COMPANY
**Fairmount/Indigo Line
CDC Collaborative**

LOCATION
Boston, Massachusetts

SOFTWARE
Autodesk® InfraWorks® 360

Model development
A Boston CDC uses Autodesk InfraWorks 360 to promote and support sustainable community development

Image courtesy of Fairmount/Indigo Line CDC Collaborative.

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>
> **— Michael Chavez**
>   Enterprise Rose
>   Architectural Fellow
>   Fairmount/Indigo Line CDC
>   Collaborative

The organization

Fairmount/Indigo Line CDC Collaborative (The Collaborative) is a not for-profit organization in Boston consisting of three community development corporations (CDCs) that promotes and supports sustainable community development along a nine-mile commuter rail section through some of the city's most impoverished minority neighborhoods. The Collaborative seeks to enhance these communities by means of transit-oriented development, affordable housing and economic opportunities, streetscape improvements, and other residential amenities.

In the Talbot Norfolk Triangle (TNT) neighborhood, Codman Square Neighborhood Development Corporation (NDC), one of the three Collaborative partners, is working to establish a neighborhood-scale eco-district focused on conserving energy through energy retrofits and energy-efficient, transit-oriented development. This effort involves two potential "green" designations—LEED for Neighborhood Development (LEED ND) and EcoDistricts Certification—as well as a traffic-calming pilot program in conjunction with the Boston Transportation Department.

The challenge

As part of its development efforts, the Collaborative interfaces and communicates with a wide variety of community partners and stakeholders. For example, it works with CDCs who are members of the Fairmount/Indigo Line Collaborative; the architects and consultants working for the CDCs on various local projects; representatives from the city's transportation department, planning and development agency, water and sewer departments, and the regional transit authority; local business owners; residents; neighborhood volunteers; and so forth.

In the TNT neighborhood, there are a number of different but overlapping efforts, such as green certification, housing development and redevelopment, and street and traffic improvements, that need to be treated holistically and communicated in the context of the surrounding environs.

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"With so many things happening in a relatively small area, it can be difficult to fully communicate the extent and positive impacts of our development plans," explains Michael Chavez, an Enterprise Rose Architectural Fellow and community planner for the Fairmount/Indigo Line CDC Collaborative. "And the information needs to be presented in a way that makes sense to a particular group, regardless of their technical background." The Collaborative typically relies on traditional maps and engineering drawings to present and communicate its projects, but people without a technical background may find it difficult to visualize the design proposals based on engineering plans, profiles, and cross-sections. Moreover, these 2D drawings don't convey a project's setting, making it even more difficult to understand and gauge its impact.

The solution

The Collaborative is now using Autodesk® InfraWorks® 360 software to develop an intelligent 3D model of the TNT neighborhood and present preliminary design plans in the context of that community and surrounding areas. "We use the InfraWorks 360 model to communicate our plans and to support collaboration among different project stakeholders," says Chavez. "This model helps them see how their projects relate to one another, and how they will transform the neighborhood."

Urban-scale modeling

The Collaborative began its modeling effort by using the cloud-based Model Builder feature in InfraWorks 360 to quickly create a base map of the project area. After the team zooms in to the TNT neighborhood from the software's default map and selects the project area, InfraWorks 360 automatically acquires publicly available data for terrain and satellite imagery, as well as information for roads, railways, land parcels, and building footprints, and creates a base map for downloading.

Chavez and his team overlay the building footprints with typical housing styles, such as triple decker apartments and multi-unit affordable buildings, for a closer visual match of the area. They then import the 3D design models of various new building and

infrastructure projects in the neighborhood from CDC's design consultants. If no model is available, the team creates their own 3D model and imports it into InfraWorks 360. These models help project stakeholders make informed decisions by enabling them to explore different design concepts in the context of the real-world environment.

"We're using the model to create presentation materials for meetings that involve a mixture of people—from residents and local business owners to government officials and design professionals," says Chavez. "InfraWorks 360 helps these stakeholders identify, discuss, and come together on goals for energy retrofits, transit-oriented development, and green infrastructure improvements."

Eco certification

Any sort of green/urban certification—from LEED ND and EcoDistricts Certification to local efforts such as Boston's traffic-calming initiatives—requires documentation to confirm the project's merit. There are several eco-friendly projects supported by Codman Square NDC in the TNT neighborhood that require supporting documentation.

"InfraWorks 360 gives us the ability to virtually see these projects in context by generating renderings, animations, and other supporting material for these certification efforts, includingcontextual data about these projects," says Chavez. "For example, we're using the InfraWorks 360 model to calculate figures like occupiable square footage or infill within a LEED ND boundary."

The results

"As community advocates, we're trying to paint a big picture of what could be," says Chavez. "With InfraWorks 360, we've created an intelligent 3D model of the TNT neighborhood that we can use for project communication and collaboration—helping all the different people involved in all our different projects see how all of the plans interact. This wouldn't be possible without InfraWorks 360."

For more information, visit **www.autodesk.com/infraworks**.

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> [InfraWorks 360] is an enhanced mapping tool. It enables you to put in building types and give a realistic depiction of what things will actually look like, so it's very useful from that perspective. If you can show a traditional Boston triple decker instead of a box, it helps people visualize their actual neighborhood. It helps people explore their choices in a more realistic way.
>
> — **David Queeley**
> Director of Eco-Innovation Codman Square Neighborhood Development Corporation

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