University of Kentucky

From the SelectedWorks of Gregory D. Erhardt

May 6, 2013

The Codebase IS the Deliverable: Collaborative Software Development for Modelers

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Available at: https://works.bepress.com/gregory-erhardt/22/

The Codebase *is* the Deliverable: Collaborative Software Development for Modelers

Lisa Zorn, Elizabeth Sall, Dan Tischler – SFCTA
Renee Alsup, Gregory Erhardt – Parsons Brinckerhoff

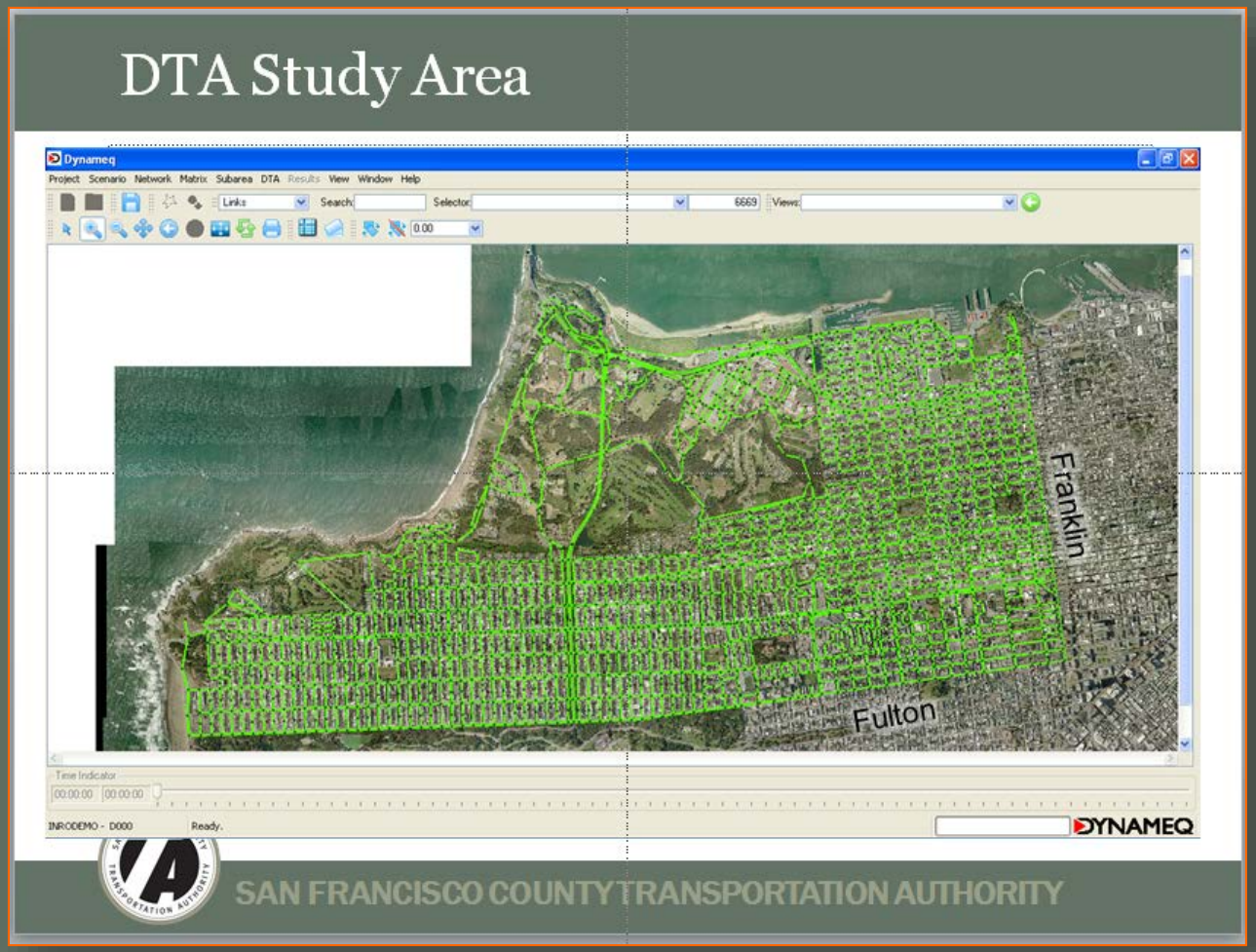
SAN FRANCISCO COUNTY TRANSPORTATION AUTHORITY

14th TRB National Planning Applications Conference
Columbus, OH May 5-May 9, 2013

Why *is* the codebase the deliverable?

Some history…

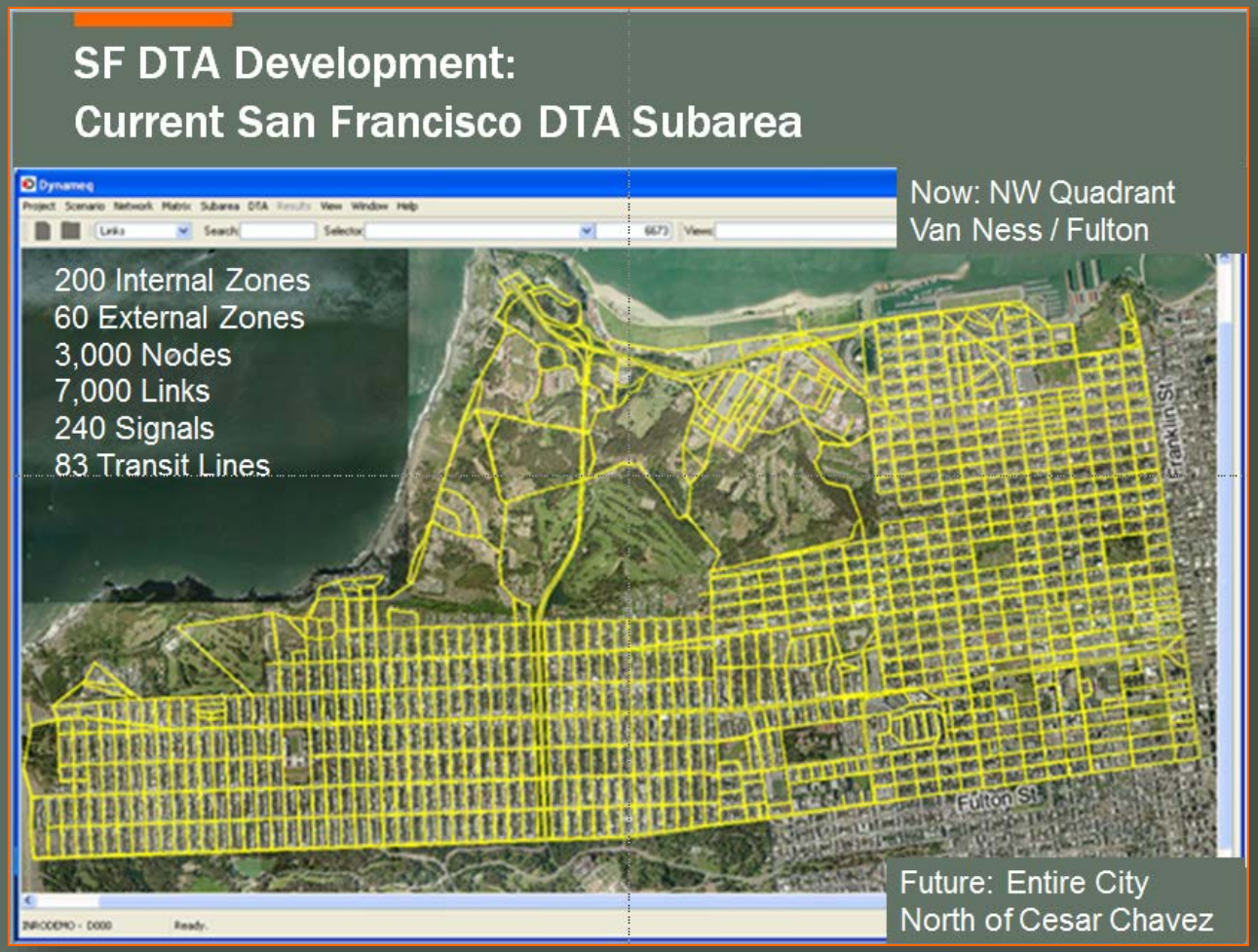
Fall 2009: Initial DTA model developed for Doyle Drive ramp closure study



Why *is* the codebase the deliverable?

Some history…

Summer 2010-2011: DTA Model Expansion for Geary DTA



Why *is* the codebase the deliverable?

Some history…

New Approach

Previously	Now
owner: consultant	owner: me
development: 1 consultant	development: 50/50 team
audience: staff	audience: any interested parties (you?)

CompSci degree not required

ProjectStatus - dta - Frequ

https://code.google.com/p/dta/wiki/ProjectStatus#Status_Updates_for_Week_of_Oct_15

Status Updates for Week of Oct 15 ¶

Contributor	Previous Week	This Week	Issues For Group
Elizabeth	• Reviewed Validation Runs. • Wrote reports.		
Lisa	• Fix ~~Issue 149~~: Push Count Dracula to Tehama • Fix ~~Issue 111~~: Transit Lanes split for right turns • Work on ~~Issue 132~~: Check CountDracula? filters vs full set of 3-hour counts • Fix ~~Issue 135~~: Remove requirement for pylab	• Fix ~~Issue 132~~: Check CountDracula? filters vs full set of 3-hour counts • Work on ~~Issue 147~~: Final Methodology Report	
Greg			
Renee	• Reviewed results of current tests and perform additional calibration tests.	• Perform additional calibration tests. • Update some sections of the documentation.	
Dan	Reviewed results of both JHC 2012 SF CHAMP scenarios in preparation for DTA Anyway scenario testing runs.	• Run v18 DTA model with bus lanes. • Extract subarea networks and demand from 2012 Base, 2012 BRT and 2012 Pricing CHAMP model output. • Prepare final plan for quick implementation of pedestrian friction.	

API Class Structure

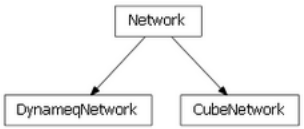
http://dta.googlecode.com/git-history/dev/doc/_build/html/index.html

Overview — DTA Anyway

dta.googlecode.com/git-history/dev/doc/_build/html/index.html

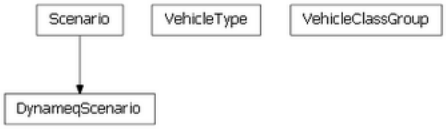
dta | countDracula | PyStyle | arcpy | pivottracker | ITM2012 | OTMsite | OTMgroup | nose | Other bookmarks

Network classes



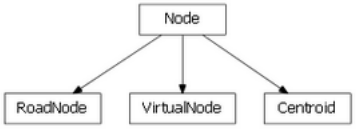
dta.Network	Base class that represents a DTA Network. Networks exist on a continuum between
dta.DynameqNetwork	A Dynameq DTA Network.
dta.CubeNetwork	A DTA Network originating from a Cube network.

Scenario classes



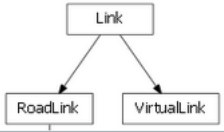
dta.Scenario	Class that represents a DTA Scenario, and all that it entails.
dta.DynameqScenario	A Dynameq Scenario.
dta.VehicleType	Class that represents a vehicle type.
dta.VehicleClassGroup	Represents a group (or a set) of VehicleClasses, which are the classNames in VehicleType.

Node classes

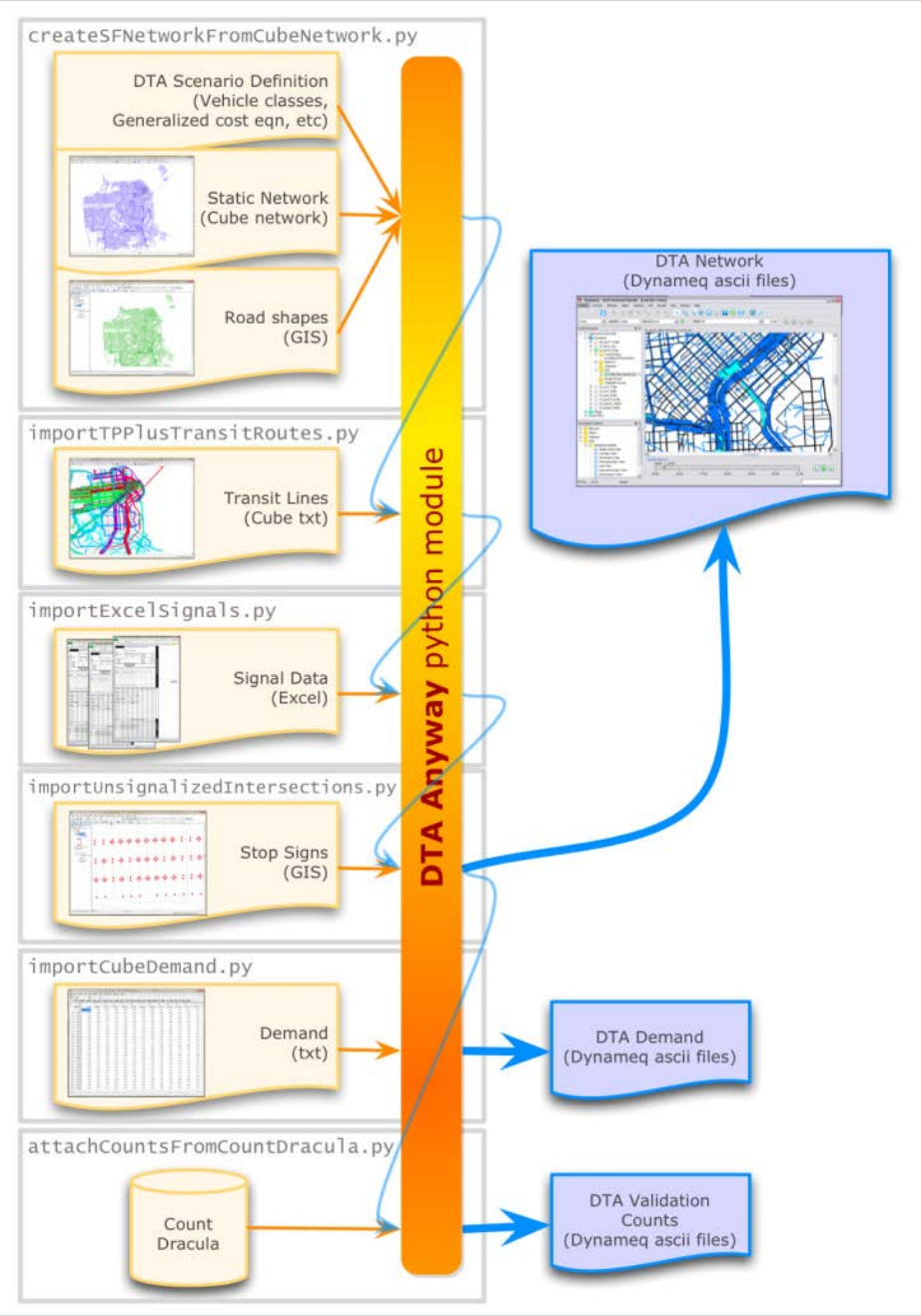


dta.Node	Base class that represents a node in a network.
dta.RoadNode	A Node subclass that represents a road node in a network.
dta.VirtualNode	A Node subclass that represents a virtual node in a network.
dta.Centroid	A Node subclass that represents a centroid node in a network, which is the origin or destination

Link classes



San Francisco Network Development



Git & Google Code

Changes - dta - DTA Anyw

https://code.google.com/p/dta/source/list?name=dev

dta countDracula PyStyle arcpy pivottracker OTMsite OTMgroup nose mapper mapper@www googmapsAPI googFTsAPI django Other bookmarks

lisa.zorn@sfcta.org | My favorites ▼ | Profile | Sign out

dta

DTA Anyway!

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Repository: default Checkout Browse Changes Clones Request code review

Committed Changes Branch: dev Tag: <none> Apr 9 - Oct 26 Older ›

Rev	Scores	Commit log message	Date	Author
80a528ccd5d5		Added HOV Vhcl Class Group	Apr 9, 2013	unknown <dan@.sfcta....
2041ad226ef9		Split auto vehicle classes into "SOV" and "HOV". SOV and HOV2 are classified as "SOV". HOV3+ is classified as "H...	Apr 5, 2013	unknown <dan@.sfcta....
05b347890ffd		Added new vehicle classes to separate SOV autos from HOV autos.	Apr 3, 2013	unknown <dan@.sfcta....
cca373710e3e		Merge branch 'dev' of https://code.google.com/p/dta into dev	Mar 26, 2013	unknown <dan@.sfcta....
951d2a856a1d		Added specification of demand year, so that 2010 is not assumed	Mar 26, 2013	unknown <dan@.sfcta....
330ab4b4453e		Added DTA Compare script	Mar 26, 2013	Elizabeth Sall <elizabet...
4744faa891a6		FAST-TrIPs changes: increase the headway (to 2*scenario time) so transit runs go once max.	Mar 6, 2013	Lisa Zorn <lisa.zorn@sf...
bc56521de1df		Network.addAllMovements(): add functionality: Additionally, if the incoming link is only one general purpose lane (so th...	Mar 6, 2013	Lisa Zorn <lisa.zorn@sf...
501f824fbf4c		Fix Issue 66: Center running Transit Lanes on Market.	Mar 6, 2013	Lisa Zorn <lisa.zorn@sf...
eacd23867773		Fix logger typo	Mar 6, 2013	Lisa Zorn <lisa.zorn@sf...
4f5ad7539d13		Make the import robust to spaces in the filename and relative paths.	Nov 29, 2012	Lisa Zorn <lisa.zorn@sf...
1a9237a39b96		Regenerate documentation	Nov 27, 2012	Lisa Zorn <lisa.zorn@sf...
1e1aad0f3a03		Creates user attribute file with tollLink field pulled from Cube Net field VALUETOLL_FLAG. Not fully complete. Still nee...	Nov 20, 2012	unknown <dan@.sfcta....
afbe1f4884d1		Merge branch 'dev' of https://code.google.com/p/dta into dev	Nov 16, 2012	Lisa Zorn <lisa.zorn@sf...
86676d9f0398		Doc update	Nov 16, 2012	Lisa Zorn <lisa.zorn@sf...
8e4d67548844		Pull out San Francisco boundary nodes and use the convention that these nodes are labeled instead. Also move _r...	Nov 16, 2012	Lisa Zorn <lisa.zorn@sf...
6fa1f0161bb5		Changed signalized turn follow-up times to 2.22, 2.11, and 2.0 from 2.67, 2.22, and 2.0.	Nov 15, 2012	unknown <dan@.sfcta....
4008be74b9f3		Expression_4 added to createSFNetworkFromCubeNetwork.py. Car_Toll and Truck_Toll added to importFullSanFra...	Nov 15, 2012	unknown <dan@.sfcta....
1f88b2a211ea		A few network updates to address known issues http://code.google.com/p/dta/wiki/KnownIssues	Nov 5, 2012	Lisa Zorn <lisa.zorn@sf...
50d499e86665		Turning movements with dedicated signal phases are given PROTECTED movement status. It is assumed that these a...	Oct 26, 2012	unknown <dan@.sfcta....
278373bf7a03		Merge branch 'dev' of https://code.google.com/p/dta into dev	Oct 26, 2012	Lisa Zorn <lisa.zorn@sf...
e3b9a3f2c566		Identify which movements are explicitly called out in the excel time plan.	Oct 26, 2012	Lisa Zorn <lisa.zorn@sf...
5f0017883bae		Minor text fix.	Oct 26, 2012	dan.tischler <dan.tischl...
d27db5156410		Added env var for input network filename in importFullSanFranciscoNetworkDataset.bat.	Oct 26, 2012	unknown <dan@.sfcta....
051db02ccdcf		Merge branch 'dev' of https://code.google.com/p/dta into dev	Oct 26, 2012	Lisa Zorn <lisa.zorn@sf...

Apr 9 - Oct 26 Older ›

Issue Tracking & Google Code

Issues - dta - DTA Anyway

https://code.google.com/p/dta/issues/list?can=2&q=&colspec=ID+Type+Status+Priority+Owner+Summary&groupby=&sort=&x=owner&y=priority&cells

Project Home | Downloads | Wiki | **Issues** | Source | Administer

New issue | **Search** Open issues **for** | Search | Advanced search | Search tips | Subscriptions

Rows: Priority | Cols: Owner | Cells: Tiles | Update | 34 issues of 34 issues shown | List | Grid

	----	alsuprm@pbworld.com	dan.tischler@sfcta.org	elizabeth@sfcta.org	lisa.zorn@sfcta.org
Critical					88 New Map counts and model volumes
High		122 Started Develop a smarter demand profile 139 New Update truck demand profile			110 New Geary vs Geary Tunnel 138 New Gather as much truck data as possible
Medium		101 New Prohibit left turns out of centroid connectors onto arterials	42 On-Hold Audit and Correct Turn Prohibitions 91 On-Hold Review free flow speeds		61 On-Hold Centroid Connector Placement 69 New Add enhanced directionality to Count Dracula
	126 New Sensitivity Test - Future Demand 131 New Make external demand more geographically consistent	25 On-Hold Deal with the PED phase in the Excel Signal Cards 48 On-Hold Demand Related plots		51 On-Hold Why can Joe@sfcta.org commit?	13 On-Hold Convert Dead End Alleyways to Centroid Connectors 19 On-Hold Fix network merge algorithm to correctly address border links 21 On-Hold Network mapping

Sphinx for Documentation

```
def insertVirtualNodeBetweenCentr
    distanceFromCentroid=0):
    """
    In some situations (for example,
    :py:class:`Centroid` nodes and :p

    .. image:: /images/addVirtualNode
       :height: 300px

    If defined, the virtual nodes tha
    virtual links from *startVirtualL
    link a distance away from the cen
    so it will be in the same locatio
    """

    allLinkNodeIDPairs = self._linksB
    modifiedConnectorCount = 0

    if startVirtualNodeId:
        if startVirtualNodeId < self.
            raise DtaError("The start
                                (startVirt
        self._maxNodeId = startVirtua
    if startVirtualLinkId:
        if startVirtualLinkId < self.
            raise DtaError("The start
                                (startVirt
        self._maxLinkId = startVirtua


    for idPair in allLinkNodeIDPairs:
        # if we already took care of
        if idPair not in self._linksB

        connector = self._linksByNode

        # only look at connectors
        if not isinstance(connector,

        # if they connect a centroid
        startNode = connector.getStar
        endNode   = connector.getEndN

        # Centroid => RoadNode
        if isinstance(startNode, Cent
```

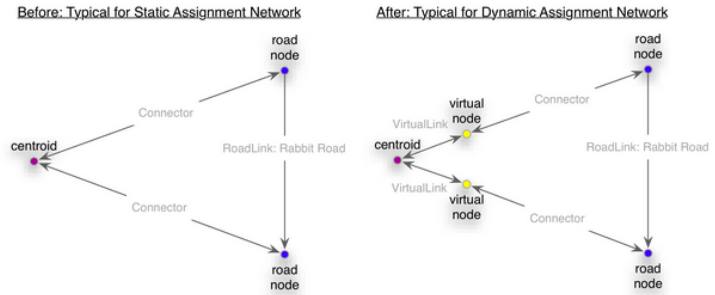
dta.Network — DTA Anywa

dta.googlecode.com/git-history/dev/doc/_build/html/_generated/dta.Network.html#dta.Network

dta | countDracula | PyStyle | arcpy | pivottracker | ITM2012 | OTMsite | OTMgroup | nose | Other bookmarks

insertVirtualNodeBetweenCentroidsAndRoadNodes(*startVirtualNodeId=None*, *startVirtualLinkId=None*, *distanceFromCentroid=0*)

In some situations (for example, for a Dynameq netork), there need to be intermediate nodes between `Centroid` nodes and `RoadNode` objects.



If defined, the virtual nodes that will be added will begin from *startVirtualNodeId* and the virtual links from *startVirtualLinkId*. The new virtual node will be placed along the connector link a distance away from the centroid specified by *distanceFromCentroid* (in `Node.COORDINATE_UNITS`), so it will be in the same location if that argument is specified as zero.

iterCentroids()
Return an iterator to the `Centroid` instances in the network.

iterConnectors()
Return an iterator to the `Connector` instances in the network.

iterLinks()
Return an iterator to the link collection

iterNodes()
Return an iterator to the node collection

iterPlanCollectionInfo()
Return an iterator to the planInfo objects

iterRoadLinks()
Return an iterator for to the `RoadLink` instances in the network that are not instances of `Connector`.

iterRoadNodes()
Return an iterator to the `RoadNode` instances in the network.

iterVirtualLinks()

Code Review

Changes - dta - DTA Anyv

https://code.google.com/p/dta/source/list?name=dev&r=d6c79b1b83a5958a081082b02d1a40c1f42991e9&r=9c6ac270cfa909832f7a5

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Repository: default | Checkout | Browse | **Changes** | Clones | Request code review

Committed Changes **Branch:** dev **Tag:** <none> May 31 2012 - Mar 16 2012 Older ›

Rev	Scores	Commit log message	Date	Author
d6c79b1b83a5		Merge branch 'dev' of https://code.google.com/...	May 31, 2012	Lisa Zorn <lisa.zorn@sfc...
e91548ce0fbd		Merge branch 'dev' of https://code.google.co...	May 31, 2012	Michail Xyntarakis <xynt...
ecb4135ebcbd		Merge branch 'dev' of https://code.googl...	May 31, 2012	Lisa Zorn <lisa.zorn@sfc...
d39e06c74c75		Add demand importing and counts impo...	May 31, 2012	Lisa Zorn <lisa.zorn@sfc...
3c158bf56953		Most problems with reading times and s...	May 31, 2012	unknown <AlsupRM@W-...
9c6ac270cfa9		Run transit import in the batch script	May 25, 2012	Lisa Zorn <lisa.zorn@sfc...
cb537b11860c		Update script for facility type change...	May 25, 2012	Lisa Zorn <lisa.zorn@sfc...
025f1cb1e519		Updates to CSO matching and m...	May 21, 2012	unknown <AlsupRM@W-...
a900da3ba852		Import Excel Signals with upd...	May 21, 2012	unknown <AlsupRM@W-...
953e76cb9655		merged changes	May 21, 2012	Michail Xyntarakis <xynt...
d545da89b127		Rename DynameqTra...	May 10, 2012	Lisa Zorn <lisa.zorn@sfc...
a98f6d205630		Cleaned up scripts/im...	May 10, 2012	Lisa Zorn <lisa.zorn@sfc...
675399ee435c		Merge branch 'dev...	May 7, 2012	Michail Xyntarakis <xynt...
55c67be07cd4		Computed prot...	May 7, 2012	Michail Xyntarakis <xynt...
762870a0d8df		Merge branch '...	May 2, 2012	unknown <AlsupRM@W-...
7b8063dca979		Transit rout...	Apr 30, 2012	unknown <AlsupRM@W-...
1186b63c62f9		Added ...	Apr 18, 2012	Michail Xyntarakis <xynt...

Unit Tests

???

Questions/Ideas/Suggestions?

http://dta.googlecode.com

Email: lisa.zorn@sfcta.org