

What is The Impact of Light Rail Transit on Neighborhood Level Economic Trends?

Case Study: A Location Quotient Analysis on Tri-Met MAX Yellow Line Portland, Oregon

Transportation is important for economic development. Recent studies on the effect of transportation on certain industries have produced mixed results. We sought to find how the development of light rail lines affects employment opportunities.

Introduction to Tri-Met MAX Yellow Line



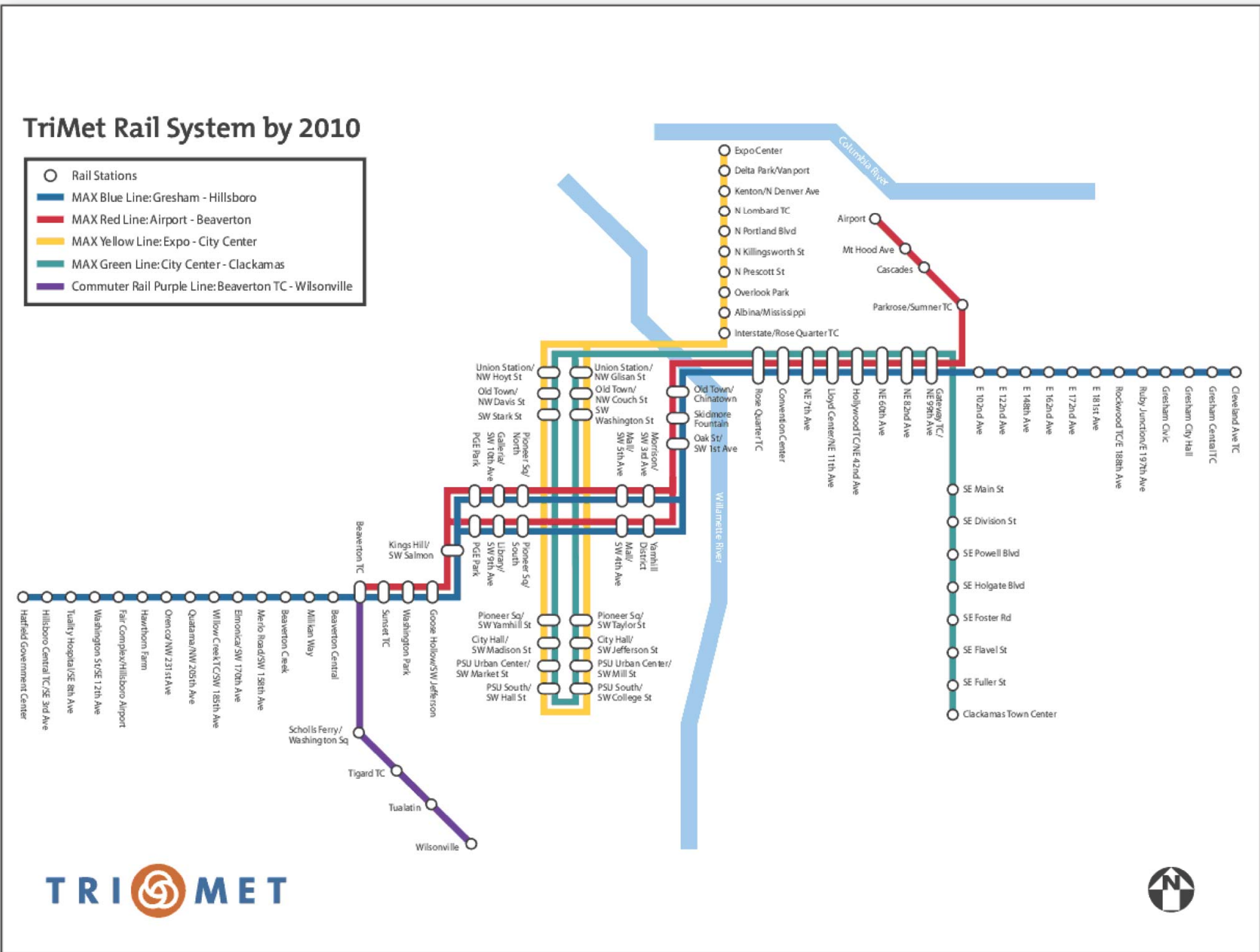
Timeline for Tri-Met MAX Yellow Line LRT:

- 1999 Preliminary design and environmental studies began
- 2000-2001 Project approval and construction
- 2002 Utility relocation completed
- Winter 2003 Track/street/sidewalk construction completed
 - Summer -2003 Art pieces installed at all 10 stations
- 2003-2004 Signals, overhead power, shelters, testing

-MAY 1, 2004 OPENED

Facilities

- Length 5.8 miles
- Stations 10
- Surface Park & Rides 2 with 300 spaces each



Tri-Met yellow line and MAX line images and maps from <http://trimet.org/pdfs/history/railfactsheet-interstate.pdf>

Methodology

Economic Data:

- Longitudinal Employer-Household Dynamics (LEHD) (OnTheMap)

GIS Data (Metro, RLIS, 2013):

- Max Light Rail
- City of Portland
- Portland Neighborhoods
- Willamette River

Research Design:

- Before and after MAX Yellow Line
- Economic Data from 2002 and 2003 (before LRT)
- Economic Data from 2006 and 2007 (After LRT)

Analysis:

Location Quotient

$$LQ = ((e_i/(\sum e_i)))/((E_i/(\sum E_i)))$$

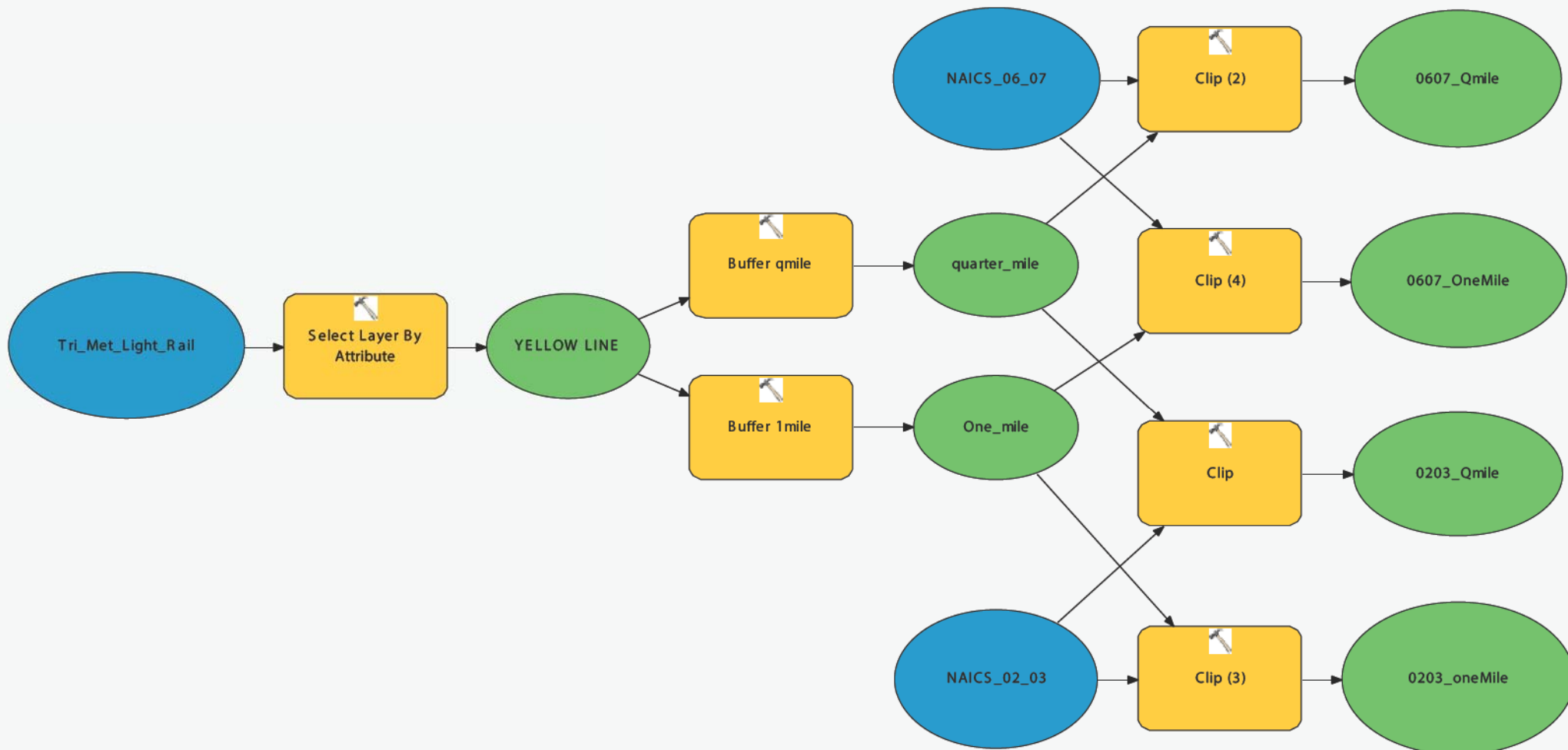
Where:

- e_i = Employment in industry i in corridor
- $\sum e$ = Total employment in corridor
- E_i = Employment in industry i in the metropolitan area
- $\sum E$ = Total employment in the metropolitan

Unit of Analysis:

- Quarter-mile and One-Mile from MAX Yellow Line

GIS Data Model Methodology:



Findings and Conclusion

- Overall, the quarter-mile corridor outperformed the one-mile corridor
- Jobs were exported from the quarter-mile from Agriculture, Utilities, Information, Professional, Man agement, Administrative, Education, Health Care, Arts, Ent. Rec., Lodging & Food, Other Services, and Public Admin.
- Jobs were exported from the one-mile from Construction, Wholesale, Retail, Transportation, Informa- tion, Finance, Real Estate, Professional, Management, Education, Arts, Ent. Rec., Lodging & Food, Other Services, and Public Admin.
- Within the quarter-mile, Mining & Oil, Utilities, Construction, Manufacturing, Wholesale, Retail, Trans- portation, Information, Finance, and Real Estate lost jobs.
- Within the one-mile corridor, jobs were lost in Agriculture, Utilities, Manufacturing, Administrative, and Health Care.
- From quarter-mile to one-mile corridors, Utilities and Manufacturing continue to shed jobs.

Quarter-Mile	2002	2003	2006	2007	2002/2003	2006/2007	2002/2003	2006/2007	2002/2003	2006/2007
Agriculture	43	52	70	66	47	74	1822	1548	1251	1178
Manufacturing	0	0	0	0	0	0	0	0	0	0
Information	1039	1009	962	917	1022	960	3900	3647	3672	3593
Professional	2009	1938	1837	1822	1022	1810	6008	5852	5879	5849
Management	915	815	818	801	743	710	2488	2482	2482	2482
Education	1679	1685	1600	1609	1744	1682	5670	5674	5684	5684
Health Care	1037	1012	1017	1009	1010	1000	3480	3480	3480	3480
Arts, Ent. Rec.	1152	1279	883	727	1156	810	2013	2479	2071	2421
Lodging & Food	1027	1014	1017	1009	1010	1000	3480	3480	3480	3480
Other Services	1037	1012	1017	1009	1010	1000	3480	3480	3480	3480
Public Admin.	1037	1012	1017	1009	1010	1000	3480	3480	3480	3480

One-Mile	2002	2003	2006	2007	2002/2003	2006/2007	2002/2003	2006/2007	2002/2003	2006/2007
Agriculture	16	47	2	13	50	8	1862	1548	1251	1178
Manufacturing	0	0	0	0	0	0	0	0	0	0
Information	4192	3916	4437	4388	4053	4493	16109	16036	16036	16036
Professional	1039	1009	962	917	1022	960	3900	3647	3672	3593
Management	915	815	818	801	743	710	2488	2482	2482	2482
Education	1679	1685	1600	1609	1744	1682	5670	5674	5684	5684
Health Care	1037	1012	1017	1009	1010	1000	3480	3480	3480	3480
Arts, Ent. Rec.	1152	1279	883	727	1156	810	2013	2479	2071	2421
Lodging & Food	1027	1014	1017	1009	1010	1000	3480	3480	3480	3480
Other Services	1037	1012	1017	1009	1010	1000	3480	3480	3480	3480
Public Admin.	1037	1012	1017	1009	1010	1000	3480	3480	3480	3480

