Informa(T)ion Station

Better data for better transit-oriented development

www.Tstation.info

User Guide and Data Dictionary

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Credit

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The Metropolitan Area Planning Council (MAPC) is the regional planning agency serving the people who live and work in the 101 cities and towns of Metro Boston. Our mission is to promote smart growth and regional collaboration. We work toward sound municipal management, sustainable land use, protection of natural resources, efficient and affordable transportation, a diverse housing stock, public safety, economic development, an informed public, and equity and opportunity among people of all backgrounds.

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As a "think and do" tank, the Dukakis Center's collaborative research and problem-solving model applies powerful data analysis, multidisciplinary research and evaluation techniques, and a policy-driven perspective to address a wide range of issues facing cities, towns, and suburbs, with a particular emphasis on the Greater Boston region. The Dukakis Center works to catalyze broad-based efforts to solve urban problems, acting as both a convener and a trusted and committed partner to local, state, and national agencies and organizations.

Development of the data and website described here was supported in part by funding from the U.S. Department of Housing and Urban Development and the Partnership for Sustainable Communities, through the Metro Boston Consortium for Sustainable Communities. The substance and findings of the work are dedicated to the public. The author and publisher are solely responsible for the accuracy of the statements and interpretations contained in this publication. For more information about the Metro Boston Consortium for Sustainable Communities, visit the MAPC website.

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Informa(T)ion Station

Better data for better transit-oriented development

Metropolitan Boston is experiencing a wave of growth near transit as municipalities, state agencies and developers work to unlock the development potential of transit station areas. Informa(T)ion Station is a data and planning tool to help users better understand the region's station areas and inform planning and investment in transit-oriented development (TOD) in those station areas. Informa(T)ion Station provides a wealth of information on over 300 existing and planned MBTA transit station areas in Metro Boston, including commuter rail, rapid transit, and ferry stops as well as select stops on key bus routes. Communities, planners, and businesses can use this data to better understand their individual station areas, compare them across the region, and find opportunities for TOD. Over 30 demographic, economic, transportation, and development characteristics are provided for each ½- mile station area. Complete data on each station area (over 150 variables) is available as a free download.

Users can:

- Search for station areas that meet specified criteria
- Access key data points for each station area and view an interactive map of the area
- Generate a Station Area Profile (PDF) with a concise snapshot of each station area
- Download comprehensive dataset and detailed data dictionary
- Browse selected resources about transit oriented development

Information Station also houses information on two key tools developed to help the region's stakeholders understand their station areas: a typology of station areas, created by the Metropolitan Area Planning Council (MAPC), and the eTOD rating system, created by the Dukakis Center for Urban and Regional Policy at Northeastern University and the Center for Transit Oriented Development.

About the Equitable Transit Oriented Development (eTOD) Rating System

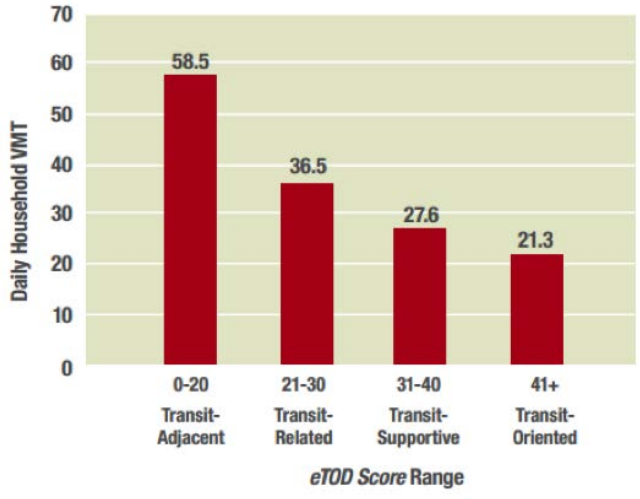
The Dukakis Center for Urban and Regional Policy at Northeastern University and the Center for Transit Oriented Development (CTOD) have collaborated to produce a "rating system" designed to identify station areas with the physical attributes, social characteristics, and transit service correlated with lower vehicle miles travelled, higher transit ridership, improved transit equity, and greater accessibility.

Final *eTOD Score* Attributes

Category	Metric	Measure
Transit	Transit Accessibility	Transit Access Shed Index (TAS)
	Transit Connectivity	Transit Connectivity Index (TCI)
	Transit Use	Percentage workers who use transit, bike, or walk to work
Orientation	Transit Dependency	Percentage of 0-car households
	Lower Income	Percentage of households with income <$25,000
	Rental Housing	Percentage renters
	Affordability	Percent of income spent on transportation
Development	Walkability	WalkScore®
	Residential Density	Households per acre
	Employment Gravity	Employment gravity measure

eTOD Score is a composite score based on 10 attributes grouped into three categories (Transit, Orientation, and Development, the three components of TOD). Station areas are ranked against each other to earn a score for each attribute. The composite eTOD Score then provides a single-number rating of the station area based on the 10 attributes.

***eTOD Score* Ranges for Station Areas**



The composite score, ranging from 10 to 50, is divided into four types of station areas: transit-adjacent (score between 10 and 20), transit-related (21-30), transit-supportive (31-40), and transit-oriented (41-50). The composite score reflects driving behavior: higher eTOD Score values are correlated with lower household Vehicle Miles Traveled (VMT).

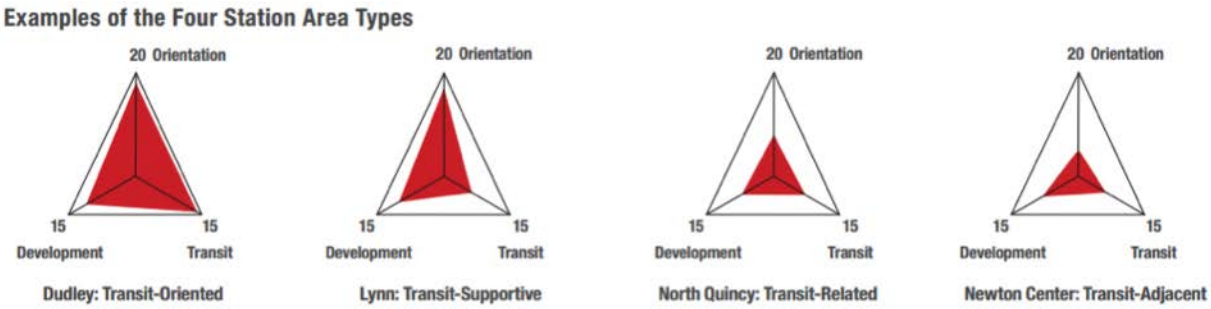
The ten attributes are also used to create three sub-scores that provide a more nuanced view of the station area in terms of the three components of TOD: Transit, Orientation, and Development:

- The Transit category score (out of possible 15 points) reflects the availability, quality and use of public transit (as well as other non-automobile means of transportation)

- The Orientation category score (out of possible 20 points) reflects the alignment of the station area toward "transit-oriented neighbors" who make up the core of transit ridership

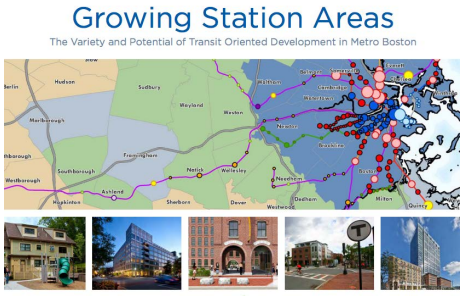
- The Development category score (out of possible 15 points) reflects the characteristics of development in the neighborhoods surrounding the transit station

The composite and disaggregated eTOD Scores give an indication of the relative transit supportiveness of a station area, along with possibilities for enhancement. Places that are high on development and transit, but low on orientation (toward "transit-oriented neighbors" who make up the core of transit ridership) for instance, should be prime places for new affordable or workforce housing projects given their high levels of accessibility. Other areas may exhibit high proportions of transit-oriented populations, yet lack adequate transit or neighborhood-serving retail and services. These communities would be best suited for enhanced service and potential mixed-use or commercial development.



For a more detailed explanation of the rating system, including the construction of metrics, assignment of scores, and analysis of example stations, please visit the eTOD Score website or download the eTOD Score Executive Summary.

About MAPC's Station Area Typology



The Boston area is among the most transit-oriented regions in the country, with 25% of housing units and 37% of employment within a half-mile of a rapid transit or commuter rail station. In other words, a large proportion of our residents and jobs are already located in station areas. With major bus stations included in consideration, the figures are even higher.

Currently, as in many parts of the country, Metro Boston is experiencing a new wave of growth near transit as municipalities and State agencies take steps to unlock the development potential of transit station areas. As the supply and demand sides of the TOD market grow, there is a clear need to establish standards and guidelines for successful station areas. The intensity, mix, and phasing of development that may make sense in one kind of station area to maximize its TOD potential may not work in another station area with other characteristics. With over 250 rapid transit and commuter rail stations in the MBTA system, there is no one-size-fits-all approach.

To add clarity, MAPC created a way to classify station areas in groups based on how they are similar—a typology of station areas. The MAPC typology offers developers, local planners, funders, and community stakeholders a way to understand the region's station areas and their potential. The typology identifies ten different station area types based on a detailed analysis of existing conditions and the nature and magnitude of potential development over the next few decades.

- Housing, economic development, and infrastructure programs can use the typology to establish funding criteria that reflect both local conditions as well as regional TOD goals.
- Analysis of TOD financing needs and the design of potential new TOD finance products can acknowledge the distinct station area types and the different finance/ market conditions that exist in each one.
- Technical assistance from MAPC and other partners can be targeted to station areas with strong potential for TOD but few developments in the pipeline.
- Municipalities and stakeholders can use the analysis to evaluate specific development proposals against the range of densities and project attributes appropriate for the station area type.
- The MBTA can use the analysis of TOD potential to plan for capacity expansion or to evaluate the potential development impacts of service changes.

Download the full report here.

Data Development and User Guide

Over a period of more than three years, MAPC and the Dukakis Center have collaborated on extensive analysis of Metro Boston's transit station areas, including locations around rapid transit, key bus routes, commuter rail stations, ferry terminals, and proposed station areas. The resulting dataset—which includes more than 150 variables about over 300 station areas—is made available to researchers, policy makers, and advocates through a website called Information Station (www.tstation.info.) This document describes each of the fields in the database and provides information about how the data was developed and its relevance to planning and policy.

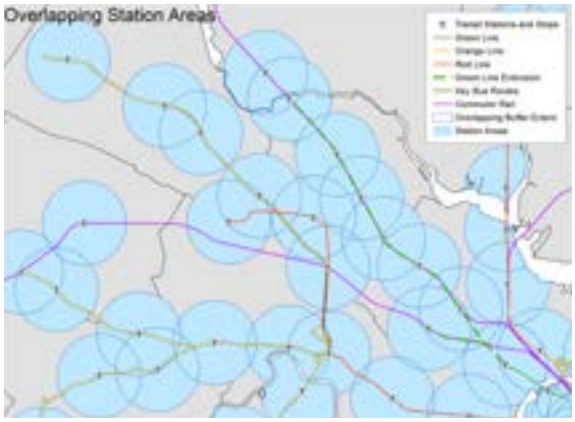
Defining Transit Station Areas

Consistent with commonly accepted TOD research and analysis across the country, Information Station uses a one-half mile buffer from the station as the basis for defining transit station areas. A half mile corresponds to the distance that can be travelled in 10 minutes by a person walking at 3 miles per hour. This distance has become the de facto standard for reporting station area conditions (such as on the Center for Transit Oriented Development's National TOD Database) and academic research supports the use of a half-mile buffer for predicting ridership[1].

Working from a database of station locations (points) published by MassGIS (the Massachusetts Office of Geographic Information Systems), MAPC verified and adjusted the point locations of each station, bus stop or ferry terminal; buffered the station point feature by a half mile; and removed water and some inaccessible areas (across a river or harbor) from the resulting polygon. The result is a set of (mostly) circular areas, one for each station, which may overlap where stations are less than a mile apart. As a result, these buffers are called Overlapping Station Areas, and statistical areas (such as Census Blocks or parcels) located in the overlapping area will be counted in the statistics for both stations. To allow for aggregation of data for proximate stations without double-counting, MAPC also defined Exclusive Station Areas which divide overlapping areas and assign each piece of land to only the closest station. (These Exclusive Station Areas were created using the Thiessen Polygon tool in ArcGIS 10.1.) It is important to note that this was a two-step process: first each location was assigned to the closest rapid transit, bus rapid transit, or commuter rail station within one-half mile; area outside of those polygons was then assigned to the closest key bus stop within one half mile (without alteration of the previously developed buffers.) As a result, a location within a half mile of both a subway station and key bus stop would be assigned to the subway station, even if it is closer to

[1] Guerra, E., Cervero, R., & Tischler, D. (2012). *Half-Mile Circle Does It Best Represent Transit Station Catchments?* Transportation Research Record, Vol. 2276, pp. 101-109. Published by Transportation Research Board, Washington.

the bus stop. As a result, some key bus stops are inside the exclusive buffer areas of rail or BRT stations. A graphic showing the nature of overlapping and exclusive buffers is presented below.



The statistics displayed on the Information Station map interface are all based on the overlapping buffers, but the data download includes exclusive buffer statistics where it may be useful to add values for multiple stations without double-counting (for example, number of housing units in the development pipeline.) Exclusive buffer data is generally not calculated for variables that represent a rate or percentage, especially variables derived from American Community Survey tract-level data.

Data Dictionary

All data elements included in the data download are explained in detail below. Variables are listed in alphabetical order according to their ten-character Field Code. However, when values are provided for both the overlapping and exclusive buffers, the variables are grouped in the same entry, and **the alphabetical order excludes the "OV_" and "EX_" prefixes before the descriptive field name.** For example, OV_AREA and EX_AREA would be defined in the same entry, which would precede COMM_TYP.

Field Name:	**Area Within Buffer**
Field Code:	OV_AREA, EX_AREA
Description:	Accessible land area within a half-mile buffer of the station, both overlapping buffers (OV) and non-overlapping exclusive buffers (EX).
What it means:	A half-mile radius is a commonly-used station area boundary for TOD analysis. MAPC buffered the station point feature by a half mile and removed water and some inaccessible areas (across a river or harbor) from the resulting polygon.
Why it's important:	When seeking to aggregate statistics for the entire system or a group of stations, it is critical to use the exclusive buffer area statistics whenever available.
Technical Notes:	Source: MAPC

Field Name:	**Assessed Value**
Field Code:	OV_AVAL, EX_AVAL
Description:	Total assessed value of land and improvements for all parcels in station area.
What it means:	Municipal assessors are required to estimate the value of land, buildings, and improvements on each parcel using standardized assessment techniques. This field sums the assessed value for all parcels within the

specified station area (OV or EX), using an area-weighted fraction of the values for parcels only partially contained within the specified buffer.

Why it's important: Many stakeholders interested in TOD are motivated in part by evidence that this type of development can increase property values, which generates much-needed revenues to support basic community functions while offering the community new amenities that improve their quality of life. Existing property values also influence the kinds of investments that are made, as investors consider what projects might be profitable with acceptable risk. Total assessed value varies widely. The lowest value ($67,000/acre) station area is in Raynham, on the proposed South Coast Rail. The highest value, unsurprisingly, is the area around South Station in Boston ($41million/acre). All station areas with above-average assessed value (more than $4.7 million/acre) are located in Inner Core communities of Boston, Brookline, Somerville, and Cambridge.

Technical Notes: Source: MassGIS Level 3 Parcels; MAPC Massachusetts Land Parcel Database. Fiscal year of valuation ranges from 2009 to 2014. Not adjusted for inflation.

Field Name: **Commercial Land Area**

Field Code: OV_COMAC, EX_COMAC

Description: Commercial land use acreage in the half-mile station area.

What it means: Estimated land area of commercial uses within the specified buffer, based on automated interpretation of 2005 aerial photography. Commercial land use is defined as "malls, shopping centers and larger strip commercial areas, plus neighborhood stores and medical offices (not hospitals.)"

Why it's important: Extensive commercial land uses may indicate large numbers of shoppers and employees who use transit or who could do so. Commercial land may also provide redevelopment opportunities.

Technical Notes: Source: MassGIS Land Use (2005).

Field Name:	**Community Type**
Field Code:	COMM_TYP, COMTYP_DES
Description:	Numerical code and name of municipality's community type.
What it means:	MAPC undertook an analysis of cities and towns across the state to identify a set of basic community types based on their land use and housing patterns, demographics, recent growth trends and projected development patterns. Five primary types were then refined further, yielding a total of ten sub-types. The numerical codes for the five primary types are (1) Inner Core, (2) Regional Urban Centers, (3) Maturing Suburbs, (4) Developing Suburbs, and (5) Rural Towns. Note that none of the region's transit stations and stops are located in Rural Towns.
Why it's important:	Community Types can be used to understand the diversity of communities in the state, better evaluate how demographic, economic, land use, energy, and transportation trends affect those communities, and create policy and planning strategies to help those communities develop in ways their residents desire.
Technical Notes:	For details on the methods used to generate the community types and sub-types, visit www.mapc.org/data-services.

Field Name:	**Commercial, Industrial, Institutional Land Area**
Field Code:	OV_COMPC
Description:	Commercial, industrial, and institutional land use share of station area.
What it means:	Total acreage of commercial, industrial, and institutional land use, as a share of overlapping station area acreage, based on automated interpretation of 2005 aerial photography. Commercial land use is defined as "malls, shopping centers and larger strip commercial areas, plus neighborhood stores and medical offices (not hospitals.)" Institutional land area includes the following: "Lands comprising schools, churches, colleges, hospitals, museums, prisons, town halls or court houses, police and fire stations, including parking lots, dormitories, and university housing. Also

	may include public open green spaces like town commons." Industrial land includes buildings, equipment, and parking areas.
Why it's important:	Station areas where this value are high are more likely candidates for transformative redevelopment, especially if the acreage in question is considered underutilized.
Technical Notes:	Source: MassGIS Land Use (2005).

Field Name:	**Parking on Commercial Land**
Field Code:	OV_COMPRK, EX_COMPRK
Description:	Estimated acres of surface parking or other paved areas in commercial land uses.
What it means:	Data on the extent of impervious surfaces and building rooftops were combined to identify paved land area not covered by a building or in a road right-of-way. This field sums the acreage of such areas overlapping commercial land in the specified buffer.
Why it's important:	Density, a mix of uses, and pedestrian-friendly urban design are critical elements of successful TOD. Extensive parking areas in a station area are at odds with these goals, and parking areas should be evaluated as potential redevelopment opportunities, possibly with some form of replacement off-site or in structured parking.
Technical Notes:	Source: MassGIS Land Use (2005), Impervious Surfaces (2005), Building Structures (2011 – 2013); MAPC analysis.

Field Name:	**Community Type**
Field Code:	COMTYP_DES
Description:	See entry for COMM_TYP

Field Name:	**Other Developed Land Area**
Field Code:	OV_DVOTHAC, EX_DVOTHAC
Description:	Acres of Other Developed land use in the half-mile station area.
What it means:	Total acres of developed land uses within the specified buffer (OV or EX), exclusive of commercial and residential uses, based on automated interpretation of 2005 aerial photography.
Why it's important:	A diversity of land uses is a key component of successful TOD.
Technical Notes:	Source: MassGIS Land Use (2005).

Field Name:	**Other Developed Land Share**
Field Code:	OV_DVOTHPC
Description:	Other Developed acreage as a share of station area acreage.
What it means:	Total acres of developed land uses, exclusive of commercial uses, based on automated interpretation of 2005 aerial photography, as a share of total acreage of the specified buffer (OV or EX).
Why it's important:	A diversity of land uses is a key component of successful TOD.
Technical Notes:	Source: MassGIS Land Use (2005).

Field Name:	**Parking on Other Developed Land**
Field Code:	OV_DVOTPRK, EX_DVOTPRK
Description:	Estimated acres of surface parking or other paved areas in other developed land uses.
What it means:	Data on the extent of impervious surfaces and building rooftops were combined to identify paved land area not covered by a building or in a road right-of-way. This field sums the acreage of such areas overlapping

	"other developed land" in the specified buffer.
Why it's important:	Density, a mix of uses, and pedestrian-friendly urban design are critical elements of successful TOD. Extensive parking areas in a station area are at odds with these goals, and parking areas should be evaluated as potential redevelopment opportunities, possibly with some form of replacement off-site or in structured parking.
Technical Notes:	Source: MassGIS Land Use (2005).

Field Name:	**Educational Attainment**
Field Code:	OV_ED_ATT
Description:	Share of adult population with a four-year college degree or higher.
What it means:	MAPC calculated the population-weighted four-year college attainment rate for the adult population (25 and over) in all tracts that intersect the overlapping station area.
Why it's important:	Educational attainment is correlated with a host of other variables, including income, health, economic mobility, and more. The educational attainment of current households can be an important consideration in creating strategies that maximize the TOD opportunity in a station area fairly. For example, strategies for low-attainment areas might include ensuring high-quality transit access to adult education and training institutions. Educational attainment rates can also be a useful indicator of gentrification and neighborhood change.
Technical Notes:	Source: American Community Survey (2008-2012).

Field Name:	**Employment**
Field Code:	OV_EMP10, EX_EMP10
Description:	Total employment in the station area, 2011.

What it means:	Since the state of Massachusetts does not publish any employment statistics below the municipal level, MAPC and its partners purchased a business establishment database from InfoGroup in 2011. Each listing includes a geocoded location of the business and estimated employment based on public records or InfoGroup research and assumptions. MAPC aggregated the estimated employment for establishments located within the overlapping or exclusive buffer area.
Why it's important:	The workers who come to and move around in a station area every weekday are current or potential transit riders, customers, and residents. The magnitude of employment in a station area also conveys a sense of how built-up or developed an area is, and its staying power as a commercial node. Planning and public involvement are necessary to ensure that new commercial activities in a largely residential or rural station area are compatible with, and offer valued amenities to, the surrounding community. While the precise number of employees within a station will vary over time, these estimates still provide a useful relative measure of employment across the region's many station areas, where values range from less than 20 to well over 150,000 workers
Technical Notes:	Source: InfoGroup Business Listings (2011); MAPC analysis.

Field Name:	**Commercial Pipeline**
Field Code:	OV_EMPCONS, OV_EMPPLAN, OV_EMPPIPE; EX_EMPCONS, EX_EMPPLAN, EX_EMPPIPE
Description:	Anticipated employment in nonresidential projects under construction (EMPCONS), planned (EMPPLAN), or both under construction & planned (EMPPIPE).
What it means:	MAPC's Development Database is an inventory of residential and nonresidential development projects recently completed, under construction, planned, or projected throughout the region. Housed at dd.mapc.org and principally developed through surveys of municipal staff and MAPC research, the Development Database contains information about more than 3,000 development projects with a collective capacity of more than 125,000 housing units and more than 250,000 jobs.

Why it's important:	Many employers increasingly view transit as an important amenity which can provide better accessibility for both workers and customers. The resulting nonresidential construction boom near transit is illustrated by the development database, which indicates that developments under construction or planned could accommodate 56,000 workers.
Technical Notes:	Source: MAPC Development Database (2014).

Field Name:	**Net Employment Density**
Field Code:	OV_EMPDEN
Description:	Estimated employment per acre of developed land use.
What it means:	Net Employment Density is the number of employees per acre of developed land, which excludes open space, agriculture, and water. (Residential land use is included in developed land area.) It is calculated as (OV_EMP10)/ ((OV_COMAC) + (OV_DVOTHAC)). Station areas with a small number of employees can have a relatively higher employment density if those jobs are concentrated in a small area. Net employment density varies widely among the region's communities: Developing Suburbs (e.g. Ipswich, Grafton) have an average value of just over 10; Maturing Suburbs (Acton, Wilmington) and Regional Urban Centers (Framingham, Quincy) have very similar net employment densities of 16 and 17, respectively; Inner Core communities (Revere, Boston, Malden) show much higher densities (53 on average).
Why it's important:	The greater the employment density in a station area, the more likely it can attract transit riders from around the region; workers who come to and move around in a station area are also potential customers and residents.
Technical Notes:	Source: InfoGroup Business Listings (2011); MassGIS Land Use (2005); MAPC analysis.

Field Name:	**Commercial Pipeline**
Field Code:	OV_EMPPLAN, OV_EMPPIPE; EX_EMPPLAN, EX_EMPPIPE
Description:	See entry for OV_EMPCONS

Field Name:	**Establishments**
Field Code:	OV_EST10, EX_EST10
Description:	Number of businesses, public agencies, non-profit organizations, and other employers located in the station area.
What it means:	Since the state of Massachusetts does not publish any employment statistics below the municipal level, MAPC and its partners purchased a business establishment database from InfoGroup in 2011. Each listing includes a geocoded location of the business and estimated employment based on public records or InfoGroup research and assumptions. MAPC aggregated the number of establishments located within the overlapping or exclusive buffer area.
Why it's important:	The number of establishments in a station area gives an indication of the area's functional diversity and its role in the transit network as a destination for transit riders. While the precise number of establishments within a station will vary over time, these estimates still provide a useful relative measure of employment across the region's many station areas, where values range from six to 9,000 establishments. There are an average of 653 establishments in overlapping transit station areas. Only 69 of the region's station areas exceed the average, and all but five—Framingham, Lynn, Salem, Quincy, and Worcester—are located in the Inner Core.
Technical Notes:	Source: InfoGroup Business Listings (2011); MAPC Analysis.

Field Name:	**Zero-Car Households Score**
Field Code:	eTOD_q0CAR
Description:	Percent of households with zero vehicles available, quintile ranking.
What it means:	What it means: This is one of ten variables that comprise the eTOD Score rating system. For each variable, all station areas in the dataset are ranked by value and then divided into quintiles (fifths).The Zero-Car Households Score is based on the percent of households in each station area that own no vehicles (1=lowest quintile, 5= highest quintile.
Why it's important:	Zero-car households are more likely than others to locate near transit since they do not have a private automobile available. Higher-ranking station areas are likely to have higher transit ridership and lower vehicle miles travelled per household. Attracting new zero vehicle households to the station area; encouraging existing residents to sell an auto; and limiting the free, abundant parking likely to attract vehicle-owning households are all strategies for maintaining and improving the zero-car households score.
Technical Notes:	Source: American Community Survey (2005– 2009).

Field Name:	**Low-Income Households Score**
Field Code:	eTOD_q25K
Description:	Percent of households earning less than $25,000 per year, quintile ranking.
What it means:	This is one of ten variables that comprise the eTOD Score rating system. For each variable, all station areas in the dataset are ranked by value and then divided into quintiles (fifths). The Low-Income Households Score is based on the percent of households in each station area that earn less than $25,000 per year (1=lowest percentage, 5= highest percentage.)
Why it's important:	High-quality transit is particularly important to low-income households: it provides much-needed mobility to households with limited resources to purchase, maintain, and operate a car. By living near transit, they can get more places, spend less money on transportation, and generate fewer

	greenhouse gas emissions than if they were living elsewhere. An increased number of low-income households—through the creation or preservation of affordable housing—is likely to result in higher transit ridership and lower transportation costs for new households. Conversely, if the share of low-income households falls, it may be an indicator that higher income households, who are less likely to use transit, are becoming a larger share of the population.
Technical Notes:	Source: American Community Survey (2007 – 2011).

Field Name:	**Non-Car Commuting Score**
Field Code:	eTOD_qABC
Description:	Percent of commuters using a mode other than driving alone, by quintile.
What it means:	This is one of ten variables that comprise the eTOD Score rating system. For each variable, all station areas in the dataset are ranked by value and then divided into quintiles (fifths).The Non-Car Commuting Score is based on the percentage of commuters using using the "anything but car" (ABC) transportation modes (transit, walking, biking, etc.).
Why it's important:	Non-car commuting reflects the quality and frequency of transit service at the station, but also reflects other, complementary ways of getting around that do not depend on private automobile ownership. Since commuting is a major source of household VMT, shifting commuting miles from driving to transit, walking and biking drastically reduces overall driving among the residents of a station area. The creation of new or more appealing transit and other non-car modes in the station area would likely result in a higher score over time.
Technical Notes:	Source: American Community Survey (2007 – 2011).

Field Name:	**Transportation Affordability Score**
Field Code:	eTOD_qAFF
Description:	Estimated household transportation costs as a percent of regional median income, by quintile.
What it means:	This is one of ten variables that comprise the eTOD Score rating system. For each variable, all station areas in the dataset are ranked by value and then divided into quintiles (fifths). The Transportation Affordability Score is based on estimated household transportation costs in the station area as a percentage of regional median income, as modeled by the Center for Neighborhood Technology. Higher scores indicate lower transportation costs. This measure is derived from the H+T® Index developed by the Center for Neighborhood Technology (CNT).
Why it's important:	Transportation affordability in a station area is an indicator that the development pattern in the station area is aligned toward enabling adjacent resident and worker populations to use viable alternatives to costly driving for all types of trips. A low score on this measure could be improved by increasing transit quality and creating a more transit- and pedestrian-supportive (and less car-oriented) development pattern.
Technical Notes:	Source: Center for Neighborhood Technology; for more information on the transportation affordability measure, see CNT's Methodology Document.

Field Name:	**Residential Density Score**
Field Code:	eTOD_qDENS
Description:	Residential density in the station area, by quintile.
What it means:	This is one of ten variables that comprise the eTOD Score rating system. For each variable, all station areas in the dataset are ranked by value and then divided into quintiles (fifths). The Residential Density Score is based on the density of housing units in the station area, with higher values indicating higher density.

Why it's important:	High residential densities in station areas indicate that more households are located within walking distance of the transit stop, and are correlated with lower household VMT. The creation of additional housing units within the station area would increase the pool of potential transit users and would improve a station area's score on this measure.
Technical Notes:	Source: American Community Survey (2007 – 2011).

Field Name:	**Employment Gravity Score**
Field Code:	eTOD_qGRAV
Description:	An index value representing employment proximity to the station area.
What it means:	This is one of ten variables that comprise the eTOD Score rating system. For each variable, all station areas in the dataset are ranked by value and then divided into quintiles (fifths). The Employment Gravity Score is based on the Center for Neighborhood Technology Employment Access Index, with higher values indicating more employment nearby. The Employment Access Index is based on a gravity model which considers both the quantity of and the straight-line distance to jobs within a specified search radius of a given Census block group.
Why it's important:	Proximity to a larger number of employment opportunities gives workers more options to find a job close by and/or accessible via transit. Higher job proximity is correlated with shorter commute distances, lower VMT, and reduced household transportation costs. The creation of new job opportunities in or near the station area will result in higher scores on this measure.
Technical Notes:	Source: Center for Neighborhood Technology; for more information on the transportation affordability measure, see CNT's Methodology Document.

Field Name:	**Tenure Score**
Field Code:	eTOD_qRENT
Description:	Renters as a share of all households in the station area, by quintile.
What it means:	This is one of ten variables that comprise the eTOD Score rating system. For each variable, all station areas in the dataset are ranked by value and then divided into quintiles (fifths). The Tenure Score is based on the percent of renter households in the station area, with higher values indicating a greater share of renters.
Why it's important:	Renters are more likely to use public transportation than homeowners and less likely to own cars, so a higher share of renters indicates a larger pool of likely transit riders. The creation of additional rental housing in a station area may result in higher scores on this measure.
Technical Notes:	Source: American Community Survey (2007 – 2011).

Field Name:	**Transit Access Score**
Field Code:	eTOD_qTAS
Description:	An index value representing the land area accessible via transit, by quintile
What it means:	This is one of ten variables that comprise the eTOD Score rating system. For each variable, all station areas in the dataset are ranked by value and then divided into quintiles (fifths). The Transit Access Score is based on the Center for Neighborhood Technology's Transit Access Shed (TAS) measure, with higher values indicating a larger area accessible via more frequent service. The TAS is a function of the acreage accessible via transit within 30 minutes, including transfers, by passengers who board at a given station, scaled by the frequency of transit service at that station.
Why it's important:	The transit access shed is an indicator of the usefulness of existing transit; more frequent service to a larger area allows residents to use transit for more trips, thereby reducing the reliance on driving. Offering more transit service (expanding or adding routes, offering more frequent service) would

	increase the area reachable via transit within 30 minutes and/or improve the scaling factor, thereby improving a station area's score on this measure.
Technical Notes:	Source: Center for Neighborhood Technology, General Feed Transit Specification database. For more information on the Transit Access Shed, see CNT's Methodology Document.

Field Name:	**Transit Connectivity Score**
Field Code:	eTOD_qTCI
Description:	An index value based on the frequency and utilization of transit at a given stop, by quintile.
What it means:	This is one of ten variables that comprise the eTOD Score rating system. For each variable, all station areas in the dataset are ranked by value and then divided into quintiles (fifths). The Transit Connectivity Score is based on the Center for Neighborhood Technology's Transit Connectivity Index (TCI), with higher values indicating greater frequency and utilization of transit. The TCI is a function of the number of transit trips scheduled per week at a given station, weighted by transit commute share and vehicles per household.
Why it's important:	Higher frequency of transit makes it more feasible for residents and workers to use transit for a variety of trips, and makes them less reliant on auto travel. Increasing the frequency of transit service at a station, either on existing routes or new ones, would improve a station area's score on this measure.
Technical Notes:	Source: Center for Neighborhood Technology, General Feed Transit Specification database, American Community Survey 2005 - 2009. For more information on the Transit Connectivity Index, see CNT's Methodology Document.

Field Name:	**Walkability Score**
Field Code:	eTOD_qWALK
Description:	Walk Score® at the transit station, by quintile.
What it means:	This is one of ten variables that comprise the eTOD Score rating system. For each variable, all station areas in the dataset are ranked by value and then divided into quintiles (fifths). The Walkability Score in based on the 100-point measure of walkability known as Walk Score®, with higher values indicating higher walkability. Walk Score measures the walkability of any address using a patented system. For each address, Walk Score® analyzes hundreds of walking routes to nearby amenities. Points are awarded based on the distance to amenities in each category. Amenities within a 5 minute walk (.25 miles) are given maximum points. A decay function is used to give points to more distant amenities, with no points given after a 30 minute walk. Walk Score® also measures pedestrian friendliness by analyzing population density and road metrics such as block length and intersection density.
Why it's important:	Walkable station areas encourage use of transit and other non-car modes for daily needs due to easy access to many destinations (including transit) within the station area itself. Providing more destinations as well as improving walking conditions (e.g. sidewalks and urban form) in the station area would improve a station area's score on this measure.
Technical Notes:	Source: Walk Score®. For more information, see Walk Score®'s Methodology Page.

Field Name:	**Subscore Transit**
Field Code:	eTOD_SUB1T
Description:	Aggregate eTOD measure of transit quality based on transit access shed, transit connectivity, and non-car commuting.
What it means:	The Transit Sub-Score is created by summing the scores for its three transit attributes: Transit Access Score, (eTOD_qTAS), Transit Connectivity Score

(eTOD_qTCI), and Non-Car Commuting Score (eTOD_qABC). The Transit Sub-Score ranges from 3 to 15, with higher scores indicating that the transit service in the station area is frequent, connected, and more fully utilized, relative to its peers.

Why it's important: The three individual measures that comprise the transit subscore are all correlated with higher transit usage and lower household VMT. Transit stations that score well on these measures should be priority sites for new transit-oriented development.

Technical Notes: The Sub-Score is simply a sum of the values for the three constituent indicators (eTOD_qTAS, eTODqTCI, eTOD_qABC.) See those sections for details on data sources and calculation methods.

Field Name: **Subscore Orientation**

Field Code: eTOD_SUB2O

Description: Aggregate eTOD measure of demographic orientation toward transit based on zero car households, low-income households, renter households, and household transportation costs.

What it means: The Orientation Sub-Score is created by summing the scores for the four transit orientation attributes: Zero-Car Households Score (eTOD_q0Car), Low-Income Households Score (eTOD_q25k), Tenure Score (eTOD_qRENT), Affordability Score (eTOD_qAFF). The Sub-Score ranges from 4 to 20, with higher scores indicating more zero-vehicle, low-income, and/or renter households, as well as lower household transportation costs.

Why it's important: The Orientation Sub-Score is an indicator of how many transit-oriented neighbors are currently living within the station area. Renters, low-income households, zero-vehicle households, and current transit commuters are all "core transit users" who make up a disproportionately large share of MBTA ridership. High-scoring stations will likely see higher transit usage and lower household VMT. Low-scoring stations will benefit from the provision of more affordable rental housing and low residential parking ratios to attract these core transit riders.

Technical Notes:	The Sub-Score is simply a sum of the values for the four constituent indicators (eTOD_q0Car, eTOD_q25k, eTOD_qRENT, eTOD_qAFF.) See the section of the user guide for those attributes to learn more about data sources and methods.

Field Name:	**Subscore Development**
Field Code:	eTOD_SUB3D
Description:	Aggregate eTOD measure of development characteristics conducive to transit ridership: walkability, residential density, and employment access.
What it means:	The Development Sub-Score is created by summing the scores for its three development attributes: Walkability Score (eTOD_qWALK), Residential Density Score (eTOD_qDENS), and Employment Gravity Score (eTOD_qGRAV). The score ranges from 3 to 15, with higher scores indicating greater walkability, residential density, and access to employment opportunities.
Why it's important:	The Development Sub-Score is an indicator of the number of destinations at or around the transit station area, and is a predictor of high transit ridership and lower household VMT. Dense, walkable, and centrally located transit stations provide more opportunities for residents and workers to shop, work, and socialize nearby, thereby reducing travel distances and increasing the feasibility of transit, walking, and biking. Transit stations with low scores will benefit from the addition of more housing units, more shops and services, more employment opportunities, and an improved pedestrian network within the station area.
Technical Notes:	The Sub-Score is simply a sum of the values for the three constituent indicators (eTOD_qWALK, eTOD_qDENS, eTODqGRAV.) See the section of the user guide for those attributes to learn more about data sources and methods.

Field Name:	**Total eTOD Score; eTOD Type**
Field Code:	eTOD_TOTAL; eTOD_TYPE
Description:	Equitable Transit Oriented Development (eTOD) score and category, an expression of the suitability of the station area for high performing, equitable transit-oriented development.
What it means:	The composite eTOD Score is created by summing the station area's three sub-scores of transit quality (30%), transit orientation (40%), and development characteristics (30%). The composite score ranges from 10 (lowest possible value on all ten attributes) to 50 (highest possible value on all ten attributes). A score of 41-50 qualifies a station as "Transit-Oriented"; a score of 31-40 is considered "Transit-Supportive"; a score of 21-30 defines "Transit-Related"; and a score of 20 or below designates stations that are simply "Transit-Adjacent." A station area does not need to be in the top quintile on all measures in order to qualify in the top score range.
Why it's important:	A station area's eTOD Score and eTOD Type reflect how well a station area performs in reducing driving, a key measure of the performance of successful transit-oriented development. The total ("composite") eTOD score rates a station area's performance on all three components of equitable TOD: the quality and utilization of transit and other non-automobile modes; the transit orientation of the surrounding community; and the density and walkability of development in the station area. Transit-Oriented station areas are considered excellent candidates for equitable TOD. Transit-Supportive station areas may need particular deficiencies to be addressed, as revealed by their sub-scores, in order to become more transit-oriented. Transit-Related station areas will likely need multiple deficiencies addressed. Transit-Adjacent station areas differ very little (or not at all) in driving behavior from surrounding areas with no transit.
Technical Notes:	The Composite eTOD Score is simply a sum of the three subscores (eTOD_SUB1T, eTOD_SUB20, eTOD_SUB3D.)

Field Name:	**Floor-Area Ratio (FAR)**
Field Code:	OV_FAR
Description:	Total gross floor area divided by total parcel size, based on assessors records for all properties in the station area.
What it means:	FAR is an important measure of density—a product of how much of the lot area is covered by buildings and the height of those buildings. A one-story building covering an entire lot has an FAR of 1.0 On a 5,000 square foot lot, an FAR of 2.0 could be achieved with a 5,000 square foot two story building, or a 2,500 square foot building four stories tall, and so forth. The values provided in this dataset reflect current average FAR for all assessed parcels (excluding road and rail rights-of-way), not regulated minima or maxima. The average FAR for all station areas in the region is 0.5. The vast majority of station areas with an average FAR of 1.0 or higher are located in the city of Boston, along with a few in Cambridge, Somerville, and Brookline, and one in Lawrence.
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Why it’s important:	Successful TOD depends on creating spaces that comfortably accommodate a relatively high concentration of people. The FAR is a ratio commonly used in planning and zoning to measure the density of development in a way that controls for both height and lot coverage. Some municipal zoning regulations specify maximum FAR, though most cities and towns use more complicated dimensional requirements. Here the value reflects the average for all buildings currently in the station area.
Technical Notes:	Source: MAPC Massachusetts Land Parcel Database (2014); values for partially-covered parcels were prorated by the amount covered.

Field Name:	**GHGs from Transportation**
Field Code:	OV_GHG
Description:	Estimated total greenhouse gases (kilograms CO2 equivalent) emitted per day by automobiles registered in the station area.
What it means:	The Massachusetts Vehicle Census is an anonymized database of registered

vehicles in Massachusetts, with an estimate of each vehicle's average daily vehicle miles travelled (VMT) based on odometer readings from annual vehicle inspection records. Neighborhood-level summary statistics include the total number of registered passenger vehicles, miles driven, and estimated GHG emissions. In general, more densely developed areas have higher total GHG emissions, but lower emissions per GHG source (for example, per capita or per worker).

Why it's important: The transportation sector is the source of about one-third of all U.S. greenhouse gas emissions. TOD is one of several key strategies being pursued in many regions of the country to reduce transportation emissions, particularly from household vehicle use, though some business fleet usage might also be diverted to other modes. The eTOD Rating System is intended to identify station characteristics associated with low VMT per household and, by extension, fewer GHG emissions per household.

Technical Notes: Source: MAPC Massachusetts Vehicle Census (2014).

Field Name: **Households**

Field Code: OV_HH10, EX_HH10

Description: Number of households in 2010.

What it means: Household counts are derived from decennial census block-level data. The number of households in the region's station areas ranges from zero (in several station areas classified as Seaport/Airport) to nearly 18,000 around the Prudential Center in Boston. The overwhelming majority of Metro Core station areas (95%) and Neighborhood Subway station areas (86%) exceed the region's average of 3,729 households per station area. Four types of station areas have less than 1,000 households, on average: Seaport/Airport (982), Commerce Park (559), Undeveloped (405), and Suburban Transformation (205).

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Why it's important: The number of households complements data on population because a household is a key consumer unit important to many kinds of retail and service firms that might wish to locate in a TOD. The number and characteristics of households in a station area are also a key consideration in transportation planning, as they give a more refined sense of user groups.

See also Net Residential Density (OV_HUPAC) and Housing Units (OV_HU10).

Technical Notes: Source: U.S. Census SF1 (2010).

Field Name: **Median Income**

Field Code: OV_HHINC

Description: Weighted average of the median annual household income in all Census tracts that intersect the station area.

What it means: Median household income in the region's station areas ranges from just over $22,000 to over $175,000. The average station area has a weighted average median income of about $70,000 per household, meaning that half of households are above that level and half are below. Median income varies widely across community types, station types, and parts of the region. Station areas served only by commuter rail are, on average, higher-income neighborhoods ($82,000 median income, on average) than those served by one or more other types of transit ($63,000).

Why it's important: Income levels are correlated with a wide variety of important indicators, including vehicle ownership, zero vehicle households, transit ridership, and low GHG emissions. Low income households tend to rely on transit more, but have less spending power to attract business development in the station area. Higher-income households have more disposable income, and have higher vehicle ownership rates, a key factor in transit usage and VMT.

Technical Notes: Source: American Community Survey (2008 – 2012).

Field Name: **Zero-Car Households**

Field Code: OV_HHNOCAR

Description: Percentage of households in station area reporting zero vehicles available.

What it means: The proportion of zero-car households in the region's station areas ranges from zero to 65%, with an average of 23%. The average value for some station area types is above that of all station areas as a whole. These include Metro Core (52%), Seaport/Airport (35%), Transformational Subway (33%), and Neighborhood Subway (32%).Other station area types have a lower proportion of zero-car households compared to the regional average. These include Urban Gateway (22%), Trolley Suburb (13%), Town & Village (9%), Commerce Park (6%), Suburban Transformation (4%), and Undeveloped (4%).

Why it's important: Zero-car households are key users of transit and other modes of transportation such as walking, biking, carpooling, and car sharing. The proportion of zero-car households in a station area indicates strong transit usage, and can indicate a transit- and pedestrian-friendly development pattern, especially in middle- and higher-income areas.

Technical Notes: Source: American Community Survey (2008 – 2012).

Field Name: **High Density Residential Land Area**

Field Code: OV_HRESAC, EX_HRESAC

Description: Acres of high density (>4 units per acre) residential land use in the station area.

What it means: This land use category comprises mostly single family homes on parcels smaller than approximately 11,000 square feet. Land use mapping data was conducted by MassGIS based on aerial photography combined with other parcel and building data.

Why it's important: High density single family neighborhoods are common in many station areas outside the Metro Core, but by themselves are not dense or diverse enough to support a high-performing transit station area.

Technical Notes: Source: MassGIS Land Use (2005).

Field Name:	**High Density Residential Land Share**
Field Code:	OV_HRESPC
Description:	Share of station area with high-density (>4 units per acre and multifamily) residential land use.
What it means:	This land use category comprises mostly single family homes on parcels smaller than approximately 11,000 square feet. Land use mapping data was conducted by MassGIS based on aerial photography combined with other parcel and building data.
Why it's important:	High density single family neighborhoods are common in many station areas outside the Metro Core, but by themselves are not dense or diverse enough to support a high-performing transit station area.
Technical Notes:	Source: MassGIS Land Use (2005).

Field Name:	**Surface Parking on High Density Residential Land**
Field Code:	OV_HRSPKAC, EX_HRSPKAC
Description:	Acres of surface parking on High Density Residential land use
What it means:	Surface parking areas are estimated based on impervious surface coverage, excluding building footprints and road or rail rights of way. The estimate may include some plazas or other paved non-parking areas, but excludes garage or underground parking. The underlying land use category comprises mostly single family homes on parcels smaller than approximately 11,000 square feet. Land use mapping data was conducted by MassGIS based on aerial photography combined with other parcel and building data.
Why it's important:	Extensive surface parking on residential land may facilitate higher rates of vehicle ownership and higher vehicle usage.
Technical Notes:	Source: MassGIS Land Use (2005).

Field Name:	**Housing Growth**
Field Code:	OV_HU_0010, EX_HU_0010
Description:	Change in number of housing units in station area between 2000 and 2010.
What it means:	Estimated net change in housing units between 2000 and 2010, based on decennial census block-level data.
Why it's important:	Many transit station areas have added hundreds of new housing units in the past decade. New housing units provide increased opportunity for households to live near transit. MAPC has estimated that Metro Boston will need 435,000 housing units between 2010 and 2040 to house existing and new households.
Technical Notes:	Source: U.S. Census SF1 (2000 and 2010); MAPC allocated block level housing unit counts to standardized 250-meter grid cells, and compared the total number of housing units for grid cells intersecting the station area.

Field Name:	**Housing Units, 2010**
Field Code:	OV_HU10, EX_HU10
Description:	Number of housing units in the station area in 2010.
What it means:	Estimated number of individual housing units (apartments, condominiums, townhouses, or single family homes.)
Why it's important:	The number of housing units in the region's station areas ranges from zero (in several station areas classified as Seaport/Airport) to nearly 18,000 around the Prudential Center in Boston. All but one of the Metro Core station areas and the overwhelming majority of Neighborhood Subway station areas (87%) exceed the region's average of 3,882 households per station area. Three types of station areas have less than 1,000 housing units, on average: Commerce Park (602), Undeveloped (421), and Suburban Transformation (217). However, note that there can be considerable range within these low averages; for example, station areas in the Commerce Park group range from less than 100 to over 2,000.

Technical Notes:	Source: 2010 Decennial Census SF1; MAPC allocated block level household counts to standardized 250-meter grid cells.

Field Name:	**Residential Pipeline**
Field Code:	OV_HUCONS, OV_HUPLAN, OV_HUPIPE; EX_HUCONS, EX_HUPLAN, EX_HUPIPE
Description:	Estimated housing units in projects under construction or planned.
What it means:	The estimated number of housing units under construction or in the active planning stages, based on MAPC's Development Database and surveys of municipal officials.
Why it's important:	Developing new housing near transit is a fundamental part of MAPC's regional plan MetroFuture and state strategies to reduce GHG. MAPC is actively working in a variety of municipalities to plan and zone for more housing growth, recognizing that the appropriate scale of TOD varies across the many types of station areas. An increase in the number of planned units and the share of stations with development activity underway are both key metrics to assess progress. There are an average of 350 units in the development pipeline per station area. However the lower median value of 111 indicates that more station areas are at the lower end of the range than the higher end. Estimated new housing units from the region's project pipeline is zero in 68% of the region's station areas, However, some may have projects planned or underway that were not included in the data most recently collected by MAPC.
Technical Notes:	Source: MAPC Development Database (2013) HUCONS = Units under Construction, HUPLAN=Units in planning or permitting stage, HUPIPE = HUCONS + HUPLAN.

Field Name:	**Net Residential Density**
Field Code:	OV_HUPAC
Description:	Housing units per acre of residential land use.

What it means: The total number of housing units was divided by the acreage of all residential land uses mapped by MassGIS based on aerial photography in combination with parcel and building data. It excludes commercial land uses which may contain some residential units in mixed use buildings.

Why it's important: Successful TODs tend to have relatively dense housing, along with a mix of other types of development. See also Households (OV_HH10) and Housing Units (OV_HU10). Net residential density in the region's station areas ranges from zero around several station areas in the Seaport district and around the airport, to 200 households per residential acre around the Science Park, South Station, and Downtown Crossing stations in Boston. Two station area types exceed the regional average of 25 households per residential acre: Metro Core (95) and Transformational Subway (30). Neighborhood Subway and Urban Gateway station areas come close, averaging 24 and 19 households per residential zoned acre, respectively. The remaining station area types all have relatively low net residential density, below 10 households per residential zoned acre.

Technical Notes: Source: MassGIS Land Use (2005); U.S. Census SF1 (2010)

Field Name: **Normalized Development Intensity**

Field Code: OV_INTNPAC

Description: Sum of population and employment per acre of developed land in the station area.

What it means: Normalized Intensity measures the density of activity in a station area, counting both residents and workers and normalizing the values according to useable land area, excluding water, wetlands, transportation facilities, cemeteries, etc.

Why it's important: Similar to Development Intensity (see OV_INTNTOT), this measure of the degree of development uses the combined population and employment within the station area. However, some station areas include large amounts of undevelopable acreage such as water bodies and parks. To produce a value that is more comparable across station areas, this measure divides by the amount of land in developed land uses. The highest normalized

development intensities are found in the Inner Core, where 88 station areas have intensities above the regional average of 44 persons per developed acre. Station areas classified as Metro Core have an average intensity of 161 persons per developed acre. The station area types with the lowest intensities are Suburban Transformation and Undeveloped, with 6 and 7 persons per developed acre, respectively. Some of these are underutilized commercial/industrial areas such as Assembly Square that are currently seeing significant new development. Other station area types range from 15 (Town & Village) to 43 (Neighborhood Subway) persons per developed acre. See also Development Intensity (OV_INTNTOT).

Technical Notes: Source: MassGIS Land Use (2005); U.S. Census SF1 (2010); InfoGroup Business Listings (2011)

Field Name: **Development Intensity**

Field Code: OV_INTNTOT

Description: Sum of population and employment in the station area.

What it means: Intensity is an important measure of the total amount of residential and workplace activity at a station area.

Why it's important: The greater the number of residents and workers in the station area, the more people may have the opportunity to use the service regularly. Development Intensity in the Boston region ranges from less than 300 to nearly 172,000 persons who live or work in a given station area. The average value (19,000) is far larger than the median value (11,000), consistent with a region where a relatively small number of station areas are far more intensely developed than the rest. Based on the raw number of people and workers, the least developed station areas are those classified as Suburban Transformation (1,200 persons) and Undeveloped (1,500). Three other station area types have low-level development intensity, all between 5,000 and 6,000 persons: Commerce Park, Town & Village, and Trolley Suburb. Station area types that tend to have mid-level intensity, between 10,000 and 20,000 persons, include Seaport/Airport, Urban Gateway, Transformational Subway, and Neighborhood Subway. Station areas classified as Metro Core have an intensity of over 70,000

	persons, on average. See also Normalized Development Intensity (OV_INTNPAC).
Technical Notes:	Source: MassGIS Land Use (2005); U.S. Census SF1 (2010); InfoGroup Business Listings (2011).

Field Name:	**Transit-Accessible Jobs**
Field Code:	OV_JOBACC
Description:	Number of jobs accessible via transit within 45 minutes, weighted by distance.
What it means:	Estimates of transit-accessible jobs are based on InfoGroup employment data for each US Census block group and published transit schedules.
Why it's important:	Transit is most beneficial to residents when it provides rapid access to a wide variety and large number of opportunities, especially job opportunities. This data element also illuminates the degree to which transit-dependent populations in a station area have access to employment, an important consideration in ensuring equitable transportation investments. Job access varies widely throughout the Boston region, as well as within station area types. Within the Inner Core, station areas in the Metro Core group have the highest average job access value by far (1,481,000) due to the high density of jobs and an intense network of transit infrastructure. Neighborhood Subway and Transformation Subway station areas have moderate job access (464,000 and 441,000, respectively.) The station area types with the lowest job access are Undeveloped and Suburban Transformation, with just over 5,000 and less than 1,000 accessible jobs, respectively.
Technical Notes:	Source: EPA Smart Location Database (2013).

Field Name:	**Latitude, Longitude**
Field Code:	LATITUDE, LONGITUDE
Description:	Latitude or longitude of transit station point feature.
What it means:	Each station is assigned a point location based on the center of the station or main entrance. This information can be used for mapping.
Why it's important:	N/A
Technical Notes:	Source: MBTA; MAPC edits and additions.

Field Name:	**Line Description**
Field Code:	LINE_DESCR
Description:	Text field indicating transit services available at this stop or station, comma separated.
What it means:	Indicates which routes or lines serve this stop or station.
Why it's important:	Certain routes or lines provide more connectivity and frequency than others.
Technical Notes:	Source: MBTA

Field Name:	**Low Density Residential Land Area**
Field Code:	OV_LRESAC, EX_LRESAC
Description:	Acres of low density (<4 units per acre) residential land uses.
What it means:	This land use category comprises single family homes on parcels larger than approximately 11,000 square feet. Land use mapping data was conducted by MassGIS based on aerial photography combined with other parcel and building data.

Why it's important:	Low density single family neighborhoods are common in some station areas outside the Metro Core, but by themselves are not dense or diverse enough to support a high-performing transit station area.
Technical Notes:	Source: MassGIS Land Use (2005)

Field Name:	**Low Density Residential Land Share**
Field Code:	OV_LRESPC
Description:	Share of station area with low-density (<4 units per acre) residential land use.
What it means:	This land use category comprises single family homes on parcels larger than approximately 11,000 square feet/ ¼ acres. Land use mapping data was conducted by MassGIS based on aerial photography combined with other parcel and building data.
Why it's important:	Low density single family neighborhoods are common in some station areas outside the Metro Core, but by themselves are not dense or diverse enough to support a high-performing transit station area.
Technical Notes:	Source: MassGIS Land Use (2005)

Field Name:	**Bus Route 15, 22, 23, 28, 32, 39, 57, 66, 71, 73, 77, 111, 116, 117**
Field Code:	LN_15, LN_22, LN_23, LN_28, LN_32, LN_39, LN_57, LN_66, LN_71, LN_73, LN_77, LN_111, LN_116, LN_117
Description:	Binary variable indicating whether the station is served by the specified "key bus route." (1=yes, 0=no).
What it means:	This variable indicates whether the station area is served by the specified "Key Bus Route" as designated by the MBTA based on the frequency of service and ridership. About one-third of the stations in the database are served by these routes.

Why it's important:	Transit Oriented Development doesn't just happen around subway stations or commuter rail. MBTA's bus service is a critical component of the system, and many of the Key Bus Routes offer service that is frequent and well-connected enough to support substantial TOD. Furthermore, rail stations that are also served by key bus routes (or stops served by multiple routes) provide even more connectivity to residents and workers in the station area.
Technical Notes:	Source: MBTA
Field Name:	**Fairmount Line, Franklin Line, Fitchburg/South Acton Line, Framingham/ Worcester Line, Greenbush Line, Haverhill Line, Kingston/Plymouth Line,Lowell Line, Needham Line, Newburyport/Rockport Line, Providence/Stoughton Line**
Field Code:	LN_COM_FMT, LN_COM_FRNK, LN_COM_FSA, LN_COM_FWO, LN_ COM_GB, LN_COM_HAV, LN_COM_KP, LN_COM_LOW, LN_COM_ML, LN_COM_NDH, LN_COM_NR, LN_COM_PS
Description:	Binary variable indicating whether the station is served by the specified commuter rail line (1=yes, 0=no).
What it means:	This variable indicates whether the station area is served by one of the MBTA's existing or proposed commuter rail routes.
Why it's important:	Many station areas along commuter rail lines have untapped or underutilized opportunities for TOD. For example, in areas with a high degree of car dependence, there is pressure to use space near commuter rail lines for surface parking. If more communities were to concentrate more development near their commuter rail station, they could create a broader range of housing types to meet diverse needs, such as downsizing seniors and younger workers without children, who could in turn support a mix of uses nearby that commuters could also enjoy.
Technical Notes:	Source: MBTA

Field Name:	**Ferry F1, Ferry F2, Ferry F4**
Field Code:	LN_F1, LN_F2, LN_F4
Description:	Binary variable indicating whether the station is served by the specified ferry route (1=yes, 0=no).
What it means:	This variable indicates whether the station area is served by one of the MBTA's existing (or recently cancelled) ferry routes.
Why it's important:	While passenger ferry service constitutes a small share of all transit ridership, its unique connections give it great potential in Greater Boston's harbors. Ferry oriented development is already underway in the region, and like other TOD is most successful when multiple transit services are available (e.g., bus, subway.) Ferry passengers also contribute an estimated 60% of the cost of their rides, which far exceeds the fare recovery ratio for other transit modes in the Boston region, and even exceeds the fare recovery ratio for ferries in peer regions.
Technical Notes:	Source: MBTA. In early 2014 the MBTA announced that it was permanently cancelling service to the Fore River terminal in Quincy and was planning to dispose of the property. All Quincy-bound F2 services are now routed to Hingham Shipyard instead. Since the terminal could be rehabilitated and reused by a future owner, we have retained the entry in the database.

Field Name:	**Blue Line, Green Line, Green Line B, Green Line C, Green Line D, Green Line E, Orange Line, Red Line, Silver Line**
Field Code:	LN_RT_BLUE, LN_RT_GREEN, LN_RT_GRNB, LN_RT_GRNC, LN_RT_GRND, LN_RT_GRNE, LN_RT_ORNG, LN_RT_RED, LN_RT_SLVR
Description:	Binary variable indicating whether a given station is served by the specified rapid transit line (1=yes, 0=no).
What it means:	Rapid Transit service includes heavy rail (Blue, Red, and Orange lines), light rail and trolleys (Green lines with four branches), and Bus Rapid Transit (Silver Line with four routes).Together these lines and routes serve nearly 750,000 trips on a typical weekday in 2011, which far exceeded the

470,000 trips taken on commuter rail and standard buses combined.

Why it's important: Although station areas along a specific rapid transit line may vary widely in their form, function, and character, they all provide a one-seat ride to the same set of stations, and are all similarly affected by the frequency and reliability of the particular transit line. The forthcoming extension of the Green Line through Somerville to Medford, planned to open in 2017, promises to introduce enormous opportunities for TOD, as well as challenges due to strong growth pressures in the areas it will link. Stations currently proposed or under construction are included in the database, and the included statistics provide a baseline against which the impact of new transit can be measured.

Technical Notes: Source: MBTA

Field Name: **MAPC Region**

Field Code: MAPC

Description: Identifies whether a station area is within MAPC's regional boundary.

What it means: The Metropolitan Area Planning Council is the regional planning agency for 101 cities and towns in Metro Boston.

Why it's important: MAPC actively supports planning, analysis, and policy development to foster successful TOD. MAPC estimates that transit station areas in the region could accommodate 76,000 new housing units and more than 130,000 jobs near transit in the coming 25 years. These goals are now being used to inform the design of TOD finance tools and to guide MAPC technical assistance to cities and towns. Non-MAPC municipalities should seek assistance from their own regional planning agency or relevant state agencies.

Technical Notes: Source: MAPC

Field Name:	**Development Mix**
Field Code:	OV_MIX
Description:	Employment share of total Development Intensity (population + employment).
What it means:	The Development Mix indicates the balance of residential and commercial uses in a station area. Low values indicate primarily residential areas, and high values (>0.5) indicate station areas where there are more employees than residents.
Why it's important:	The nature of current development in a station area can give a sense of the kinds of new development that might be accepted by existing users and successfully marketed to new users.
Technical Notes:	Source: U.S. Census SF1 (2010); InfoGroup Business Listings (2011). OV_MIX= OV_EMP10 / OV_INTNTOT.

Field Name:	**Municipality**
Field Code:	MUNI, MUNI_ID
Description:	Name and ID number of municipality in which the station is located.
What it means:	Name and ID number of municipality in which the station is located.
Why it's important:	The station areas for which Information Station provides data are located in 91 different municipalities in the Boston region. Each municipality has different growth projections, demographics, character, transportation assets, and travel patterns, all of which can impact station area development. Some municipalities are more active than others in planning, analysis, and policy development to create successful TODs. For example, many municipalities have adapted their zoning code to create clear guidelines for more concentrated, mixed-use development within station areas. These "zoning overlays," as they are sometimes called, are an important tool to allow TODs to evolve while preserving the character of surrounding areas—something that is often important to existing stakeholders.Source:

	U.S. Census SF1 (2010); InfoGroup Business Listings (2011). OV_MIX= OV_EMP10 / OV_INTNTOT.
Technical Notes:	ID number assigned by the MA Department of Revenue

Field Name:	**Non-Auto Commuting Share**
Field Code:	OV_PCT_ABC
Description:	The percentage of commuters using transit, walking or biking ("anything but car," abbreviated as ABC).
What it means:	The proportion of commuters who use a mode of transport other than a car is 34% for the region's station areas as a whole, and as high as 76% for six station areas in downtown Boston. "ABC" commuting tends to be higher in areas with robust and frequent transit linkages to major job centers, but relatively high levels of ABC commuting are found in station areas with various income levels and presence of zero-car households. The highest values are found in Metro Core station areas, all of which exceed 60%, and in relatively dense station areas such as Neighborhood Subways, 95% of which exceed the regional average. Undeveloped station areas have the lowest rate of ABC commuting at 9% on average.
Why it's important:	Non-car commuting is an indicator of the quality and frequency of transit service in the station area, as well as the number and walk/bikeability of employment options within or near a station area. Since commuting is a major source of household VMT, shifting commuting miles from driving to transit, walking and biking drastically reduces overall driving among the residents of a station area. See also Non-Car Commuting Score (eTOD_ qABC).
Technical Notes:	Source: American Community Survey (2005 – 2009)

Field Name:	**Transit Commute Share**
Field Code:	OV_PCTTRAN
Description:	Percent of commuters using transit.
What it means:	The percent of workers, not including those working at home, who indicated on the American Community Survey that they "usually" take transit to work.
Why it's important:	The share of commuters who use transit is one of the strongest indicators of the quality and frequency of transit service in a station area, but is also influenced by income, the cost of gasoline, the availability and cost of parking, and other factors. Since commuting is a major source of household VMT, shifting commuting miles from driving to transit reduces overall driving among the residents of a station area. The average rate of transit commuting from transit station areas is 21%, and can be as high as 50% (Suffolk Downs and Maverick in East Boston).The station area type with the highest rate of transit commuting is Neighborhood Subways (36% on average), followed by Transformational Subways (34% on average). Commuters originating in Metro Core station areas use transit for a large share of commutes (27%), but don't top the list due to a large rate of walking and biking to nearby jobs (see OV_PCT_ABC). Station area types with the lowest average rate of transit commuting include Commerce Park, Undeveloped, and Suburban Transformation, all of which see about 7% of commuters choosing transit, on average, though about one-quarter of the station areas in these groups do exceed single digits.
Technical Notes:	Source: American Community Survey (2007 – 2011)

Field Name:	**Phase**
Field Code:	PHASE
Description:	Whether a station is existing or planned.
What it means:	The dataset includes many stations proposed but not yet served by transit, such as the Green Line Extension stations, the South Coast Rail, and some others.

Why it's important:	Some station areas do not yet benefit from the presence of transit. Their land use and transportation characteristics will likely be very different from stations already well served. This data provides a baseline for measuring the impact of future service.
Technical Notes:	Source: MBTA

Field Name:	**Population Change**
Field Code:	OV_POP0010, EX_POP0010
Description:	Change in population in station area between 2000 and 2010.
What it means:	Estimated net change in population between 2000 and 2010, based on decennial census block-level data.
Why it's important:	Many transit station areas have added hundreds of new housing units and their occupants in the past decade, while others have grown very little, if at all, and may have seen population losses that may result from slow housing unit growth and declining household size.
Technical Notes:	Source: U.S. Census SF1 (2000 and 2010); MAPC allocated block level population counts to standardized 250-meter grid cells, and compared the total number of population for grid cells intersecting the station area.

Field Name:	**Population**
Field Code:	OV_POP10, EX_POP10
Description:	Population within the station area in 2010.
What it means:	The estimated total population within the specified buffer, including both population in households and population in group quarters (dorms, nursing homes, etc.)
Why it's important:	The size of the population in a station area is a key piece of information

	in market analyses, transportation planning, public engagement, and other work necessary to create a successful TOD and plan for its growth. See also Households (OV_HH10) and Housing Units (OV_HU10). The average population of the region's station areas was just under 8,600 in 2010. The average population in Metro Core station areas as a group is over 18,000. The station areas with the smallest average population are Commerce Park (1,618), Undeveloped (1,084), and Suburban Transformation (545). As with households, note that there is a considerable range within these averages; for example, the population in Undeveloped station areas ranges from less than 200 to over 3,400.
Technical Notes:	Source: U.S. Census SF1 (2010)

Field Name:	**Surface Parking**
Field Code:	OV_PRKAC, EX_PRKAC
Description:	Acres of surface parking within the station area.
What it means:	Surface parking areas are estimated based on impervious surface coverage, excluding building footprints and road or rail rights of way. The estimate may include some plazas or other paved non-parking areas, but excludes garage or underground parking.
Why it's important:	Surface parking in a station area offers convenience to residents who own a car, commuters who wish to drive to the station and then take transit, and to area businesses that want to attract customers. However, the tradeoff is that a parking lot consumes a large amount of land for the number of people it serves, and greatly reduces the appeal of the area to those not in a car. In successful TODs, surface parking lots are converted into stores, offices, homes, and other uses that create more destinations for people on foot and using transit. On average, the region's station areas have 45 acres of surface parking, approximately 11% of the standard station area size. Station areas classified as Undeveloped and Trolley Suburbs have the smallest amount of surface parking, at 20 acres and 18 acres, respectively. The station area types with the largest average amount of surface parking are Commerce Park (83 acres), Transformational Subway (81), Seaport/ Airport (80), and Urban Gateway (71). These four types each include

	several station areas with more than 100 acres of surface parking, though this acreage may not be contiguous.
Technical Notes:	Source: MassGIS Land Use (2005), Impervious Surfaces (2005), Building Structures (2011 – 2013); MAPC analysis.

Field Name:	**Surface Parking Share of Land**
Field Code:	OV_PRKPC
Description:	Surface Parking as a percent of land in the station area.
What it means:	Surface parking areas are estimated based on impervious surface coverage, excluding building footprints and road or rail rights of way. The estimate may include some plazas or other paved non-parking areas, but excludes garage or underground parking. On average, the region's station areas have 45 acres of surface parking, approximately 11% of the standard station area size.
Why it's important:	Surface parking in a station area offers convenience to residents who own a car, commuters who wish to drive to the station and then take transit, and to area businesses that want to attract customers. However, the tradeoff is that a parking lot consumes a large amount of land for the number of people it serves, and greatly reduces the appeal of the area to those not in a car. In successful TODs, surface parking lots are converted into stores, offices, homes, and other uses that create more destinations for people on foot and using transit.
Technical Notes:	Source: MassGIS Land Use (2005), Impervious Surfaces (2005), Building Structures (2011 – 2013); MAPC analysis.

Field Name:	**Renter Share**
Field Code:	OV_RENTOCC
Description:	Renter households as a share of total households.

What it means:	Higher values indicate a greater share of renters.
Why it's important:	Renters are more likely to use public transportation than homeowners and less likely to own cars, so a higher share of renters indicates a larger pool of likely transit riders.
Technical Notes:	Source: American Community Survey (2007 – 2011).

Field Name:	**Residential Share of Area**
Field Code:	OV_RESPC
Description:	Residential land uses as a percent of total land area.
What it means:	Land use data was created by MassGIS based on aerial photography combined with other parcel and building data.
Why it's important:	A greater share of residential land area may indicate fewer opportunities to introduce substantial new development without affecting residential areas.
Technical Notes:	Source: MassGIS Land Use (2005).

Field Name:	**Station Type**
Field Code:	STN_CLASS
Description:	The transit station area type classification assigned by MAPC based on current characteristics and future growth potential.
What it means:	Many station areas share similar attributes, challenges, and opportunities and may benefit from similar strategies, investments, and design approaches. The analysis MAPC conducted to create the typology also demonstrates that the region's station areas are positioned to be a significant component of the region's growth and development over the coming decades. The role envisioned for station areas in absorbing future

	growth varies for each station area type. For example, Neighborhood Subway station areas are located in predominantly residential, moderate-density, transit neighborhoods in the region's Inner Core, and new development is likely to occur through small-scale infill development. In contrast, Suburban Transformation station areas are likely to experience transformative TOD through a major planned development around a commuter rail station.
Why it's important:	The typology created by MAPC offers developers, local planners, funders, and community stakeholders a way to understand the region's station areas and their potential. Ten different station area types were identified based on a detailed analysis of existing conditions and the nature and magnitude of potential development over the next few decades.
Technical Notes:	Source: MAPC Growing Station Areas (2012).

Field Name:	**Station Name**
Field Code:	STN_ID, STN_NAME
Description:	Name and unique numerical code for each station.
What it means:	Station names are assigned by the MBTA.
Why it's important:	To distinguish stations.
Technical Notes:	None

Field Name:	**Community Sub-Type**
Field Code:	SUBCOM_DES, SUBCOM_TYP
Description:	The Community Subtype classification assigned to the host municipality by MAPC.

What it means:	Community Types can be used to understand the diversity of communities in the state, better evaluate how demographic, economic, land use, energy, and transportation trends affect those communities, and create policy and planning strategies to help those communities develop in ways their residents desire.
Why it's important:	Community Types can be used to understand the diversity of communities in the state, better evaluate how demographic, economic, land use, energy, and transportation trends affect those communities, and create policy and planning strategies to help those communities develop in ways their residents desire.
Technical Notes:	For details on the methods used to generate the community types and sub-types, visit www.mapc.org/data-services.

Field Name:	**Amtrak Service**
Field Code:	SV_AMTRAK
Description:	Identifies whether a given station is served by Amtrak. (1=yes, 0=no).
What it means:	Amtrak provides intercity rail service via the Northeast Corridor (to NYC and beyond), the Lakeshore Limited (to Chicago via Albany) and the Downeaster (to Maine).
Why it's important:	Stops and stations with a variety of transit services can provide more options for local residents, employees, and visitors.
Technical Notes:	None

Field Name:	**Bus Service**
Field Code:	SV_BUS
Description:	Identifies whether a given station is served by an MBTA key bus route. (1=yes, 0=no).

What it means:	This variable indicates whether the station area is served by a "Key Bus Route" as designated by the MBTA based on the frequency of service and ridership. About one-third of the stations in the database are served by these routes.
Why it's important:	Transit Oriented Development doesn't just happen around subway stations or commuter rail. MBTA's bus service is a critical component of the system, and many of the Key Bus Routes offer service that is frequent and well-connected enough to support substantial TOD. Furthermore, rail stations that are also served by key bus routes (or stops served by multiple routes) provide even more connectivity to residents and workers in the station area.
Technical Notes:	Source: MBTA

Field Name:	**Commuter Rail Service**
Field Code:	SV_COMRAIL
Description:	Identifies whether a given station is served by commuter rail. (1=yes, 0=no).
What it means:	Identifies whether a given station is served by commuter rail. (1=yes, 0=no).
Why it's important:	Stops and stations with a variety of transit services can provide more options for local residents, employees, and visitors.
Technical Notes:	Source: MBTA

Field Name:	**Ferry Service**
Field Code:	SV_FERRY
Description:	dentifies whether a given station is served by ferry service. (1=yes, 0=no).
What it means:	Identifies whether a given station is served by ferry service.
Why it's important:	Stops and stations with a variety of transit services can provide more

	options for local residents, employees, and visitors.
Technical Notes:	Source: MBTA

Field Name:	**Rapid Transit Service**
Field Code:	SV_RAPIDTRNS
Description:	Identifies whether a given station is served by rapid transit. (1=yes, 0=no).
What it means:	Rapid Transit service includes heavy rail (Blue, Red, and Orange lines), light rail and trolleys (Green lines with various branches), and Bus Rapid Transit (Silver lines with various routes).
Why it's important:	Stops and stations with a variety of transit services can provide more options for local residents, employees, and visitors.
Technical Notes:	Source: MBTA

Field Name:	**Tax Revenue**
Field Code:	OV_TAXREV, EX_TAXREV
Description:	Estimated municipal property tax revenue from parcels in the station area.
What it means:	Tax revenue estimates are based on total assessed value for each parcel, land use classification codes (public, nonprofit, and other "exempt" parcels are excluded) and local tax rates. This field sums the estimated tax revenue for all non-exempt parcels within the specified station area (OV or EX), using an area-weighted fraction of the values for parcels only partially contained within the specified buffer. Values are adjusted for inflation to 2013 dollar year equivalent.
Why it's important:	TOD entails more intensive use of land, which in turn increases assessed value and tax revenue. This revenue can be used to help finance the development through a mechanism called tax increment financing (TIF).

The amount of revenue generation depends on the density and types of activities that can be attracted to the area. The average station area generates nearly $28 million each year for its host municipality, though a more modest median value of $11 million indicates that a relatively small number of heavy-hitting stations produce an outsized share of the total. The station area that generates the most tax revenue is Downtown Crossing ($385 million), with Government Center and State not far behind. These are all Metro Core station areas, a group that generates $129 million in tax revenue, on average. After Metro core stations, the groups with the largest average tax revenue generation are Neighborhood Subways ($25 million) and Transformational Subways ($15 million).The lowest revenue generating stations are the Suburban Transformation stations (less than $2 million on average) and Undeveloped stations (less than $3 million on average).

Technical Notes: Source: MAPC Massachusetts Land Parcel Database (2013).

Field Name: **Transit Share of Commuting Miles**

Field Code: OV_TRNPCMI

Description: Percentage of total commuting miles for which transit was used.

What it means: Using Census data on estimated commute trips (by mode) between each pair of tracts in the region, and the on-road mileage between the centroids of those tracts, MAPC calculated the total commute miles originating in each tract and the number of commute miles that utilize transit.

Why it's important: The share of commuting miles undertaken on transit provides a way to view differences in transit commuting among station areas and their impacts, particularly environmental impacts, as well as regional efforts to shift work trips from cars to transit. For example, if the share of commuters using transit is holding steady or growing in a given station area (see OV_PCTTRAN), while the transit share of commuting miles is eroding, this could indicate that transit is attracting short-distance commuters more than longer-distance commuters—or even that the rise in short-distance transit commuting is freeing up road capacity that encourages longer-distance commuters to drive. At the regional level, this same combination of indicators could point to changes in workplace location patterns that cause

some workers to drive longer and longer distances. The average transit share of commuting miles in the Boston region's station areas is 5%, and ranges as high as 29% (Orient Heights station in Boston). The station area type with the highest average value is Neighborhood Subways (11%), followed by Transformational Subways (10% on average). Station area types with the lowest transit share of commuting miles include Commerce Park, Undeveloped, and Suburban Transformation, all of which see about 1% of commuting miles undertaken on transit, on average, and no single station area in these three groups exceeds 4%.

Technical Notes: Source: Census Transportation Planning Package (2006 – 2010), MAPC Analysis.

Field Name: **Vacant Developable Land Area**

Field Code: OV_VACDVAC, EX_VACDVAC

Description: Vacant and potentially developable land use acres.

What it means: Land use data was created by MassGIS based on aerial photography combined with other parcel and building data. MAPC selected those land uses which were neither developed nor subject to absolute constraints on development (water, wetlands, permanently protected open space.)

Why it's important: Vacant developable land may present housing or job growth opportunities, or opportunities to preserve open space for residents of the station area.

Technical Notes: Source: MassGIS Land Use (2005).

Field Name: **Vacant Developable Land Share**

Field Code: OV_VACDVPC

Description: Vacant and potentially developable land use as a percent of total land area.

What it means: Land use data was created by MassGIS based on aerial photography combined with other parcel and building data. MAPC selected those land uses which were neither developed nor subject to absolute constraints on development (water, wetlands, permanently protected open space.)

Why it's important: Vacant developable land may present housing or job growth opportunities, or opportunities to preserve open space for residents of the station area.

Technical Notes: Source: MassGIS Land Use (2005).

Field Name: **Vacant Undevelopable Land Area**

Field Code: OV_VACUNAC

Description: Acres of vacant undevelopable land.

What it means: Land use data was created by MassGIS based on aerial photography combined with other parcel and building data. MAPC selected undeveloped land uses which were classified as having absolute constraints on development (water, wetlands, permanently protected open space.)

Why it's important: Undevelopable land may present opportunities to preserve open space for residents of the station area.

Technical Notes: Source: MassGIS Land Use (2005).

Field Name: **Vacant Undevelopable Land Share**

Field Code: OV_VACUNPC

Description: Vacant undevelopable land as a share of station land area.

What it means: Land use data was created by MassGIS based on aerial photography combined with other parcel and building data. MAPC selected undeveloped land uses which were classified as having absolute constraints on development (water, wetlands, permanently protected open space.)

Why it's important:	Undevelopable land may present opportunities to preserve open space for residents of the station area.
Technical Notes:	Source: MassGIS Land Use (2005).

Field Name:	**Vehicle Ownership**
Field Code:	OV_VEHPHH
Description:	Number of vehicles per household.
What it means:	The Massachusetts Vehicle Census is an anonymized database of registered vehicles in Massachusetts, with an estimate of each vehicle's average daily vehicle miles travelled (VMT) based on odometer readings from annual vehicle inspection records. Neighborhood-level summary statistics include the total number of registered passenger vehicles, miles driven, and estimated GHG emissions. The neighborhood statistics can be combined with a count of households to estimate vehicles per household.
Why it's important:	Successful TOD enables people to get around conveniently without a car for most trips, which can lead to lower rates of car ownership as some households decide to opt for one car instead of two, or that their needs are met without owning their own car at all. Vehicle ownership rates are also influenced by income, household size, the availability of car sharing services, and other factors. Vehicle ownership in station areas is low in the Boston region as a whole, with an average of 0.9 vehicles per household, reflecting the abundance of high-quality options that compete well with driving. The highest average rate of car ownership for all stations of a given type is 1.5 vehicles per household in Undeveloped station areas, followed by Suburban Transformation station areas (1.4) and Commerce Parks (1.3). Other types of station areas have far lower average vehicle ownership: the Metro Core group comes in at 0.4 vehicles per household, followed by the Seaport/ Airport group (0.5) and Neighborhood Subways (0.6).
Technical Notes:	Source: MAPC Massachusetts Vehicle Census (2014).

Field Name:	**Daily Household VMT**
Field Code:	OV_VMTHDAY
Description:	Daily vehicle miles traveled (VMT) for households in station areas.
What it means:	The Massachusetts Vehicle Census is an anonymized database of registered vehicles in Massachusetts, with an estimate of each vehicle's average daily vehicle miles travelled (VMT) based on odometer readings from annual vehicle inspection records. Neighborhood-level summary statistics include the total number of registered passenger vehicles, miles driven, and estimated GHG emissions. The neighborhood statistics can be combined with a count of households to estimate mileage per household. Household mileage varies widely across station areas.
Why it's important:	Household VMT is the ultimate indicator that TOD is attempting to influence, since it is affected by so many transportation and land use factors and relates directly to many transportation and environmental outcomes, especially GHG emissions. A major benefit of successful TOD is that a community's residents drive less, which means they contribute less to road congestion and cause less pollution. Low daily VMT is associated with compact, mixed-use neighborhoods and high-quality transit, and is also influenced by gasoline prices, income, and broader economic conditions. In the most successful TODs, many daily needs can be met on transit, on foot, or on a bicycle, which means household VMT in these areas can be even lower than the average for all station areas. Indeed, while 10% of station areas have an average household VMT of 18 or less (for example, Symphony Station in the South End and Melnea Cass Boulevard Station in Roxbury), another 10% are above 64 (for example, South Acton and Westborough stations).
Technical Notes:	Source: MAPC Massachusetts Vehicle Census (2014).

Field Name:	**Walk Score®**
Field Code:	WALKSCORE
Description:	Rating of walkability on a 100-point scale.

What it means:

WalkScore measures the walkability of any address. For station areas, the "address" used is the station's latitude and longitude. WalkScore takes into account many factors, including the distance to nearby amenities via multiple walking routes, as well as industry-standard measures of pedestrian friendliness such as population density and intersection density. According to the creators of WalkScore, a neighborhood with a score between 90-100 is considered a Walker's Paradise, where daily errands do not require a car. Examples in the Boston area include downtown Boston neighborhoods such as South End, much of Somerville, and the central parts of Quincy, Waltham, and Lynn. An area with a score between 70-89 is Very Walkable, such that most errands can be accomplished on foot. Examples include Jamaica Plain in Boston and the central parts of Norwood and Malden. A score between 50-69 means that an area is Somewhat Walkable, which allows some errands to be accomplished on foot. Examples include Mattapan in Boston, and Wilmington. In Car Dependent areas that score between 25-49 (e.g. North Waltham and much of Weymouth), most errands require a car; below that score (e.g. Milton, much of Franklin), almost all errands require a car.

Why it's important:

Station areas with a high walkability rating offer people many other activities in the vicinity of the station. This encourages people who live nearby to walk to the station rather than drive or have someone drop them off, and also allows people to "trip chain" while using transit, meaning they can conveniently add other errands to their trip. For example, a person commuting to work could walk to the station, stopping on the way to drop off a child at day care, return a library book, and pick up cookies for the workplace holiday party. Allowing multiple non-car modes to intersect in this way allows people to leave the car at home—or get rid of it altogether.

Technical Notes:

Source: www.walkscore.com.