



# Transit Oriented Development Study for the Detroit People Mover

Summary of Results

**April 29, 2016**

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While the direct benefits of the DPM to its users are clear, it is generally accepted that the overall benefits of these trips extend beyond just transit riders. Through improved mobility, safety, air quality and economic development, the DPM also benefits users of the roadway network and the community at large.

The overall benefits of public transit can be divided into two broad categories: **social benefits** (representing a net gain in society’s welfare) and **economic impacts** (accounting for the multiplier effects of spending on the economy). The social benefits can be further broken down into:

- **Transportation cost savings**, which consist of out-of-pocket cost savings (i.e., vehicle operating cost savings), travel time cost savings, travel time reliability benefits, pavement cost savings, accident cost savings and environmental emissions cost savings – these are essentially the benefits of takings cars off the roads.
- **Low-cost mobility benefits**, which consist of affordable mobility benefits (the economic value to access services such as healthcare and education for transit dependent people) and cross-sector benefits (budget savings for welfare and medical services due to the presence of public transit) – these are essentially the benefits of providing an affordable mode of transportation to low-income people; and
- **Community (or transit oriented) development benefits**, which represent the impact on property values of proximity to rail transit stations – these benefits can be measured by means of hedonic analysis.

In addition to these social benefits, public transit can contribute to the economy through:

- Transit expenses; and
- Reduced congestion.<sup>1</sup>

In 2013, transportation cost savings generated by the DPM totaled \$4.49 million. Out-of-pocket cost savings (\$1.53 million), travel time cost savings (\$1.68 million), and safety cost savings accounted for nearly all of transportation cost savings.

**Table 1: Transportation Cost Savings**

Benefit Category	\$ Millions
Generalized Cost Savings	\$3.21
Travel Time Cost Savings	\$1.68
Out-of-Pocket Cost Savings	\$1.53
Travel Time Reliability Cost Savings	\$0.00*
Emission Cost Savings	\$0.05
Non-Carbon** Emission Cost Savings	\$0.02
Carbon Emission Cost Savings	\$0.03
Safety Cost Savings	\$1.22
Pavement Cost Savings	\$0.01
<b>TOTAL</b>	<b>\$4.49</b>

\* Greater than \$0, but less than \$10,000.

<sup>1</sup> Economic impacts associated with the reduction in congestion (as measured by vehicle miles traveled and vehicle hours traveled) due to the presence of the DPM are minimal and are not shown.

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\*\* Nitrogen oxides (NOx), sulfur dioxide (SO2), volatile organic compounds (VOC), and fine particulate matter (PM2.5).

Low-cost mobility benefits are relatively small for the DPM given the profile of riders (many of them are visitors) and the fact very few trips would be foregone in the absence of the DPM (due to the relatively short distance of trips) as indicated by the results of the passenger survey. Overall, low-cost mobility benefits associated with the DPM amounted to just \$0.17 million in 2013.

**Table 2: Low Cost Mobility Benefits**

<b>Benefit Category</b>	<b>\$ Millions</b>
Affordable Mobility Benefits	\$0.11
Cross-Sector Cost Savings	\$0.06
<b>TOTAL</b>	<b>\$0.17</b>

Through a hedonic analysis,<sup>2</sup> the DPM is found to have contributed to increases in commercial property values by 38 percent, while other price determinants (building attributes, socio-economic characteristics of residents, etc.) are held constant. This means that the DPM has caused nearby commercial properties to be 38 percent more valuable and that the average property value would be 38 percent lower in the absence of the DPM. (Note that this is not an annual percentage increase in property value.) The difference between the prices of properties within and outside the DPM half-mile impact area is called transit premium. The magnitude of DPM's premium reflects the maturity of the system and, thereby, that the system's TOD benefits are fully capitalized into property prices. There is also evidence that the DPM has contributed to increases in residential home values. For residential homes nearby DPM stations, prices on average are 34 percent higher than those outside of the impact area. Overall, the contribution of the DPM to property values is estimated at \$119.77 million (in 2000 dollars). Note that, unlike transportation cost savings and low-cost mobility benefits, these are not annually recurring benefits.

Finally, DTC's expenses generate direct, indirect, and induced effects<sup>3</sup> on the economy. These effects were estimated with REMI's TranSight model. Capital expenses generated more than \$12 million in business output (total volume of sales) in 2013, including \$6.75 million in value added (total volume of sales minus the cost of intermediate purchases; roughly equivalent to the gross domestic product). They also created 89 (full-time and part-time) jobs in the local economy.

**Table 3: Economic Impacts**

<b>Impact Metric</b>	<b>\$ Millions</b>
Business Output	\$12.17
Value Added	\$6.75
Personal Income	\$4.78
Employment	89

<sup>2</sup> Hedonic analysis is a regression technique that estimates the value of a good (e.g., residential property value) based on its characteristics:

- Structural characteristics (e.g., square footage, lot size, property age);
- Location characteristics (e.g., distance to DPM station);
- Neighborhood demographic and economic characteristics (e.g., number of children per household, unemployment rate, median household income)

The contribution of each characteristic to the value of the good is determined by its regression coefficient.

<sup>3</sup> The indirect effect (i.e., supply chain effect) and induced effect (i.e., employee spending effect) are often called "multiplier" effects because they can make the total economic impact substantially larger than the direct effect alone.

