

Broadband Standards

CITY OF MORGAN HILL

For Broadband connectivity, a project is required to install conduits in all the public rights-of-way fronting the project site to accommodate multiple broadband providers. The following standards apply:

A. Design Plans

1. The project is required to submit design plans to include an engineering plan and profile of each street showing the location of existing underground utilities in the proposed path of the broadband conduit installation.
2. The design plans shall also include the approximate locations and dimensions for surface restoration.

B. Broadband Conduit

1. Provide a minimum of two (2) conduits each with at least two pull cables. At least one conduit shall remain empty and reserved for use by a potential future broadband service provider.
2. Each conduit shall be a 4" diameter PVC pipe, non-pressure type but has adequate stiffness for direct burial usage without encasement in concrete. The type of pipe shall be consistent with industry standards and be orange in color.
3. Broadband system designers shall field-verify the locations of existing utilities and surface features along and adjacent to the proposed conduit alignment.
4. The preferred horizontal conduit alignment is at centerline of sidewalk or as approved by the City Engineer.
 - a. For conduits allowed in the street: Locate new conduit 3' from face of curb. Conduits shall be located parallel to the street centerline, where practicable, and shall not meander along the street. Street crossings shall be perpendicular to the street centerline.
5. Horizontal Clearance:
 - a. Minimum 1' horizontal clearance from new conduit to other existing utilities, excluding water mains, gas lines, and electric lines.

- b. Minimum 3' horizontal clearance from new conduit to existing water main.
 - c. The applicant is responsible for checking with owners of adjacent non-City utilities (ex. gas and electric lines) to verify their required horizontal separation requirements.
6. All conduits shall be installed underground using directional boring method or open trench.
- a. For Directional Bore Design
 - i. Plans shall include a layout plan and profile sheets for directional bores. All existing utilities must be shown to scale on the plan and profile views.
 - ii. Vertical Clearance: Provide 3' minimum vertical clearance from all utilities. This includes minor services, such as water services and sewer laterals. For deep crossings, provide a minimum of 5' clearance from utilities and structures. The applicant is responsible for checking with owners of adjacent non-City utilities (ex. gas and electric lines) to verify their required vertical separation requirements.
 - iii. Boring and Receiving Pits: Show the length, width, depth, and location of the boring and receiving pits on the plans and profiles. The pits are to be located to minimize the construction impact to the adjacent properties and streets. Pits should not be in front of existing driveways, restaurants, bus stops, fire hydrants, and within street intersections.
 - iv. Conflicts with Trees: If trees are in the way of the directional bore, the conduit shall be bored 8' to 12' underneath the tree roots rather than around the tree.
 - b. For Trench Design
 - i. For open-trench construction in the street: Conduit shall have a minimum cover of 36" above the top of the conduit and allow at least 6" between the top of the conduit and the bottom of the street structural pavement section.
 - ii. For a trench outside the street section: Conduit shall have a minimum cover of 30".
 - iii. Open trenches deeper than 60" must comply with Cal/OSHA standards, requiring protective systems, such as shoring.

- iv. Vertical Clearance: Provide 12” minimum vertical clearance from all other utility lines and services, including other telecommunication lines.
7. Tracer Wire: The conduits shall be installed with a tracer wire.
 - a. Install tracer wire in the trench or bore with all underground conduits. Ensure the tracer wire provides end-to-end electrical continuity for electronically locating the underground conduit system.
 - b. In a trenching operation, install the tracer wire no more than 3” above the conduit.
 - c. In a boring operation, install the tracer wire in an encasement.
 8. Identification Tape: A 6” wide, orange magnetically detectable identification tape shall be installed 12 inches above the entire length of the conduit route. The tape shall be continuously imprinted with "BROADBAND CONDUIT".

C. Pullboxes

1. Indicate locations of all pullboxes, other service boxes and manholes on the design plans.
2. Pullboxes shall be a No. 8 pullbox per City of Morgan Hill Standard E-6.
3. Pullboxes and splice boxes shall be located within the park strip/planter strip or at the back of sidewalk unless the City Engineer approves an alternative location.
4. The maximum distance between any two pull boxes shall not exceed 1,200 feet. Within the 1,200-foot distance, provide pullboxes at locations wherever the cumulative change of direction of the conduit exceeds 180 degrees.
5. The minimum bending radius for conduit shall be 3 feet.
6. Pullboxes shall be located a minimum of 12 inches from all structures.

D. Manholes

1. A detail of the manhole must be shown on the plans.
2. Manholes for broadband conduit shall not be allowed in the street unless an exception is granted by the City Engineer.

3. Manholes allowed to be in the street must have cast iron frames and covers.
4. Manholes that are in sidewalks shall have a concrete polymer frame and cover that matches the color and texture of the sidewalk.
5. Manholes shall not be placed within a driveway approach or within the curb return at intersections.
6. All manholes must be rated for a minimum H-20 wheel load.
7. The name “BROADBAND” shall be permanently cast into or engraved on the manhole covers.

E. Related Work

Refer to the City’s Design Standards and Standard Details for Construction for pavement materials, trench limits of restoration, backfill for boring, and backfill for trenching.