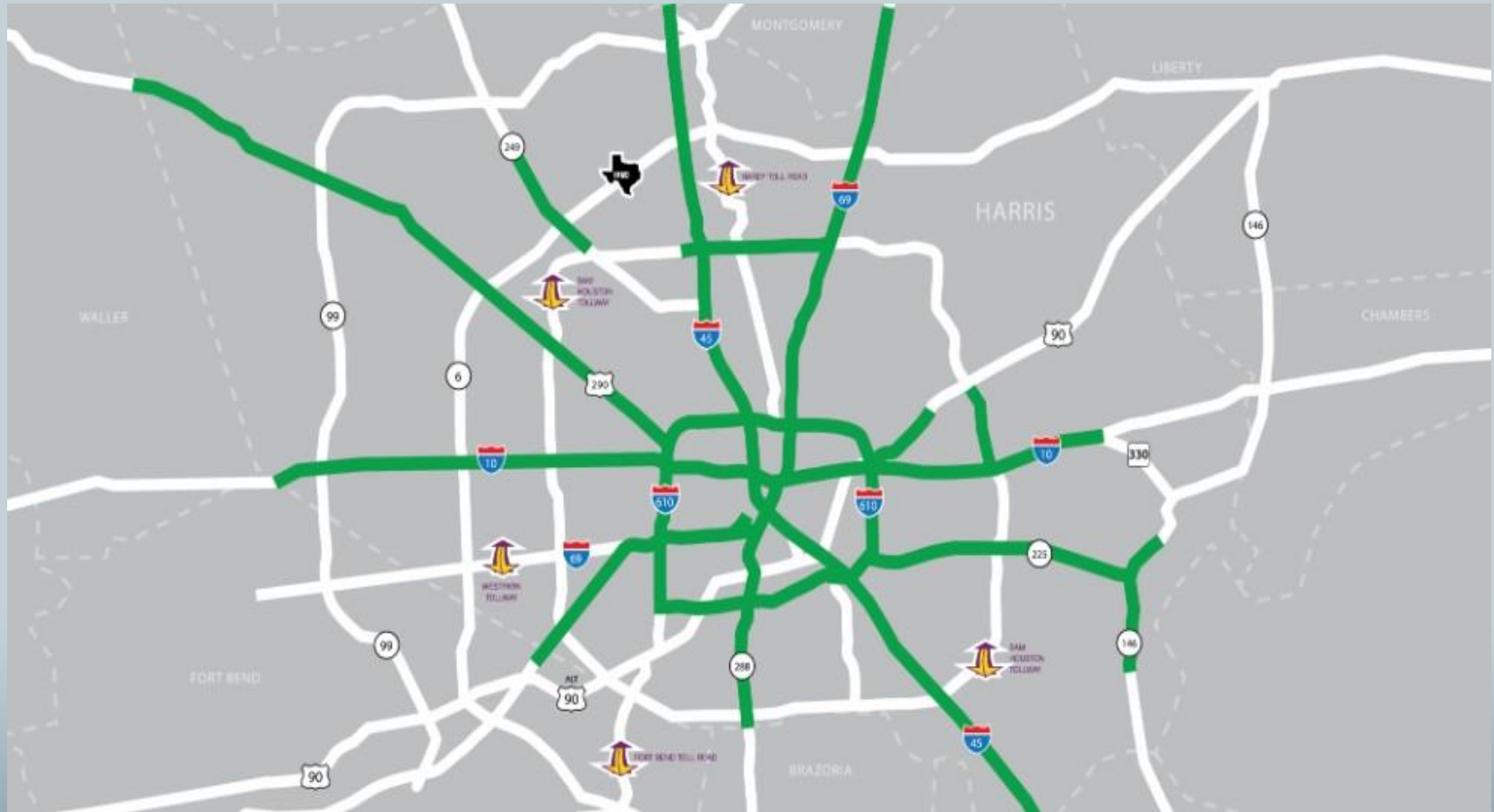
About H-GAC

- The 13-county H-GAC region is growing, becoming more diverse.
- Its service areas is 12,500 square miles and contains 7 million plus people.
- We are also the Metropolitan Planning Organization (MPO) for the region.
- H-GAC fosters local government collaboration to support orderly regional development and protect residents' safety and well-being.

About Tow and Go Program

- The Gulf Coast Regional Tow and Go Program provides free, rapid clearance of disabled vehicles on camera-monitored section of freeways to improve safety and traffic flow.
- H-GAC manages Tow and Go with funding from FHWA and TxDOT.
- Program benefits are being estimated for the first time since operations began in 2019.

Where Tow and Go is Available



Qualifying Program Benefits

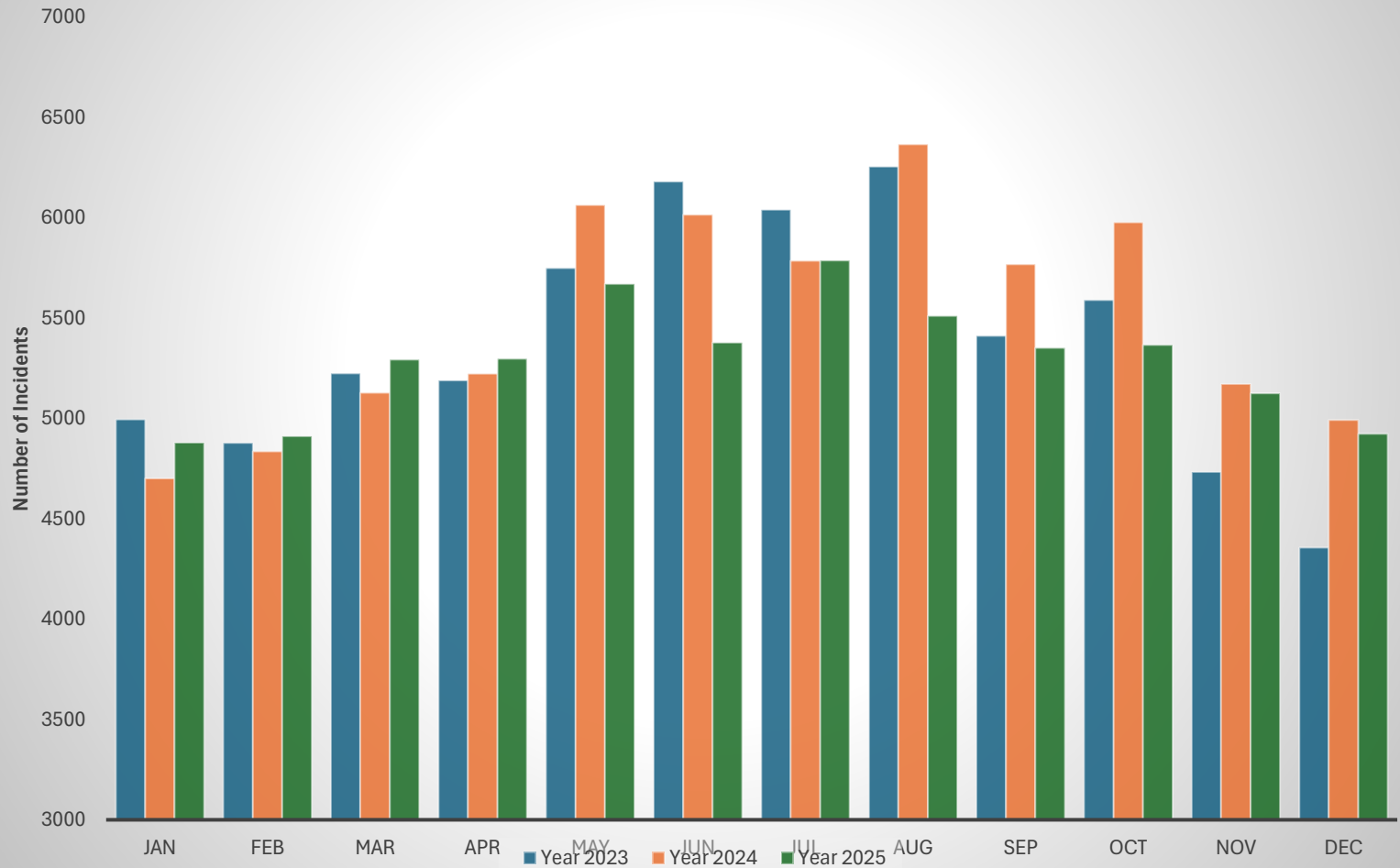
- Travel time savings due to incident clearance time reduction
- Safety benefits of fewer secondary crashes
- Fuel savings and emission reduction
- Emergency response improvement

Data Source and Reference

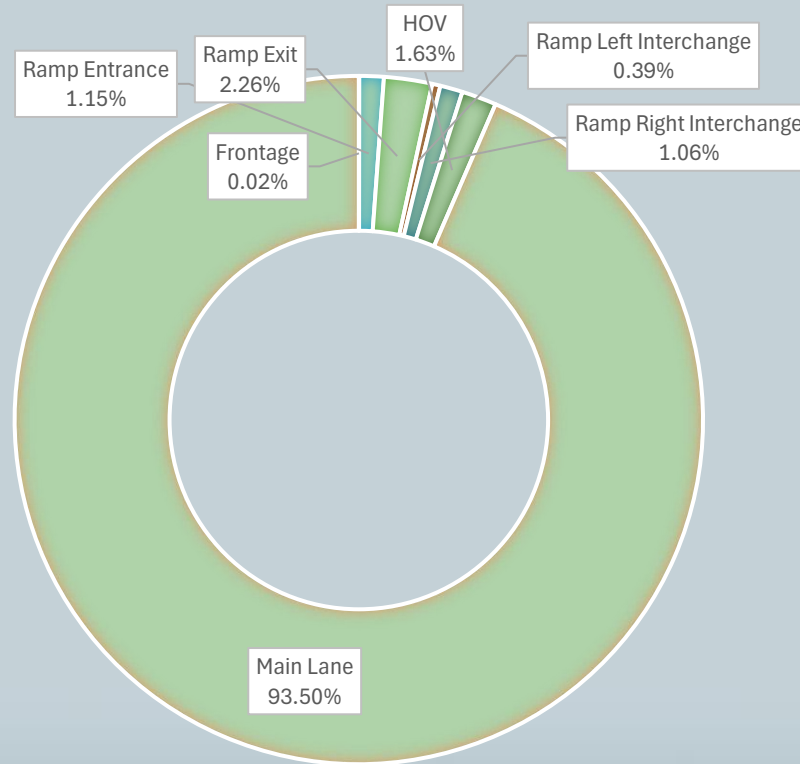
- Acquired three years of Tow and Go incident dataset (Year 2023, 2024 and 2025)
- Removed outliers which are less than 0.0005%
- Added TxDOT AADT traffic count for each incident record
- Obtained Harris County annual household transportation cost from H+T[®] Affordability Index website
- Used Harris County annual truck transportation supply estimates from REMI baseline

[illegible]

Year 2023, 2024 and 2025 Incidents by Month



Year 2025 Incident by Roadway Type



2023 Incident by Type

Incident Type	Count	Percent
Abandoned (HC)	319	0.49%
Burn	44	0.07%
Flood	1	0.00%
Mechanical	30653	47.44%
Medical Emergency	23	0.04%
Prisoner	106	0.16%
Refused Tow	139	0.22%
Safe Clear-Abandoned	2539	3.93%
Safe Clear-Accident	4801	7.43%
Safe Clear-Flat Tire	14781	22.88%
Safe Clear-Gone on Arrival	6639	10.28%
Safe Clear-On Phone	53	0.08%
Safe Clear-Stolen	28	0.04%
Safe Clear-Traffic Control	4484	6.94%
All Type of Incidents	64610	100.00%

2023 Incident Clearance Time

Clearance Time (Minutes)	Count of Incident	Percent of Incident
1 - 10	29,397	45%
11 - 20	11,727	18%
21 - 30	6,083	9%
30 - 60	8,808	14%
60 UP	8,595	13%
Total Incidents	64,610	100%

2023 Accident Clearance Time

Clearance Time	Number of Accidents	Percent
Under 10 min	2022	42.1%
11 to 20 min	835	17.4%
21 to 30 min	572	11.9%
31 to 40 min	355	7.4%
41 to 50 min	250	5.2%
51 to 60 min	165	3.4%
1 to 2 hours	412	8.6%
2 to 3 hours	109	2.3%
3 to 4 hours	51	1.1%
4 to 5 hours	19	0.4%
5 to 6 hours	11	0.2%
Total Accidents	4801	100%

2024 Incident by Type

Incident Type	Count	Percent
Abandoned (HC)	448	0.68%
Burn	32	0.05%
Flood	5	0.01%
Mechanical	30380	46.01%
Medical Emergency	14	0.02%
Prisoner	115	0.17%
Refused Tow	63	0.10%
Safe Clear-Abandoned	2215	3.35%
Safe Clear-Accident	5174	7.84%
Safe Clear-Flat Tire	17605	26.66%
Safe Clear-Gone on Arrival	7044	10.67%
Safe Clear-On Phone	83	0.13%
Safe Clear-Stolen	13	0.02%
Safe Clear-Traffic Control	2839	4.30%
All Type of Incidents	66030	100.00%

2024 Incident Clearance Time

Clearance Time (Minutes)	Count of Incident	Percent of Incident
1 - 10	30,797	47%
11 - 20	13,288	20%
21 - 30	7,083	11%
31 - 60	8,996	14%
60 UP	5,866	9%
Total Incidents	66,030	100%

2024 Accident Clearance Time

Clearance Time	Number of Accidents	Percent
Under 10 min	2448	47.3%
11 to 20 min	1002	19.4%
21 to 30 min	571	11.0%
31 to 40 min	348	6.7%
41 to 50 min	216	4.2%
51 to 60 min	172	3.3%
1 to 2 hours	338	6.5%
2 to 3 hours	51	1.0%
3 to 4 hours	19	0.4%
4 to 5 hours	3	0.1%
5 to 6 hours	2	0.0%
6 to 7 hours	1	0.0%
7 hours up	3	0.1%
Total Accidents	5174	100.0%

2025 Incident by Type

Incident Type	Count	Percent
Abandoned (HC)	398	0.6%
Burn	20	0.0%
Flood	1	0.0%
Mechanical	26284	41.4%
Medical Emergency	5	0.0%
Prisoner	106	0.2%
Refused Tow	172	0.3%
Resumed Travel	1928	3.0%
Safe Clear-Abandoned	2081	3.3%
Safe Clear-Accident	3716	5.9%
Safe Clear-Flat Tire	17585	27.7%
Safe Clear-Gone on Arrival	9153	14.4%
Safe Clear-On Phone	57	0.1%
Safe Clear-Stolen	9	0.0%
Safe Clear-Traffic Control	1986	3.1%
All Type of Incidents	63501	100.0%

2025 Incident Clearance Time

Clearance Time (Minutes)	Count of Incident	Percent of Incident
1 - 10	27034	43%
11 - 20	13186	21%
21 - 30	7012	11%
30 - 60	9077	14%
More than 60	7192	11%
Total Incidents	63501	100%

2025 Accident Clearance Time

Clearance Time	Number of Accidents	Percent
1 to 10 min	1136	30.6%
11 to 20 min	786	21.2%
21 to 30 min	582	15.7%
31 to 40 min	356	9.6%
41 to 50 min	276	7.4%
51 to 60 min	148	4.0%
1 to 2 hours	301	8.1%
2 to 3 hours	59	1.6%
3 to 4 hours	29	0.8%
4 to 5 hours	22	0.6%
5 to 6 hours	7	0.2%
6 to 7 hours	5	0.1%
7 hours up	9	0.2%
Total Accidents	3716	100.0%

Societal Benefits Calculation Method

- Only travel time saving benefits are estimated
- Assume Tow and Go program saves 5 minutes per incident
- Estimated that 65% travel time saving to passenger cars directly and 35% benefits to trucks indirectly
- Travel time savings are calculated as the sum of vehicle hours of delay saved per incident, multiplied by the value of time for car and truck separately

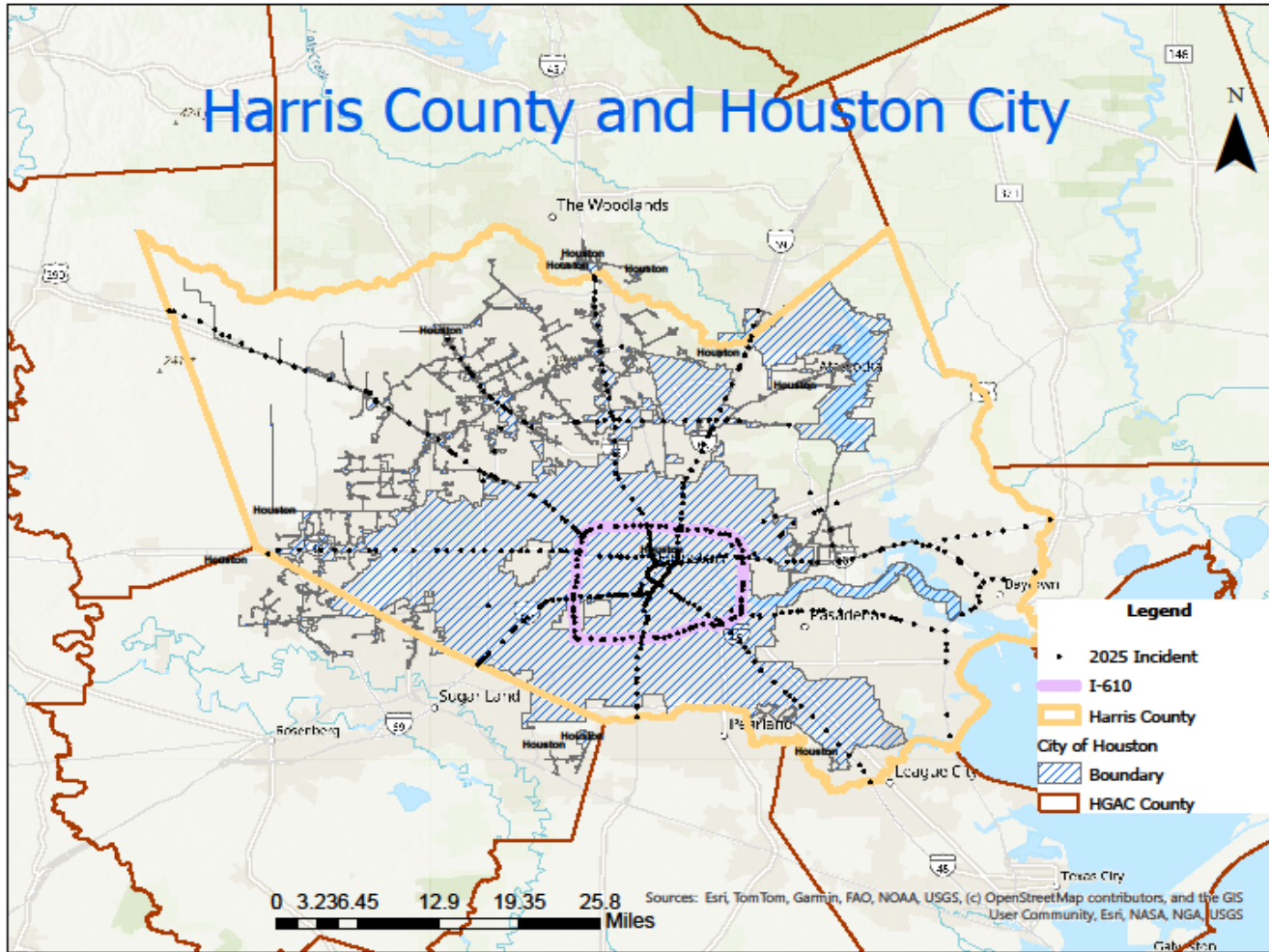
TAG Program Societal Benefits

Category	Description	Units	2023 Value (\$)	2024 Value (\$)	2025 Value (\$)
VHD Saved	Vehicle hour delay (VHD) saved due to Tow and Go program	Million of Hours	11.32	11.61	10.97
Travel Time Saving	Travel time savings passenger car directly and truck indirectly	Millions of Dollars	500.03	513.59	485.59

Societal Benefits by Location

Geography	Travel Time Savings Benefits	Units	2023 Value (\$)	2024 Value (\$)	2025 Value (\$)
Inside I-610	Travel Time Savings within I-610	Percent	45.7%	46.0%	46.0%
Harris County Outside Loop 610	Travel Time Savings in Remaining Harris County	Percent	54.3%	54.0%	54.0%
City of Houston	Travel Time Savings within City of Houston Jurisdiction	Percent	92.0%	92.1%	91.4%
Harris County Outside COH	Travel Time Savings within Harris County Boundary	Percent	8.0%	7.9%	8.6%

Harris County Jurisdiction Map



Emission Benefits Result

Pollutant	Assumed Basis*	Avg mi/gal	Estimated g pollutant per gallon gasoline	2023 Pollutants Saved (ton)	2024 Pollutants Saved (ton)	2025 Pollutants Saved (ton)
VOC	Total HC proxy = 0.29 g/mi	22.8	6.612	19.18	19.66	18.61
NOx	0.57 g/mi	22.8	12.996	37.70	38.65	36.58
CO	4.21 g/mi	22.8	95.988	278.47	285.46	270.21
SOx, as SO2	10 ppm sulfur gasoline, assuming ~6.2 lb gasoline/gal and full conversion S → SO2		0.056	0.16	0.17	0.16
PM	PM2.5 = 0.02 g/mi	22.8	0.456	1.32	1.36	1.28

* Source: Environmental Protection Agency (EPA).

Key Health Benefits from Reduction

- The program prevented an estimated **1,008.97 tons** of listed pollutants during 2023–2025.
- **2024 had the greatest estimated reduction, at 345.30 tons.**
- **CO accounts for most of the reduced mass**, but pollutant mass alone does not indicate health importance.
- The relatively smaller **PM_{2.5} reduction of 3.96 tons may provide substantial health value**, because fine particles are strongly associated with serious cardiovascular and respiratory outcomes.
- VOC and NO_x reductions provide additional benefits by reducing **ground-level ozone**, while NO_x and SO₂ reductions can also reduce **secondary PM_{2.5}**.

Economic Benefits Calculation Method

- Employed Regional Economic Modeling Inc. (REMI) TranSight model to calculate economic benefits
- The REMI policy variables, commuting costs and accessibility costs, are selected as inputs
- Changes in employment, population, Gross Domestic Product, and related metrics are included in the summary table

TAG Program Economic Benefits

Category	Units	Year 2023	Year 2024	Year 2025
Employment	Thousands (Jobs)	14.5	11.7	12.9
Population	Thousands (Persons)	4.9	4.1	4.3
Gross Domestic Product (GDP)	Billions of Fixed (2025) Dollars	1.7	1.9	2.0
Output	Billions of Fixed (2025) Dollars	3.1	3.5	3.7
Personal Income	Billions of Fixed (2025) Dollars	1.1	0.9	1.0

TAG Employment Benefits by Industry

Industry	Units	Year 2023	Year 2024	Year 2025
All Industries	Thousands (Jobs)	11.9	11.7	12.9
Natural Resources	Thousands (Jobs)	0.4	0.6	0.6
Construction	Thousands (Jobs)	1.9	1.8	1.9
Manufacturing	Thousands (Jobs)	0.7	0.7	0.7
Retail and Wholesale	Thousands (Jobs)	1.7	1.5	1.7
Transportation and Public Utilities	Thousands (Jobs)	1.4	1.5	1.7
Finance, Insurance & Real Estate	Thousands (Jobs)	1.1	1.1	1.2
Services	Thousands (Jobs)	4.2	4.2	4.7
Government	Thousands (Jobs)	0.4	0.4	0.4

Acknowledgement

- A big thank-you to Jeff Dykes of REMI and his team for their dedicated support of H-GAC, particularly in setting up the TDM data import process and developing a methodology for estimating operational transportation emissions benefits.