



TRANSCONOMY
TRANSPORTATION ASSET INTELLIGENCE



City of
Santa Maria

Asset Extraction for Santa Maria, CA

Scope: Transconomy collaborated with NCE, a consulting engineering, planning, environmental, and construction services firm, to conduct a roadway asset extraction for the City of Santa Maria, CA, as an added component to the city's pavement condition data collection project.

This work included capturing all the transportation assets on the network including signs, point assets, linear assets, and sidewalks on the 650 lane-mile network; and a pavement area calculation of 1,278 sections totaling 229 miles.

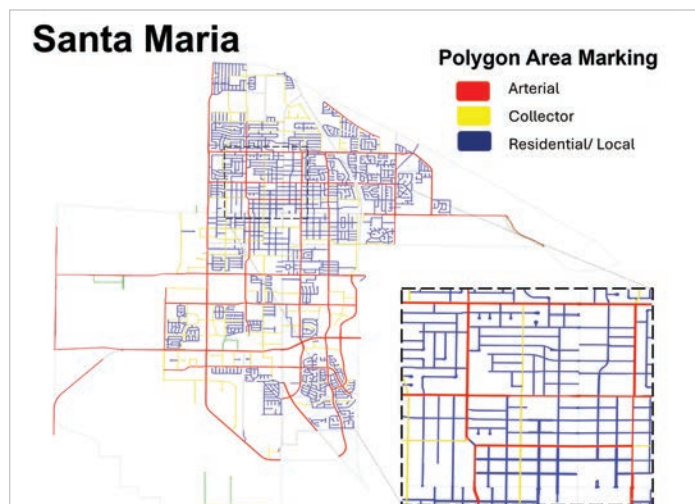
Process: Transconomy's approach involved creating a detailed inventory for Santa Maria's streets, covering approximately 650 lane-miles, comprised of a mix of residential (58%), collector (18%), and arterial streets (25%).

Geo-coded imagery, captured during the pavement distress field data collection, was uploaded to Transconomy's Hub and underwent a quality assurance process to validate image clarity and automatically assigned the images to the appropriate pavement segments, based on the city's linear referencing system. Any captured images outside of the geo-fenced project area were not processed, ensuring the city only receives data on assets within its network. Using aerial imagery and the client's shapefile, Transconomy extracted the length, width, and area of all pavement management sections, allowing for increased accuracy in maintenance planning and budgeting.

The critical phase of asset extraction involved processing the images on Transconomy Hub using the latest AI models. A unique AI model was assigned for each asset to extract the specific data required. Once extracted, data is rigorously validated and verified by our Stratified Quality Control process, which includes a Human-in-the-Loop component.

Once QC'd, the data was provided to the client for review and approval, this includes addressing client queries and providing necessary assistance for reported data issues.

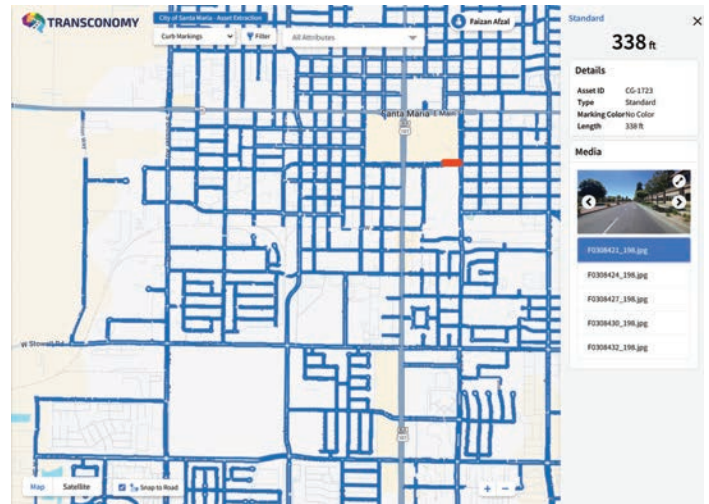
NCE and the city can view all assets and pavement areas, including images, location, and associated data easily and intuitively for one year using Transconomy Viewer.



Results: The project concluded with the successful delivery of comprehensive asset inventories, carefully documented to conform to required city and California Department of Transportation formats.

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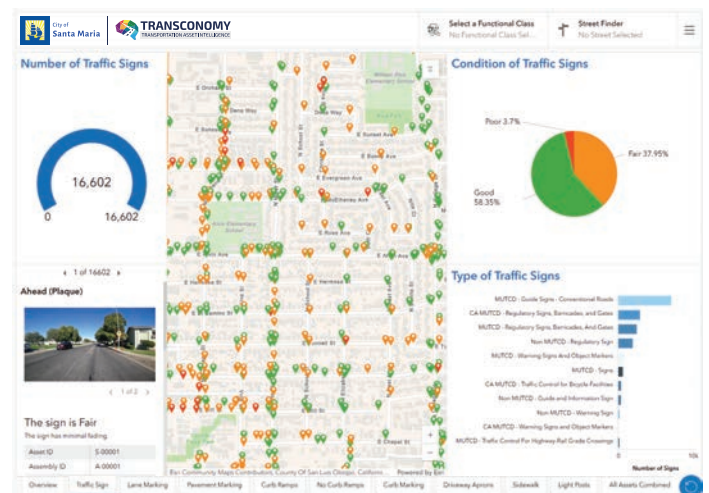
The deliverables encompassed a range of asset types, including sign inventory, signpost type, sidewalk inventory, driveway apron inventory, curb ramp inventory, no curb ramps on a corner inventory, curb marking inventory, line striping inventory, and pavement marking inventory. As well as an extraction of the pavement section geometry information (length, width, and area) for the pavement management sections.



Aligning the deliverables to the city's pavement segmentation provided an integrated and current inventory and condition for these assets in conjunction with the updated PCI survey, creating valuable data inputs for planning and programming in concurrent efforts.

Benefits: NCE, as a trusted advisor to the city, enhanced the value derived from the field data collection activities and the collected geo-coded imagery.

The City of Santa Maria leveraged the investment in a pavement condition assessment and pavement area calculation project to enhance their overall dataset by gaining inventory and condition information on 9 additional right of way assets, adding key information for the city in terms of asset management and valuation. The asset extraction and area calculation facilitated a more complete understanding of the city's transportation infrastructure. The provided data empowered the city to produce proactive maintenance, strategic planning, and data-driven decision-making, contributing to improved sustainability, better resource management, and long-term infrastructure resilience for the community.



Transconomy's solution demonstrated an efficient, scalable, and cost-effective solution, increasing the value of the investment in field data collection activities and providing robust data enabling a more holistic perspective for pavement and asset management.



Transconomy LLC

24805 Pinebrook Road, Suite 204, Chantilly, Virginia 20152

www.transconomy.ai info@transconomy.com (703) 722-2980

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