# AGENDA
## Town Council
### Monday, August 25, 2025
### 6:00 pm Work Session and 7:00 p.m. Regular Meeting

Sunnyvale Town Hall
Council Chambers
127 N Collins Rd.
Sunnyvale, TX. 75182

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**A. Work Session - 6 p.m.**

1. Discussion and update related to current parks projects.

**B. Regular Meeting - 7 p.m.**

**C. Invocation**

**D. Pledge of Allegiance**

**E. Call Meeting to Order**

**F. Announcements and Acknowledgements**

Pursuant to Texas Government Code Section 551.0415 the Mayor, Council and Staff may report on the following items: (1) expression of thanks, congratulations or condolences; (2) information about holiday schedules; (3) recognition of individuals; (4) reminders about upcoming Town Council events; (5) information about community events; (6) announcements involving imminent threat to public health and safety.

**G. Public Comment**

The Town Council invites citizens to address the Town Council on any matter, except items on the agenda and public hearings that are included on the agenda. Comments related to items on the agenda and public hearings will be heard when the specific item/hearing starts. Citizen comments are limited to three (3) minutes, unless otherwise required by law. To address the Council, please fill out a Public Comment Card and submit it to a staff member prior to the Public Comment section on the agenda. The Council is not permitted to take any action or discuss any item not listed on the agenda. Council may choose to place the item on a future agenda.

**H. Introductions**

1. Introduction of New Employees:
    - Carnell Horn – PW Construction Inspector
    - Jose Verdin – Parks Maintenance Tech
    - Leonard Daniels – PW Crew Leader
    - Johnni Belinda Diaz – Permit Technician

## I. Consent Agenda Items

1. Consider and act upon the minutes from the August 11, 2025, Town Council meeting.
   August 11, 2025 DRAFT Minutes.pdf

2. Consider and act upon the second reading of Ordinance 2025-09 regarding a Planned Development (PD) ordinance amendment to allow for a one-time, temporary concrete batch plant to facilitate construction of 34 new single family homesites and associated infrastructure, within The Homestead Phase 7 PD zoning district (Ordinance No. 2024-06), generally located at the southeast corner of Town East Blvd and New Hope Rd, known as The Homestead residential development. **Case 1851-Z/The Homestead Phase 7 PD Amendment – Temporary Concrete Batch Plant** .

   Map
   Temporary concrete batch plant location map
   Ordinance 2025-09 - Amending Homestead Planned Development Phase 7
   Response letter to public hearing notification (1)
   Response letter to public hearing notification (2)

3. Discuss, consider and act upon Resolution 2025-19 declaring certain property as surplus and authorizing the Town Manager to execute the sale, trade, donation, or disposal of said property.
   RES 2025-19 Various Surplus Items.docx

## J. Presentations and Updates

1. Discuss and provide an update regarding the Imagine Sunnyvale Comprehensive Plan kick-off events and public engagement.
   How to Get Involved

2. Discussion and update on the Broadband Study including current findings and recommendations for Town broadband initiatives.
   Sunnyvale_Feasibility_Study_Final_Draft_9_13.pdf

## K. Discussion and Action Items

1. Discuss, consider and act upon appointing one member to serve on the 4B Economic Development Board.

2. Discuss, consider and act upon Resolution 2025-18 approving a master equity lease agreement, maintenance management and fleet rental agreement with Enterprise Fleet Management, Inc.
   RES 2025-19 Enterprise.docx
   Assignment Agreement to Sell FM Customer Vehicles.pdf
   Open-Ended Sample Lease Schedule.pdf
   Enterprise Fleet Synopsis - Sunnyvale.pdf

3. Discuss, consider and act upon the purchase of additional traffic signal equipment for the Belt Line Intersection Project in an amount not to exceed $75,000.

4. Discuss, consider and act upon approval of a contract with NewGen Strategies and Solutions, LLC to conduct a drainage utility and fee study.

   2025-07-29 NewGen Contract.pdf

5. Discuss, consider and act upon direction to Staff related to the design and planning for Jobson Park for cost-effective construction and future flexibility.

6. Mayor and Council requests for future Staff updates and agenda items.

## L. Executive Session

1. Section 551.071 - Consultation with Attorney

   To seek the advice of the Town's attorney about pending or contemplated litigation; or a settlement offer; or on a matter in which the duty of the attorney to the governmental body under the Texas Disciplinary Rules of Professional Conduct of the State Bar of Texas clearly conflicts with this Chapter.

   - Briefing related to the Town Manager search
   - Briefing related to pending public information requests
   - Briefing related to pending media campaign
   - Briefing related to Special Election and petition

2. Section 551.072 – Deliberations about Real Property

   To deliberate the purchase, exchange, lease, or value of real property if deliberation in an open meeting would have a detrimental effect on the position of the governmental body in negotiations with a third person.

   - Athletic Club

3. Section 551.087 - Economic Development

   To deliberate the offer of a financial or other incentive to a business prospect.

   - Athletic Club

## M. End Executive Session

1. Consider official action, if any, on matters discussed in executive session.

   Section 551.071 - Consultation with Attorney
   - Briefing related to the Town Manager search
   - Briefing related to pending public information requests
   - Briefing related to pending media campaign
   - Briefing related to Special Election and petition

   Section 551.072 – Deliberations about Real Property
   - Athletic Club

   Section 551.087 - Economic Development
   - Athletic Club

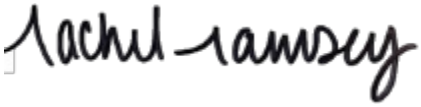
## N. Adjourn

NOTE: The Town Council reserves the right to meet in Executive Session closed to the public at any time in the course of this meeting to discuss matters listed on the agenda, as authorized by the Texas Open Meetings Act, Texas Government Code, Chapter 551, including §551.071 (private consultation with the attorney for the Town); §551.072 (purchase, exchange, lease or value of real property); §551.074 (personnel or to hear complaints against personnel); §551.076 (deployment, or specific occasions for implementation of security personnel or devices); and §551.087 (economic development negotiations). Any decision held on such matters will be taken or conducted in Open Session following the conclusion of the Executive Session.

The Town of Sunnyvale is committed to compliance with the Americans with Disabilities Act (ADA). Reasonable accommodations and equal access to communications will be provided to those who provide notice to the Town Secretary at 972-226–7177 at least 48 hours prior to the meeting.

Notice is hereby given that the Sunnyvale Town Council will conduct its Regular Meeting on Monday, August 25, 2025 at the Sunnyvale Town Hall. The public is encouraged to attend the meeting. Email comments may also be submitted to rachel.ramsey@townofsunnyvale.org by 3 p.m. the day of the meeting. The link to the live stream of the meeting will be posted on Sunnyvale's Facebook page Town of Sunnyvale – Government.

I hereby certify that the foregoing notice was posted at Town Hall, 127 N. Collins Rd., Sunnyvale, Texas and remained so posted continuously for at least 72 hours preceding the scheduled time of said meeting:



Rachel Ramsey, Director of Administration/Town Secretary
Date Posted: August 20, 2025
Time Posted: 12 p.m.

Date Removed from Bulletin Board: _____
Removed By: _____

# MINUTES
## Town Council
### Monday, August 11, 2025
### 7:00 pm Regular Meeting

Sunnyvale Town Hall
Council Chambers
127 N Collins Rd.
Sunnyvale, TX. 75182

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**A. Invocation**
Mayor George gave the Invocation.

**B. Pledge of Allegiance**
Mayor George led the Pledge of Allegiance.

**C. Call Meeting to Order**
Mayor George called the meeting to order at 7:06 p.m. with the following Council and Staff present: Interim Town Manager Bill Vegas, Director of Administration/Town Secretary Rachel Ramsey, Director of Finance Miykael Reeve, Assistant Director of Finance Rachel Kulhavy, Assistant Town Engineer Elmer Benitez, Human Resources Director Lilly Clarke, Chief Building Official CJ Jarecki, Fire Chief Tami Kayea, Interim Police Chief BJ Brumit and Town Attorney Heather Shankle.

Council Member Finch and Council Member Eldridge were absent.

**D. Announcements and Acknowledgements**
Mayor George opened the floor to any announcements and acknowledgements from Council or Staff, hearing none he moved to the next portion of the agenda.

**E. Public Comment**
Mayor George opened the floor to public comments.

Bill Metzger, 414 Ranchero, Sunnyvale, spoke thanking Council for what they are doing as far as fields and parks and further stated that it is also important to have opportunities for older citizens so that we do not leave them behind.

With no one else coming forward, he closed the floor to public comments.

**F. Recognitions**

1. Recognition of J. Shepard and J. Elliott on promotion from Corporal to Sergeant.
Interim Police Chief BJ Brumit recognized Sgt. Shepard and Sgt. Elliott on their recent promotions, following the recognition family members of the officers performed a ceremonial badge pinning.

2. Recognition of the Town of Sunnyvale as a StormReady Community by the National Weather Service.
Fire Chief Tami Kayea introduced the item and Sarah Barnes with the National Weather

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Service presented the Town with a certificate for being a StormReady Community.

## G. Consent Agenda Items

1. Consider and act upon the minutes from the July 28, 2025, Town Council meeting.

Mayor Pro Tem Kevin Clark made a motion to approve as presented, Member Larry Allen seconded the motion.

**Ayes:** Mayor Saji George, Mayor Pro Tem Kevin Clark, Member Manu Danny, Member Larry Allen, and Member Dr George Woodrow Jr.

**Motion Passed Unanimously 5- 0 on a recorded vote**

## H. Public Hearing Items

1. Hold a public hearing, discuss, consider and act upon the first reading of Ordinance 2025-09 regarding a Planned Development (PD) ordinance amendment to allow for a one-time, temporary concrete batch plant to facilitate construction of 34 new single family homesites and associated infrastructure, within The Homestead Phase 7 PD zoning district (Ordinance No. 2024-06), generally located at the southeast corner of Town East Blvd and New Hope Rd, known as The Homestead residential development. **Case 1851-Z/The Homestead Phase 7 PD Amendment – Temporary Concrete Batch Plant** .

Director of Planning and Development Surupa Sen presented the item and was available to answer questions.

Jim Douglas, 2309 K Avenue, Suite 100, Plano, with Douglas Properties is the applicant and was also available to answer questions and provide clarity for Council.

Brian Cottle, 4228 Tower Circle, Nevada, was present on behalf of the applicant and was also available to answer questions from Council.

Mayor George opened the public hearing at 7:52 p.m.

Jerry Johnson, 239 Hearthstone, Sunnyvale, spoke in favor of this item.

With no one else coming forward, Mayor George closed the public hearing at 7:55 p.m.

Member Larry Allen made a motion to approve as presented, Member Dr George Woodrow Jr. seconded the motion.

**Ayes:** Mayor Saji George, Mayor Pro Tem Kevin Clark, Member Manu Danny, Member Larry Allen, and Member Dr George Woodrow Jr.

**Absent:** Member Ryan Finch, and Member Mark Eldridge

**Motion Passed Unanimously 5- 0 on a recorded vote**

## I. Presentations and Updates

1. Presentation and update related to parks projects.

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Assistant Town Engineer Elmer Benitez gave an update related to parks projects and was available to answer questions from Council.

## J. Discussion and Action Items

1. Discuss, consider and act upon Ordinance 2025-10 ordering a special election to be held in the Town of Sunnyvale at the next uniform election date, being Tuesday, November 4, 2025, for the purpose of filling a vacancy by electing Town Council Place 4 for an unexpired term of six months until May 2026, and designating the date for a runoff election if so needed.
Director of Administration/Town Secretary Rachel Ramsey presented the item and was available to answer questions from Council.

Member Larry Allen made a motion to approve as presented, Member Manu Danny seconded the motion.

**Ayes:** Mayor Saji George, Mayor Pro Tem Kevin Clark, Member Manu Danny, Member Larry Allen, and Member Dr George Woodrow Jr.
**Absent:** Member Ryan Finch, and Member Mark Eldridge
**Motion Passed Unanimously 5- 0 on a recorded vote**

2. Discuss, consider and act upon awarding a contract to the lowest apparent bidder for the Belt Line Intersection Improvement Project and authorize the interim Town Manager to execute all documents related to the contract.
Assistant Town Engineer Elmer Benitez presented the item and was available to answer questions from Council.

Mayor George opened the floor to public comments and with no one coming forward, he closed the floor to public comments.

Mayor Pro Tem Kevin Clark made a motion to approve as presented, Member Dr George Woodrow Jr. seconded the motion.

**Ayes:** Mayor Saji George, Mayor Pro Tem Kevin Clark, Member Manu Danny, Member Larry Allen, and Member Dr George Woodrow Jr.
**Absent:** Member Ryan Finch, and Member Mark Eldridge
**Motion Passed Unanimously 5- 0 on a recorded vote**

3. Discuss, consider and act upon scheduling a public hearing for Sept. 8, 2025 on the proposed tax rate and proposed annual operating budget for Fiscal Year 2026.
Item J.5 was heard before this item.

Mayor Pro Tem Kevin Clark made a motion to approve as presented, Member Dr George Woodrow Jr. seconded the motion.

**Ayes:** Mayor Saji George, Mayor Pro Tem Kevin Clark, Member Manu Danny, Member Larry Allen, and Member Dr George Woodrow Jr.
**Absent:** Member Ryan Finch, and Member Mark Eldridge

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**Motion Passed Unanimously 5- 0 on a recorded vote**

4. Discuss, consider, and act upon scheduling a date to adopt the FY 2026 budget and proposed tax rate.

   Mayor Pro Tem Kevin Clark made a motion to approve as presented, Member Larry Allen seconded the motion.

   **Ayes:** Mayor Saji George, Mayor Pro Tem Kevin Clark, Member Manu Danny, Member Larry Allen, and Member Dr George Woodrow Jr.
   **Absent:** Member Ryan Finch, and Member Mark Eldridge

   **Motion Passed Unanimously 5- 0 on a recorded vote**

5. Discuss, consider and act upon the proposed tax rate for Fiscal Year 2025-2026.
   This item was heard prior to item three.

   Director of Finance Miykael Reeve presented the item and was available to answer questions from Council.

   Mayor George opened the floor to public comments.

   Veronica Martinez-Cantu, 371 Tavenner, Sunnyvale, commended Staff for a very detailed budget presentation.

   With no one else coming forward, he closed the floor to public comments.

   Member Larry Allen made a motion to propose a total tax rate of 0.506441 with a M&O rate of .357261 and a debt rate of .149180, Mayor Pro Tem Kevin Clark seconded the motion.

   **Ayes:** Mayor Saji George, Mayor Pro Tem Kevin Clark, Member Manu Danny, Member Larry Allen, and Member Dr George Woodrow Jr.
   **Absent:** Member Ryan Finch, and Member Mark Eldridge

   **Motion Passed Unanimously 5- 0 on a recorded vote**

6. Mayor and Council requests for future Staff updates and agenda items.
   Mayor nor Council had any requests for future staff updates or agenda items.

**K. Executive Session**

1. Section 551.071 - Consultation with Attorney

   To seek the advice of the Town's attorney about pending or contemplated litigation; or a settlement offer; or on a matter in which the duty of the attorney to the governmental body under the Texas Disciplinary Rules of Professional Conduct of the State Bar of Texas clearly conflicts with this Chapter.

   - Briefing regarding pending media campaign
   - Briefing regarding Building Standards Commission hearing on substandard building
   - Briefing regarding Board of Adjustment hearing on fence permit

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- Briefing regarding pending public information requests
- Briefing regarding former Town Manager's severance agreement
- Briefing regarding Town Manager search
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2. Section 551.074 – Personnel Matters

   To deliberate the appointment, employment, evaluation, reassignment, duties, discipline, or dismissal of a public officer or employee.

   - Town Manager search

3. Section 551.087 - Economic Development

   To deliberate the offer of a financial or other incentive to a business prospect.

   - Athletic Club

Member Larry Allen made a motion to adjourn into executive session at 9:52 p.m., Mayor Pro Tem Kevin Clark seconded the motion.

**Ayes:** Mayor Saji George, Mayor Pro Tem Kevin Clark, Member Manu Danny, Member Larry Allen, and Member Dr George Woodrow Jr.
**Absent:** Member Ryan Finch, and Member Mark Eldridge

**Motion Passed Unanimously 5- 0 on a recorded vote**

## L. End Executive Session

1. Consider official action, if any, on matters discussed in executive session.

Section 551.071 - Consultation with Attorney
- Briefing regarding pending media campaign
- Briefing regarding Building Standards Commission hearing on substandard building
- Briefing regarding Board of Adjustment hearing on fence permit
- Briefing regarding pending public information requests
- Briefing regarding former Town Manager's severance agreement
- Briefing regarding Town Manager Search

Section 551.074 – Personnel Matters

- Town Manager search

Section 551.087 - Economic Development
- Athletic Club

Mayor George reconvened the meeting into open session at 12:15 a.m. and stated that as a result of executive session, no action is necessary.

## M. Adjourn

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Member Larry Allen made a motion to adjourn the meeting at 12:16 a.m., Mayor Pro Tem Kevin Clark seconded the motion.

**Ayes:** Mayor Saji George, Mayor Pro Tem Kevin Clark, Member Manu Danny, Member Larry Allen, and Member Dr George Woodrow Jr.
**Absent:** Member Ryan Finch, and Member Mark Eldridge

**Motion Passed Unanimously 5- 0 on a recorded vote**

*The undersigned presiding officer certifies that this is a true and correct record of the proceedings.*

Saji George, Mayor

Attest:

Rachel Ramsey

Rachel Ramsey, Town Secretary

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Town Council

# AGENDA ITEM REPORT

**I.2**

**To:** Town Council

**Subject:** Consider and act upon the second reading of Ordinance 2025-09 regarding a Planned Development (PD) ordinance amendment to allow for a one-time, temporary concrete batch plant to facilitate construction of 34 new single family homesites and associated infrastructure, within The Homestead Phase 7 PD zoning district (Ordinance No. 2024-06), generally located at the southeast corner of Town East Blvd and New Hope Rd, known as The Homestead residential development. **Case 1851-Z/The Homestead Phase 7 PD Amendment – Temporary Concrete Batch Plant** .

**Meeting:** Town Council - August 25, 2025

**Department:** Development Services

**Staff Contact:** Surupa Sen

## SUGGESTED ACTION:

Staff recommends approval.

## BACKGROUND INFORMATION:

The applicant, Jim Douglas, Douglas Properties, Inc., earlier this year, received approval from Town Council for a PD Concept Plan amendment to allow a single-family residential subdivision containing 34 residential lots and approximate 8.67-acres of open space (Ordinance No. 2024-06). The property is currently vacant, generally located at the southeast and southwest corner of Town East Blvd. and New Hope Road within The Homestead Planned Development (PD/PRO-464) zoning district. To facilitate construction of the homesites and associated roadway infrastructure and utilities; the applicant is now requesting approval of a temporary concrete batch plant within The Homestead Phase 7.

The Homestead Planned Development is a residential PD and allows construction of detached single-family homes, parks and open space, and associated residential accessory uses. Concrete batch plant as a use is neither listed in the PD zoning nor was requested during any of the earlier phases of the Homestead development. The applicant is requesting this on-site

batch plant to eliminate concrete delivery trucks arriving to the construction site daily during construction and using Town East Blvd as the primary access route. This can potentially cause maintenance issues on Town East Blvd. that is heavily traveled as an arterial roadway. Allowing the batch plant on site would also reduce transportation costs for the applicant.

The Homestead residential development is a high-quality residential community that is mostly built out with this last phase of 34 lots remaining. To allow a concrete batch plant within such close proximity of residential homes, is counter intuitive of any practical zoning and land use principles. A batch plant may create negative impacts of noise, construction debris, and exacerbate drainage impact to the existing HOA detention ponds and storm water drainage systems. Placing restrictions and time limits on the batch plant operations may alleviate some of these concerns.

After reviewing the application and upon further discussion with the applicant, staff have identified certain restrictions that should apply to this temporary concrete batch plant if the temporary use is approved by Town Council. As indicated on the attached location map, the temporary batch plant will operate on the proposed Lot 4, Block B of The Homestead Phase 7B subdivision. The following restrictions shall apply to the batch plant operations:

1. The temporary batch plant shall operate only once during the entire life span of The Homestead Phase 7 construction.
2. A building permit shall be required before the batch plant can start mobilizing and operations.
3. The batch plant may operate for a maximum of 25 calendar days, including set-up and dismantling of the batch plant. Due to weather-related delays, upon request by the applicant, the batch plant operations may be extended for another 5 calendar days. Under no circumstances will the batch plant remain operational 30 calendar days after the issuance of building permit.
4. As per the Town of Sunnyvale Code of Ordinances **Chapter 4.01.003 Hours for construction work; noise; traffic control**; the batch plant operations shall be limited to the following operating hours:
    1. Construction hours. Construction and construction related activities within the town shall not begin earlier than 7:00 a.m. on weekdays nor continue after 7:00 p.m. when work is on or adjacent to a residential use. Construction on Saturday shall not begin before 8:00 a.m. nor continue after 7:00 p.m. when work is on or adjacent to a residential use, and work on Sunday or a federal holiday is prohibited without special permission from the town manager or designee. The construction related activity includes but is not limited to the maintenance, servicing and fueling of construction equipment.
5. Before issuance of building permit, the applicant must amend the existing SW3P plan for small construction activity (between 1 – 5 acres).
6. The temporary batch plant shall comply with TCEQ's Batch Plant regulations and submit revised plans to the Town Engineer for review and approval before issuance of building permit.

7. An earthen berm around temporary batch plant site shall be built before start of operations.
8. The temporary batch plant shall be required to have storage silos for cement and auxiliary storage tanks all controlled by filter systems.
9. All concrete aggregate at the temporary batch plant shall be washed for dust and silica control prior to arriving to the site.
10. Once stockpiles are made on site at the temporary batch plant, sprinkler systems shall be placed on top of the stockpiles that keep the area free from dust.
11. All haul trucks and traffic areas shall be watered on a constant basis for dust control
12. Any concrete wash out pits used inside the perimeter of the temporary batch plant site for any waste concrete shall be taken off site at the end of the permit timeline.
13. Stormwater contractor hired by the applicant shall perform weekly inspections of the site and any day there is a measurable rain event.
14. If the batch plant operations are completed before the stipulated 25 days on the building permit, then the batch plant should be dismantled and the lot returned to its pre-construction state immediately.

These restrictions would allow staff to monitor and stop operations of the batch plant if any violations occur. The timeline restrictions should facilitate speedy and efficient construction where the site is not encumbered with this “temporary” batch plant use for longer than necessary.

**Planning & Zoning Commission Recommendation**

The Planning and Zoning Commission considered this PD - amendment request to allow the temporary batch plant at their July 16, 2025, meeting, and unanimously recommended approval.

**PUBLIC NOTICE:**

11 letters of notification were mailed to neighboring property owners within 200 feet of the subject property on July 2, 2025. Two signs have been posted on the subject property since then. Notice of the public hearing has been published on Dallas Morning News (DMN) legal notice section on July 25, 2025. As of writing of this report, the town has received two written responses with regards to the PD amendment request that is attached with the staff report.

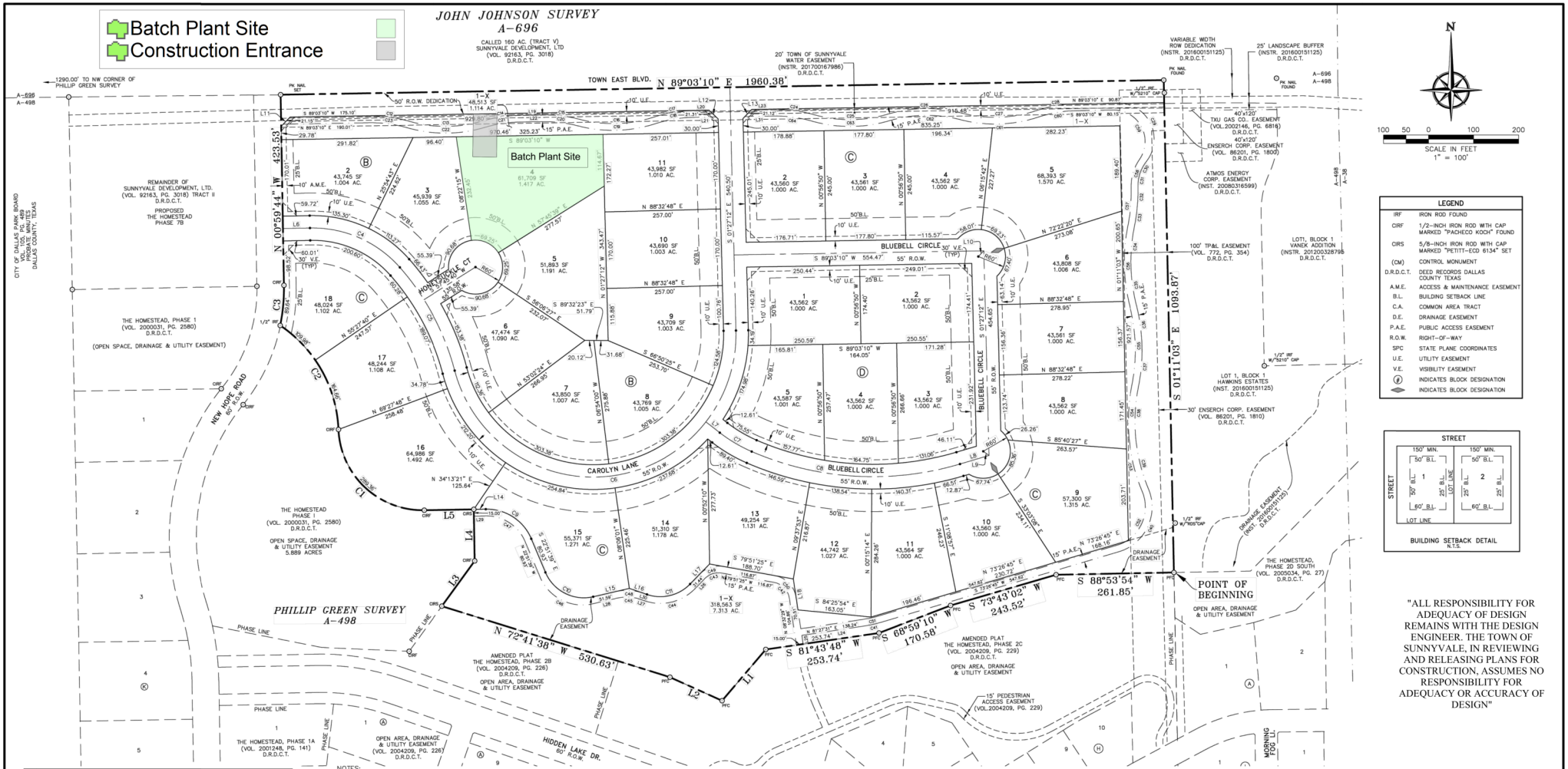
**ATTACHMENTS:**

Map
Temporary concrete batch plant location map
Ordinance 2025-09 - Amending Homestead Planned Development Phase 7
Response letter to public hearing notification (1)
Response letter to public hearing notification (2)

# TOWN OF SUNNYVALE

## *Case 1851 - Z - Temporary Concrete Batch Plant*
## *The Homestead Phase 7*






NOTES:

1. All bearings shown hereon are based on the Texas State Plane Coordinate System of 1983 (2011), North Central Zone (4202).
2. A 1/2" iron rod with red cap stamped "ONEAL 6570" will be set at all lot corners and/or at reference points to lot corners, wherever possible, after the completion of all utilities and subdivision construction.
3. According to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map No. 48113C0390K, dated, July 7, 2014, this property lies within Flood Zone X (Area of Minimal Flood Hazard). This Flood Statement does not imply that the property and/or structures thereon will be free from flooding or flood damage. On rare occasions, greater floods can and will occur and flood heights may be increased by man-made or natural causes. This Flood Statement shall not create liability on the part of the surveyor.
4. Selling a portion of this addition by metes and bounds is a violation of the Town Subdivision Ordinance and state platting statutes and is subject to fines and withholdings of utilities and building certificates..
5. Shall meet the development standards within The Homestead Planned Development Ordinance and the UDO.
6. The following is to be maintained by The Homestead HOA
   6.1. Open Spaces
   6.2. Trails
   6.3. Detention Ponds
   6.4. Siltation Ponds
   6.5. Retaining Walls within HOA Common Areas
   6.6. Entry Monuments
   6.7. Landscaping within HOA Common Areas
   6.8. Irrigation within HOA Common Areas
7. Sight Visibility Restriction: No structure, object, or plant of any type may obstruct vision from a height of 24 inches to a height of 10 feet above the top of the curb, including, but not limited to buildings, fences, walks, signs, trees, shrubs, cars, trucks, etc., in the sight visibility easement as shown on the Plat. These sight visibility easements will remain in effect until vacated by ordinance adopted by the Town Council and the property replatted.

BENCHMARK 1
An "X" cut found in concrete pavement near the center of New Hope Road, about 415 feet south of the south side of Town East Boulevard. ELEV. 515.50'
N: 6,984,010.70
E: 2,556,367.14

BENCHMARK 2
An "X" cut set on a concrete curb inlet on the west side of New Hope Road, about 585 feet south of the south side of Town East Boulevard. ELEV. 513.71'
N: 6,983,852.81
E: 2,556,314.69

BENCHMARK 3
An "X" cut found in concrete near the center of New Hope Road, about 680 feet south of the south side of Town East Boulevard. ELEV. 514.74'
N: 6,984,010.70
E: 2,556,367.14

**ORDINANCE NO. 2025-09**

**AN ORDINANCE OF THE TOWN COUNCIL OF THE TOWN OF SUNNYVALE, TEXAS, AMENDING PLANNED DEVELOPMENT ORDINANCE 464, ORIGINALLY ADOPTED AS ORDINANCE NO. 290 AS AMENDED BY ORDINANCE 362, BY THE ADDITION OF A USE TO ALLOW FOR A TEMPORARY BATCH PLANT WITH CONDITIONS ON LOT 4, BLOCK B WITHIN PHASE 7; PROVIDING AN AMENDED CONCEPT PLAN, ATTACHED HERETO AS EXHIBIT "B"; PROVIDING FOR AMENDED DEVELOPMENT STANDARDS, ATTACHED HERETO AS EXHIBIT "C"; PROVIDING A SCREENING PLAN, ATTACHED HERETO AS EXHIBIT "D"; PROVIDING A SITE DEPICTION, ATTACHED HERETO AS EXHIBIT "E"; REPEALING ORDINANCE 2024-06; PROVIDING FOR SEVERABILITY, REPEALING, AND SAVINGS CLAUSES; PROVIDING A PENALTY CLAUSE; PROVIDING FOR PUBLICATION; PROVIDING AN EFFECTIVE DATE; AND FINDING AND DETERMINING THE MEETING AT WHICH THIS ORDINANCE IS ADOPTED TO BE OPEN TO THE PUBLIC AS REQUIRED BY LAW.**

**WHEREAS,** the Town of Sunnyvale, Texas (hereinafter referred to as "Town") is a Home Rule Municipality acting under its Charter adopted by the electorate pursuant to Article XI, Section 5 of the Texas Constitution and Chapter 9 of the Texas Local Government Code; and

**WHEREAS,** the Town Council of the Town (the "Town Council"), is authorized and empowered by law, in accordance with Chapter 211 of the Texas Local Government Code, to adopt zoning regulations governing the use of land within the Town; and

**WHEREAS**, The Homestead Phase 7 is a 54.4-acre tract portion of The Homestead Planned Development and is included in Planned Development Ordinance 464, and is more particularly described in **Exhibit A-1** and depicted in **Exhibit A-2,** attached hereto and incorporated as if fully set forth herein ("Phase 7"); and

**WHEREAS,** on January 12, 1998, the Town Council adopted Ordinance 290 approving an application for a Cluster Option Development which established the rules and regulations for The Homestead Planned Development; and

**WHEREAS,** on January 21, 2002, the Town Council adopted Ordinance 362 amending Ordinance 290 which revised the concept plan and reduced contributions in lieu of amenity construction; and

**WHEREAS,** on July 23, 2007, the Town Council adopted Ordinance 464 ("PRO-464"), amending Ordinance 290 and Ordinance 362, which reduced the overall density, reconfigured the phasing plan, and reduced contributions in lieu of amenity construction; and

**WHEREAS,** on July 8, 2024, the Town Council adopted Ordinance 2024-06 amending PRO-464 by amending the concept plan, as set forth in **Exhibit B**, which depicts the thirty-four (34) residential lots and approximately 8.67-acres of open space within Phase 7, amending development standards, as set forth in **Exhibit C**, which established development standards specific to Phase 7 in

addition to those included in PRO-464, and added in the screening plan, as set forth in **Exhibit D**, which depicts the incorporated landscaping requirements for Phase 7 on the approximately 8.67-acres of open space in addition to those included in PRO-464; and

**WHEREAS**, the Town has received a request from Douglas Properties, Inc., for an amendment of Planned Development Ordinance No. 464 to allow for the use of a temporary batch plant on Lot 4, Block B within Phase 7 as shown in **Exhibit E**; and

**WHEREAS**, in addition to those included in PRO-464, the amended development standards, as set forth in **Exhibit C**, shall establish a use on Lot 4, Block B within Phase 7 for a temporary batch plant with conditions; and

**WHEREAS**, after public notices were given in compliance with Texas law and public hearings were conducted, and after considering the information submitted at those public hearings and all other relevant information and materials, the Planning and Zoning Commission of the Town (the "Planning and Zoning Commission") has recommended to the Town Council to approve the requested changes; and

**WHEREAS**, after complying with all legal notices, requirements, and conditions, a public hearing was held before the Town Council at which it considered the recommendation of the Planning and Zoning Commission and, among other things, the character of the land and its suitability for particular uses, and compatibility with surrounding uses, with a view of encouraging the most appropriate use of land in the Town, and the Town Council does hereby find that the requested amendments accomplish such objectives.

**NOW, THEREFORE, BE IT ORDAINED BY THE TOWN COUNCIL OF THE TOWN OF SUNNYVALE, TEXAS THAT:**

**Section 1. Incorporation of Premises.** The above and foregoing premises are true and correct and are incorporated herein and made a part hereof for all purposes.

**Section 2. Findings**. After due deliberations and consideration of the recommendation of the Planning and Zoning Commission and the information and other materials received at the public hearing, the Town Council has concluded that the adoption of this Ordinance is in the best interests of the Town, and of the public health, safety and welfare.

**Section 3. Amendment**. Planned Development Ordinance 464 is hereby amended to allow for the use of a temporary concrete batch plant on Lot 4, Block B in Phase 7, subject to the following regulations and incorporation of all amendments previously made by Ordinance 2024-06, which exhibits are incorporated as if fully set forth herein, and all applicable Town ordinances and regulations governing except as may be modified by this Ordinance:

| | |
|---|---|
| Exhibit B: | Amended Concept Plan |
| Exhibit C: | Amended Development Standards |
| Exhibit D: | Screening Plan |
| Exhibit E: | Temporary Batch Plant Site Depiction |

**Section 4. Compliance Required**. Phase 7 shall be used only in the manner and for the purposes provided for in this Ordinance, PRO- 464 and the Uniform Development Ordinance of the Town, as amended.

**Section 5. Severability Clause.** Should any section, subsection, sentence, clause, or phrase of this Ordinance be declared unconstitutional or invalid by a court of competent jurisdiction, it is expressly provided that any and all remaining portions of this Ordinance shall remain in full force and effect. The Town hereby declares that it would have passed this Ordinance, and each section, subsection, sentence, clause, or phrase thereof irrespective of the fact that any one or more sections, subsections, sentences, clauses and phrases be declared unconstitutional or invalid.

**Section 6. Savings/Repealing Clause.** Ordinance 2024-06 shall be repealed in its entirety and all provisions of any ordinance in conflict with this Ordinance are hereby repealed to the extent they are in conflict; but such repeal shall not abate any pending prosecution for violation of the repealed ordinance, nor shall the repeal prevent a prosecution from being commenced for any violation if occurring prior to the repeal of the ordinance. Any remaining portions of said ordinances shall remain in full force and effect.

**Section 7. Penalty**. Any person, firm, entity or corporation who violates any provision of this Ordinance shall be deemed guilty of a misdemeanor, and upon conviction therefore, shall be fined in a sum not exceeding Two Thousand and No/100 Dollars ($2,000.00). Each continuing day's violation shall constitute a separate offense. The penal provisions imposed under this Ordinance shall not preclude the Town from filing suit to enjoin the violation. The Town retains all legal rights and remedies available to it pursuant to local, state and federal law.

**Section 8. Publication and Effective Date**. This Ordinance shall become effective immediately upon its adoption and its publication as required by law.

**Section 9. Open Meeting.** It is hereby officially found and determined that the meeting at which this ordinance was passed was open to the public as required by law, and that public notice of the time, place, and purpose of said meeting was given all as required by Section 551.041 of the Texas Government Code.

PASSED AND APPROVED by the Town Council of the Town of Sunnyvale, Texas on this the 25th day of August 2025.

_____

Saji George, Mayor

ATTEST:

_____

Rachel Ramsey, Town Secretary

# EXHIBIT A-1
# PROPERTY LEGAL DESCRIPTION

WHEREAS SUNNYVALE DEVELOPMENT, LTD, BEING THE OWNER of 54.400 acres of land situated n the Philip Green Survey, Abstract Number 498, Town of Sunnyvale, Dallas County Texas and being and being part of the Sunnyvale Development LTD, called 289.752–acre tract described as Tract II in deed recorded in Volume 92163, Page 3018 Deed Records, Dallas County, Texas (DRDCT), said 54.400 acres being comprised of a 4.011 acre tract of land (Tract One) and a 50.389 acre tract (Tract Two) and being more particularly described by metes and bounds as follows:

TRACT ONE

BEING a 4.011–acre tract of land situated in the Philip Green Survey, Abstract Number 498, Town of Sunnyvale, Dallas County Texas and being part of the Sunnyvale Development LTD, called 289.752–acre tract described as Tract II in deed recorded in Volume 92163, Page 3018 Deed Records, Dallas County, Texas (DRDCT), and being more particularly described by metes and bounds as follows:

BEGINNING at a PK Nail set at the northwest corner of New Hope Road, a 60 ft. right–of–way as shown on The Homestead, Phase I, an addition to the City of Sunnyvale, recorded in Volume 2000031, Page 2580, DRDCT, same being in the north line of said Tract II common to the south line of the Sunnyvale Development LTD, called 160–acre tract described as Tract V in deed recorded in Volume 92163, Page 3018 and also being in the approximate center of Town East Boulevard, an undedicated public right–of–way;

THENCE South 00 degrees 57 minutes 54 seconds East, departing the common line of said Tract II and said Tract V, along the west line of said New Hope Road, a distance of 424.89 feet to a 1/2–inch iron rod found at the northeast corner of the 1.987–acre Open Space, Drainage and Utility Easement shown on said The Homestead, Phase I addition;

THENCE South 89 degrees 02 minutes 06 seconds West, along the north line of said 1.987–acre Open Space, Drainage and Utility Easement, a distance of 410.00 feet to a 1/2–inch iron rod with cap stamped "PETITT–ECD 6134" set (hereinafter called "iron rod set") at the northwest corner of said 1.987–acre Open Space, same being in the west line of said Tract II, common to the west line of a tract of land conveyed to the City of Dallas Park Board, described in Volume 105, Page 489, Probate Records, Dallas County, Texas;

THENCE North 00 degrees 57 minutes 54 seconds West, along the common line of said City of Dallas Park Board tract and said Tract II, a distance of 427.34 feet to PK Nail set at the northwest corner of said Tract II, same being in the approximate centerline of said Town East Boulevard;

THENCE North 89 degrees 22 minutes 37 seconds East, along Town East Boulevard and said north line, a distance of 410.01 feet to the POINT OF BEGINNING and containing 4.011–acres of land, more or less.

TRACT TWO

BEING a 50.389–acre tract of land situated in the Philip Green Survey, Abstract Number 498, Town of Sunnyvale, Dallas County Texas and being part of the Sunnyvale Development LTD, called 289.752–acre tract described as Tract II in deed recorded in Volume 92163, Page 3018 Deed Records, Dallas County, Texas (DRDCT), and being more particularly described by metes and bounds as follows:

BEGINNING at a PK Nail set at the northeast corner of New Hope Road, a 60 ft. right–of–way as shown on The Homestead, Phase I, an addition to the City of Sunnyvale, recorded in Volume 2000031, Page 2580, DRDCT, same being in the north line of said Tract II common to the south line of the Sunnyvale Development LTD, called 160–acre tract described as Tract V in deed recorded in Volume 92163, Page 3018 and also being in the approximate center of Town East Boulevard, an undedicated public right–of–way;

THENCE North 89 degrees 22 minutes 37 seconds East, along the common line of said Tract II and said Tract V and generally along the center of said Town East Boulevard, a distance of 1960.88 feet to a PK Nail with shiner found at the northwest corner of Hawkins Estates, an addition to the City of Sunnyvale recorded in Instrument 201600151125, DRDCT;

THENCE South 01 degrees 07 minutes 45 seconds East, a distance of 1084.05 feet along the west line of said Hawkins Estates, passing a 1/2–inch iron rod with cap stamped RDS found for reference at a distance of 984.11 feet, a total distance of 1084.05 feet to the southwest corner of said Hawkins Estates, same being the common north corner of The Homestead, Phase 2C, an addition to the City of Sunnyvale, recorded in Volume 2004209, Page 229, DRDCT and The Homestead, Phase 2D South, an addition to the City of Sunnyvale, recorded in Volume 2005034, Page 27, DRDCT;

THENCE along the north line of said The Homestead, Phase 2C, the following courses and distances:

- South 88 degrees 57 minutes 04 seconds West, a distance of 262.05 feet;
- South 73 degrees 46 minutes 12 seconds West, a distance of 243.54 feet;
- South 69 degrees 02 minutes 20 seconds West, a distance of 170.59 feet;
- South 81 degrees 46 minutes 58 seconds West, a distance of 253.76 feet;
- South 40 degrees 28 minutes 21 seconds West, a distance of 149.50 feet;
- North 65 degrees 40 minutes 14 seconds West, a distance of 126.80 feet;
- North 72 degrees 38 minutes 43 seconds West, passing the common north corner of said The Homestead, Phase 2C and The Homestead, Phase 2B South, an addition to the City of Sunnyvale, recorded in Volume 2004209, Page 226, DRDCT at a distance of 120.67 feet and continuing along the north line of same a total distance of 530.64 feet to a 1/2–inch iron rod with cap stamped PETITT–ECD 6134 set in the west line of the 5.889–acre Open Space, Drainage and Utility Easement shown on said The Homestead, Phase I addition;

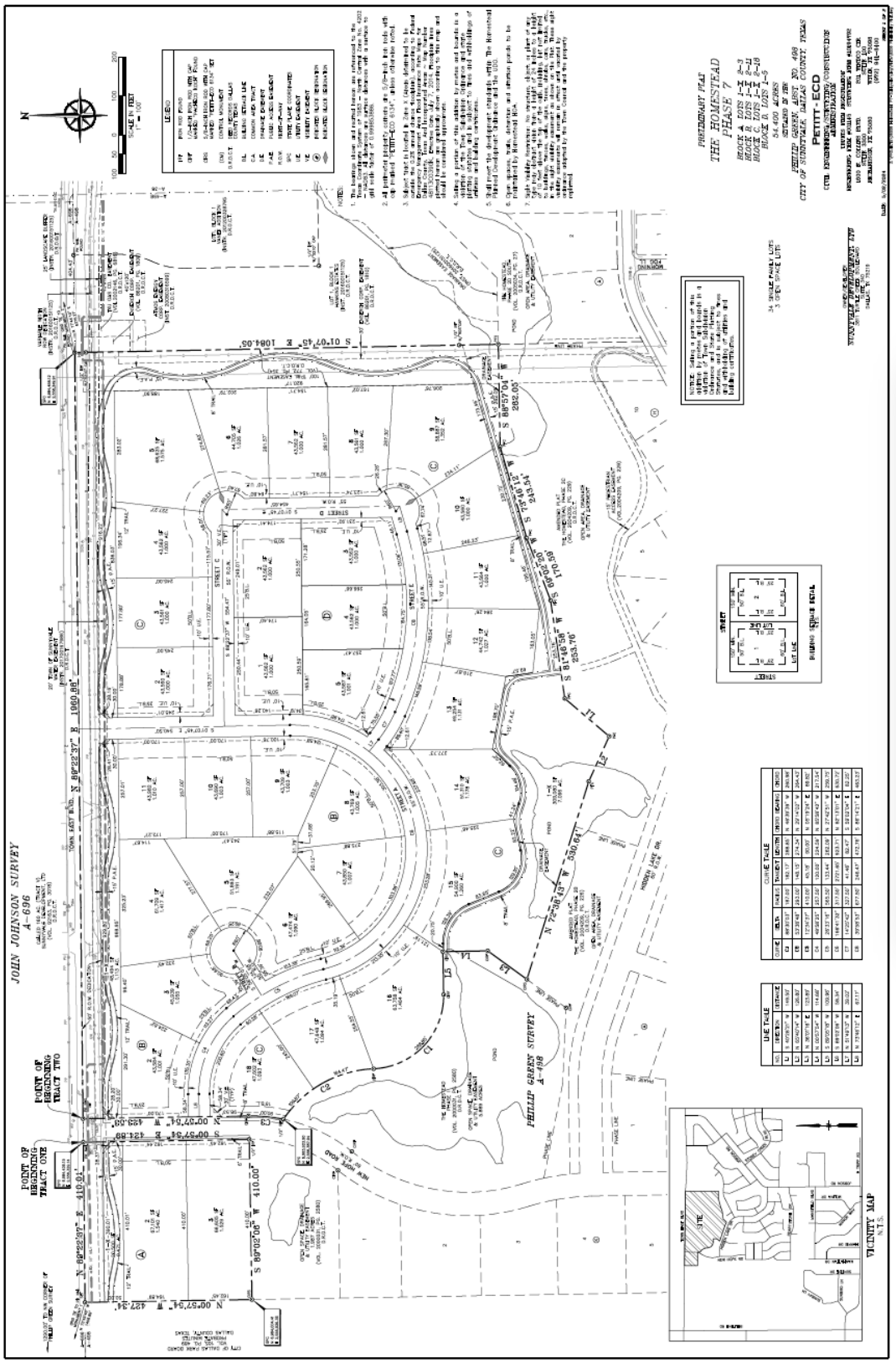
THENCE along the west and north line of said 5.889–acre Open Space, Drainage and Utility Easement, the following courses and distances:

- North 36 degrees 01 minutes 16 seconds East, a distance of 123.89 feet to a 1/2–inch iron rod found stamped PACHECO KOCH found;
- North 00 degrees 57 minutes 54 seconds West, a distance of 114.68 feet to a 1/2–inch iron rod with cap stamped PETITT–ECD 6134 set;
- South 89 degrees 05 minutes 18 seconds West, a distance of 109.96 feet to a 1/2–inch iron rod found stamped PACHECO KOCH found at the beginning of a tangent curve to the right having a radius of 187.00 feet whose chord bears North 46 degrees 39 minutes 39 seconds West, a distance of 260.98 feet;
- Northwesterly, with said curve to the right, through a central angle of 88 degrees 30 minutes 03 seconds, an arc distance of 288.85 feet to a 1/2–inch iron rod found stamped PACHECO KOCH found at the beginning of a reverse curve to the left having a radius of 293.00 feet whose chord bears North 29 degrees 14 minutes 02 seconds West, a distance of 264.43 feet;
- Northwesterly, with said curve to the left, through a central angle of 53 degrees 38 minutes 48 seconds, an arc distance of 274.34 feet to a 1/2–inch iron rod found in the east line of said New Hope Road, same being at the beginning of a non–tangent curve to the left having a radius of 410.00 feet whose chord bears North 05 degrees 19 minutes 24 seconds East, a distance of 89.82 feet;

THENCE Northerly, along said New Hope Road, the following courses and distances:

- Northeasterly, with said curve to the left, through a central angle of 12 degrees 34 minutes 37 seconds, an arc distance of 90.00 feet to a 1/2–inch iron rod found stamped PACHECO KOCH found;
- North 00 degrees 57 minutes 54 seconds West, a distance of 423.53 feet to the POINT OF BEGINNING, and containing 50.389 acres of land, more or less.

# EXHIBIT A-2
# PROPERTY DEPICTION



# EXHIBIT B
# AMENDED CONCEPT PLAN

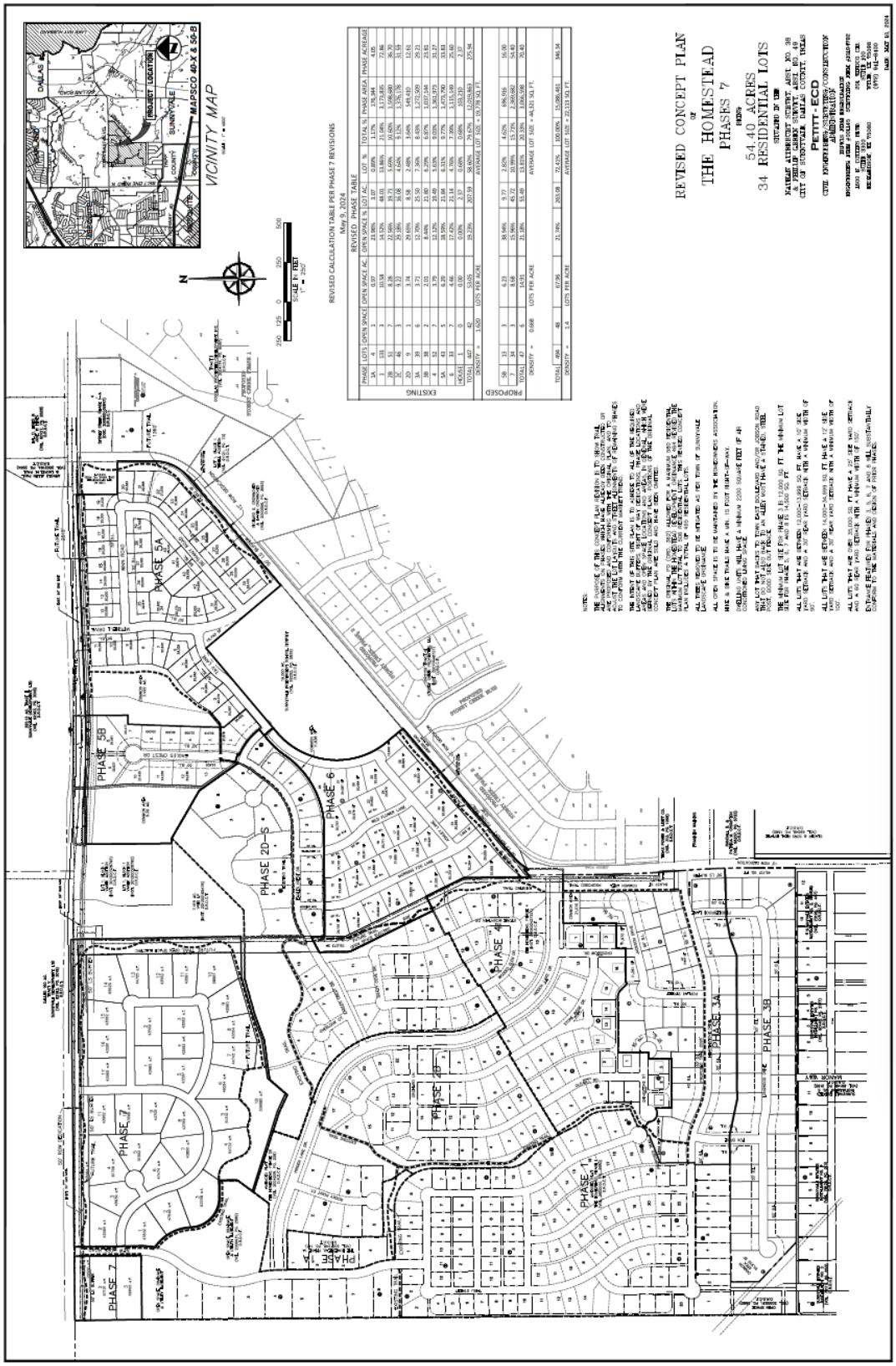
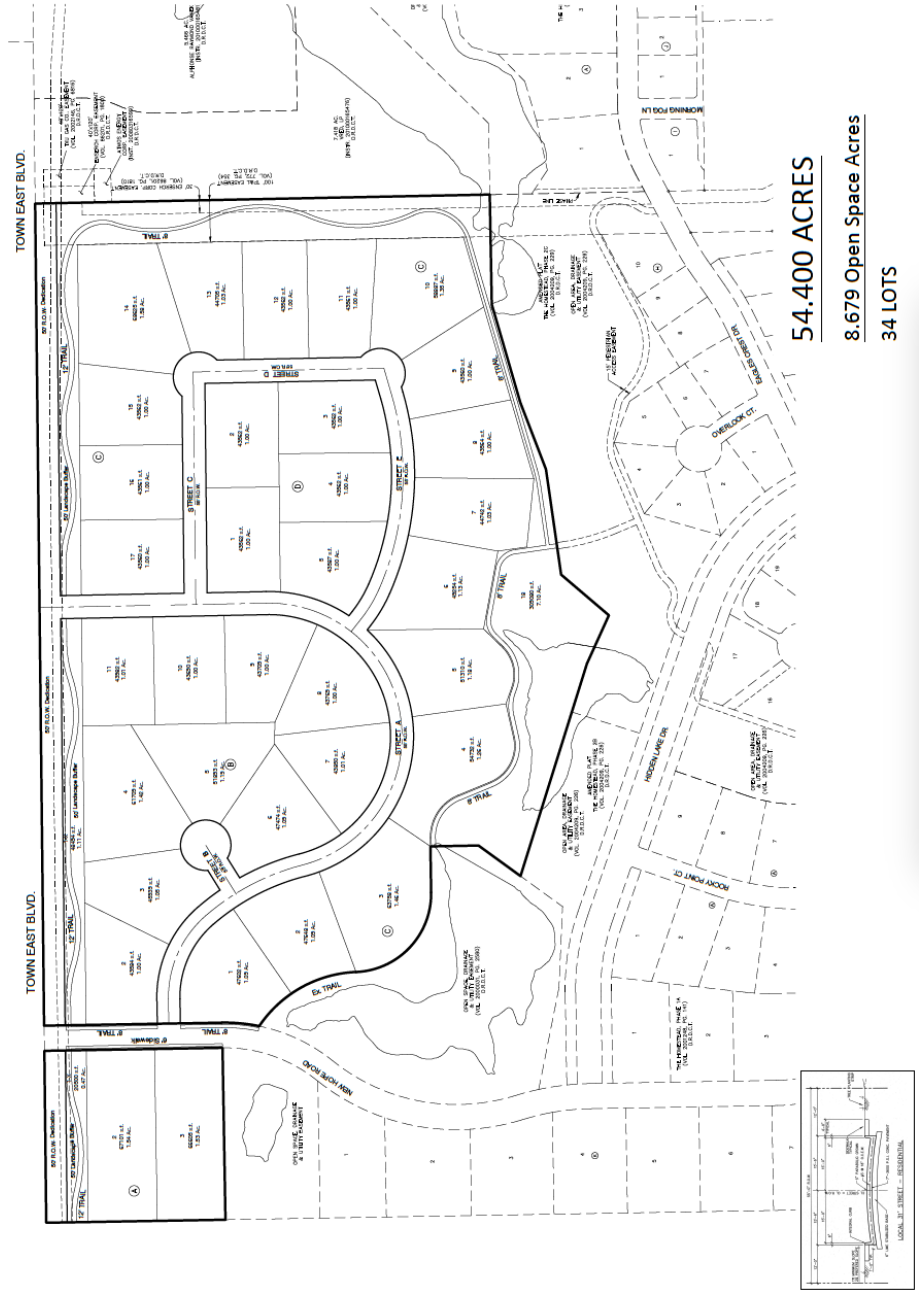


**EXHIBIT B continued**

**ENLARGED VIEW OF PHASE 7 - AMENDED CONCEPT PLAN**



## EXHIBIT C
## DEVELOPMENT STANDARDS

Phase 7 of Planned Development Ordinance No. 464 shall adhere to the development standards, amended Concept Plan, and screening plan as provided below outlining additional and/or modified regulations from PRO-464 and the Town's Unified Development ("UDO"). Unless expressly modified by this Ordinance, Phase 7 shall be developed in accordance with PRO-464, the UDO, and all applicable Town ordinances, Town regulations, and state law.

**Amended Concept Plan:**
The design and development of Phase 7 shall generally comply with the amended concept plan, which is intended to provide a representation of the location of lots and open spaces in Phase 7.

**Maintenance of Open Space, Trail, and Detention Ponds**
Any open space, trail, and detention ponds designed, constructed, and dedicated to The Homestead Homeowners Association (HOA) by plat for the development of Phase 7, shall be perpetually owned and maintained by the HOA.

**Additional Residential Standards:**
The residential lots in Phase 7 shall adhere to the following additional development standards:

1. Minimum dwelling unit size – 3,500 SF
2. Each dwelling unit will have minimum 3-car garage.
3. Each lot will be fully irrigated and landscaped by the home builder.

**Trail Connection, Landscaping and Screening:**
The open space for Phase 7 shall be provided for as outlined below and as also depicted on Exhibit B and Exhibit D.

1. A landscape berm will contain intermittent cluster of shade trees and ornamental trees shall be constructed with the fifty (50) feet wide landscape buffer with a variable height berm, with a maximum height of five (5) feet, required along Town East Boulevard.
2. Fencing constructed along the rear lot lines of the lots adjacent to Town East Boulevard shall be constructed of ornamental metal and a minimum height of six (6) feet.
3. A twelve (12) feet wide hike and bike trail shall be constructed along Town East Blvd within the fifty (50) feet wide landscape buffer.
4. An eight (8) feet wide trail network shall be constructed within the open spaces surrounding Phase 7 as depicted on Exhibit B and Exhibit D.
5. The interior streets shall include four (4) feet wide sidewalk on both sides of a thirty-one (31) feet rural roadway cross-section to provide safe pedestrian access within the neighborhood.
6. A 100-feet wide overhead utilities easement that exists along the eastern edge of Phase 7 shall be dedicated open space and maintained by The Homestead Homeowners Association, and shall be screened with a continuous row of evergreen shrubs along the rear lot lines adjacent to the overhead easement area.

**Temporary Batch Plant**

The temporary batch plant will operate on the proposed Lot 4, Block B of The Homestead Phase 7B subdivision. The following restrictions shall apply to the batch plant operations:

1. The temporary batch plant will operate only once during the entire life span of The Homestead Phase 7 construction.
2. A building permit shall be required before the batch plant can start mobilizing and operations.
3. The batch plant may operate for a maximum of 25 calendar days, including set-up and dismantling of the batch plant. Due to weather-related delays, upon request by the applicant, the batch plant operations may be extended for another 5 calendar days. Under no circumstances will the batch plant remain operational 30 calendar days after the issuance of building permit.
4. As per the Town of Sunnyvale Code of Ordinances **Chapter 4.01.003 Hours for construction work; noise; traffic control**; the batch plant operations shall be limited to the following operating hours:
    a. Construction hours. Construction and construction related activities within the town shall not begin earlier than 7:00 a.m. on weekdays nor continue after 7:00 p.m. when work is on or adjacent to a residential use. Construction on Saturday shall not begin before 8:00 a.m. nor continue after 7:00 p.m. when work is on or adjacent to a residential use, and work on Sunday or a federal holiday is prohibited without special permission from the town manager or designee. The construction related activity includes but is not limited to the maintenance, servicing and fueling of construction equipment.
5. Before issuance of building permit, the applicant must amend the existing SW3P plan for small construction activity (between 1 – 5 acres).
6. The temporary batch plant shall comply with TCEQ's Batch Plant regulations and submit revised plans to the Town Engineer for review and approval before issuance of building permit.
7. An earthen berm around temporary batch plant site shall be built before start of operations.
8. The temporary batch plant shall be required to have storage silos for cement and auxiliary storage tanks all controlled by filter systems.
9. All concrete aggregate at the temporary batch plant shall be washed for dust and silica control prior to arriving to the site.
10. Once stockpiles are made on site at the temporary batch plant, sprinkler systems shall be placed on top of the stockpiles that keep the area free from dust.
11. All haul trucks and traffic areas shall be watered on a constant basis for dust control
12. Any concrete wash out pits used inside the perimeter of the temporary batch plant site for any waste concrete shall be taken off site at the end of the permit timeline.
13. Stormwater contractor hired by the applicant shall perform weekly inspections of the site and any day there is a measurable rain event.
14. If the batch plant operations are completed before the stipulated 25 days on the building permit, then the batch plant should be dismantled and the lot returned to its pre-construction state immediately.

**EXHIBIT D**
**SCREENING PLAN**






SECTION A - TYPICAL LANDSCAPE BUFFER
ELEVATION/CROSS SECTION

SCALE: 1/4" = 1'-0"




SECTION A - TYPICAL LANDSCAPE BUFFER
ELEVATION/CROSS SECTION

SCALE: 1/4" = 1'-0"

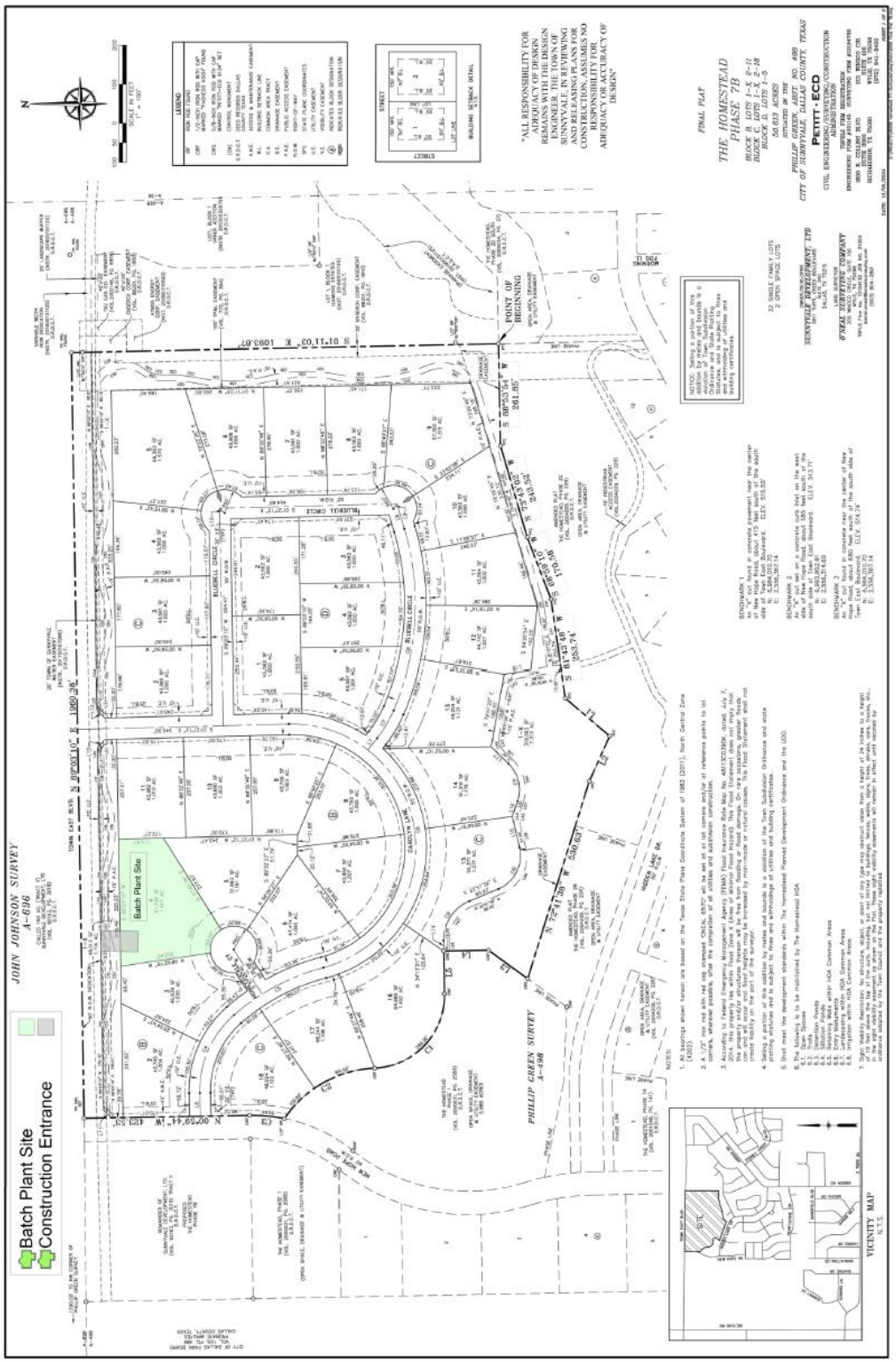
THE HOMESTEAD PHASE 7 / SCREENING CONCEPT PLAN

City of Sunnyvale, Texas

SHEET 1 OF 2
Owner Submittal 4-1-2024

JOHNSON VOLK CONSULTING
TBPELS Engineering Firm No. 11962 / Land Surveying Firm No. 10194033
704 Central Parkway East | Suite 1200 | Plano, TX 75074 | 972.201.5930

# EXHIBIT E
# SITE DEPICTION



**PLANNING AND ZONING COMMISSION**
**NOTICE OF PUBLIC HEARING**

**CASE NO:** 1851-Z The Homestead Phase 7 Planned Development Amendment

**LOCATION:** The Homestead Phase 7 - approximately 54.4 acres tract of land, generally located at the southeast and southwest corners of Town East Boulevard and New Hope Road.

**APPLICANT:** Jim Douglas, Douglas Properties, Inc.

**REQUESTING:** Applicant is requesting approval of a Planned Development ordinance amendment to allow for a one-time, temporary concrete batch plant to facilitate construction of 34 new single family homesites and associated infrastructure, within The Homestead Phase 7 Planned Development (PD Ordinance No. 2024-06), generally located at the southeast corner of Town East Blvd and New Hope Rd, known as The Homestead residential development (map attached)

**The Planning and Zoning Commission will hold a public hearing to consider this request on: Wednesday, July 16, 2025, at 6:00 p.m.**

More information for this case can be viewed at (https://www.townofsunnyvale.org/CurrentDevelopments)

The meeting will be located at Town Hall at 127 N. Collins Road, Sunnyvale, Texas 75182. The agenda packet will be posted on the Town website agenda link (https://townofsunnyvale.granicus.com/ViewPublisher.php?view_id=1) at least 72 hours prior to the meeting.

If you have comments regarding this application but do not wish to attend, you may also submit written comments at any time on or before the meeting by completing the following and returning it via mail or email to surupa.sen@townofsunnyvale.org. The comments will be presented to the Planning and Zoning Commission for their review.

☐ I am in favor of the request
☐ I am opposed to the request

Explanation: I would just request P&Z ask a few questions: 1) Has this been done/granted/requested for previous phases? 2) What is the extent of the potential air and noise pollution? 3) What measures will be taken to mitigate dust matter from being released into the air and settling on nearby properties? 4) What is the environmental impact - i.e. water pollution & air pollution? & affect on livestock?

Signature: Lauren Becker

Printed Name: Lauren Becker

Address: 304 Town East Blvd.

**PLANNING AND ZONING COMMISSION**
**NOTICE OF PUBLIC HEARING**

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☐ I am in favor of the request

☐ I am opposed to the request

Explanation: -has this been done/granted/requested for previous phases
-what is the extent of the potential air and noise pollution
-what measures will be taken to mitigate dust matter from being released in the air and settling on nearby properties
-what is the environmental impact - ie. water, pollution, air pollution

Signature:

Printed Name: -how long will it be in use - how long is temporary

Address: 300 Town East Blvd

K.H.C. Kimberly Hawkins
Perry Hawkins Perry Hawkins

Town Council

# AGENDA ITEM REPORT

**I.3**

| | |
|---|---|
| **To:** | Town Council |
| **Subject:** | Discuss, consider and act upon Resolution 2025-19 declaring certain property as surplus and authorizing the Town Manager to execute the sale, trade, donation, or disposal of said property. |
| **Meeting:** | Town Council - August 25, 2025 |
| **Department:** | Finance |
| **Staff Contact:** | Miykael Reeve |

## SUGGESTED ACTION:

Staff recommends approval.

## BACKGROUND INFORMATION:

Surplus property is defined as any equipment, vehicles, materials or property that is no longer in use, is obsolete or beyond reasonable repair, or has been replaced or is no longer required by the Town. Department heads are responsible for identifying property that is no longer in use. The property is first evaluated for potential reuse by other departments prior to disposal.

## FINANCIAL IMPACT:

Any proceeds from the sale of surplus property will be returned to the appropriate municipal fund unless otherwise directed by council resolution.

## ATTACHMENTS:

RES 2025-19 Various Surplus Items.docx

**RESOLUTION 2025-19**

**A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF SUNNYVALE, TEXAS, DECLARING CERTAIN PROPERTY AS SURPLUS AND AUTHORIZING THE TOWN MANAGER TO EXECUTE THE SALE, TRADE, DONATION, OR DISPOSAL OF SAID PROPERTY.**

**WHEREAS,** the Town of Sunnyvale desires to alleviate the Town of said surplus property; and

**WHEREAS,** the Town of Sunnyvale has legal title to said surplus property; and

**WHEREAS,** the Town of Sunnyvale desires to dispose of the surplus property listed on the attached Exhibit "A".

**NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF SUNNYVALE, TEXAS,** that the Town declares the property identified in the attached Exhibit "A" as surplus property and authorizes the Town Manager to execute the sale, trade, donation, or disposal of said property.

PASSED, ADOPTED AND APPROVED by the Town Council of the Town of Sunnyvale, Texas, on this the 25th day of August, 2025.

_____
Saji George, Mayor

ATTEST:

_____
Rachel Ramsey, Town Secretary

## Exhibit A

10 Dodge Durango Police Vehicles
2006 Toro mower
2006 Temple trailer
2007 Rhino mower
2007 Toro mower
2007 New Holland tractor
2012 Toro mower
2012 Rhino TX 1500 mower
2014 SCAG Tiger mower
2006 Holt Caterpillar Backhoe
2015 Dodge Ram 3500
1984 Ford brush truck
2006 Backhoe loader CAT 420 C4EX
2005 New Holland tractor with front loader
2015 Dodge Ram Dually 3500 truck
2012 Ford F250 truck
1984 Ford Fire truck F600
Explorer 14' Cargo Hauler
5' PTO Driven 3 point mower brush hog
18' Flatbed bumper pull trailer
16' Flatbed bumper pull trailer
20'Gooseneck flatbed trailer
Various library books and materials

Town Council

# AGENDA ITEM REPORT

**J.1**

| | |
|---|---|
| **To:** | Town Council |
| **Subject:** | Discuss and provide an update regarding the Imagine Sunnyvale Comprehensive Plan kick-off events and public engagement. |
| **Meeting:** | Town Council - August 25, 2025 |
| **Department:** | Development Services |
| **Staff Contact:** | Surupa Sen |

## SUGGESTED ACTION:

## BACKGROUND INFORMATION:

The Town of Sunnyvale officially launched its Comprehensive Plan Update, " **Imagine Sunnyvale Comprehensive Plan**" with a successful Community Open House event on August 6th. This event provided residents and stakeholders with an opportunity to learn about the planning process and share their input on the issues and opportunities shaping the future of Sunnyvale. We were pleased to welcome approximately 40 attendees from across the Town of Sunnyvale who engaged with the project team and shared their insights with our planning consultants, **Houseal Lavigne**. The feedback gathered at the open house will help inform the direction of the Comprehensive Plan Update.

Imagine Sunnyvale Comprehensive Plan presents an exciting opportunity for residents, business owners, and community members to shape the Town's vision and priorities for the coming years. The planning process is designed to be inclusive and community-driven, ensuring that the final plan reflects the values and aspirations of everyone who calls Sunnyvale home. Please visit the Comprehensive Plan website hla.fyi/SunnyvaleCompPlan. to learn more about upcoming events and ways to make sure your voice is heard.

One of the easiest and most impactful ways to participate in the Comprehensive Plan Update process is by completing the online Community Survey at https://survey123.arcgis.com/share/4f13844bb0dc4320ab9850cd18b3af9f. Whether you're a resident, business or property owner, developer, or community stakeholder, your feedback will help guide the Town's planning efforts. The survey addresses key topics and challenges facing Sunnyvale, and your responses will directly contribute to shaping a shared vision for the future.

Residents or businesses can also explore map.social, an interactive online tool that allow us to map areas of interest, concern, or opportunity throughout Sunnyvale. map.social allows thousands of points of interest to be identified, categorized, and mapped, bringing together ideas in a way never before possible.

**ATTACHMENTS:**

How to Get Involved

IMAGINE SUNNYVALE COMPREHENSIVE PLAN

*Building Excellence ~ Shaping Tradition*



# GET INVOLVED!

*The **Imagine Sunnyvale Comprehensive Plan** process is beginning and we need your help! Join the conversation today and get involved in shaping your community's future.*

## About the Plan

The Imagine Sunnyvale Comprehensive Plan will serve as a blueprint for our future. It will provide a foundation for decision-making, direct future growth and development, and help guide the Town as it works to implement the community's vision.

For more information about upcoming meetings and how to get involved, visit **hla.fyi/SunnyvaleCompPlan.**

*Scan the QR code to visit the project website*

## map.social

Map.social is a fun and engaging online tool where you can map issues and opportunities in Sunnyvale! Just drop a point and enter your comment. map.social allows points of interest to be identified, categorized, and mapped, bringing together ideas from the whole community.

*Scan the QR code to make your map*

Town Council

# AGENDA ITEM REPORT

**J.2**

| | |
|---|---|
| **To:** | Town Council |
| **Subject:** | Discussion and update on the Broadband Study including current findings and recommendations for Town broadband initiatives. |
| **Meeting:** | Town Council - August 25, 2025 |
| **Department:** | Engineering |
| **Staff Contact:** | Elmer Benitez |

## SUGGESTED ACTION:

## BACKGROUND INFORMATION:

The Town of Sunnyvale engaged CobbFendley to conduct a broadband study to evaluate the availability, quality, and affordability of internet services within the community. The study's objectives include:

1. Assessing current broadband infrastructure and identifying service gaps.
2. Evaluating opportunities to improve internet access for residents, businesses, and public facilities.
3. Providing recommendations for potential partnerships, technology solutions, and funding opportunities to expand broadband services.

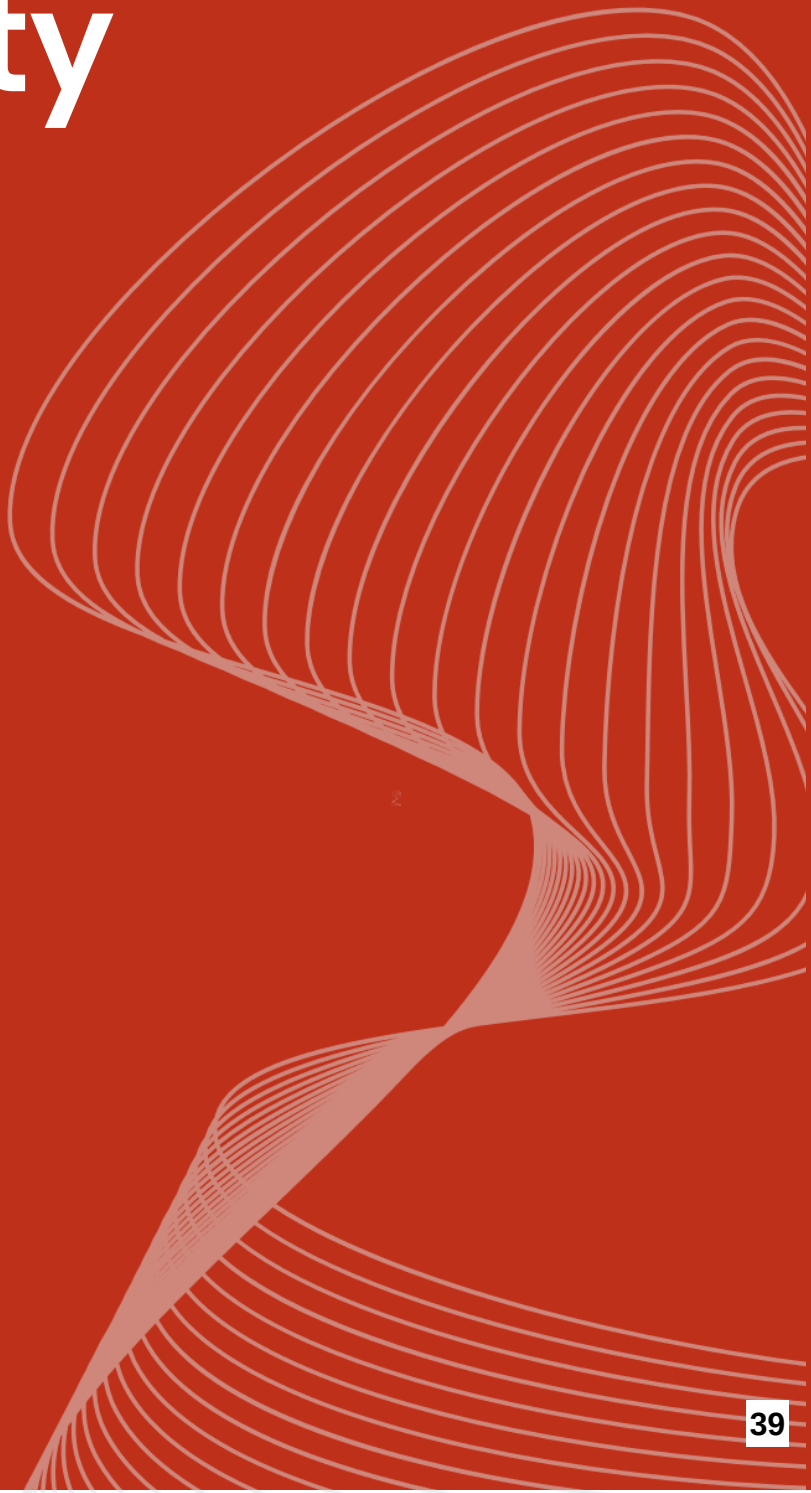
CobbFendley's analysis includes data collection, mapping of existing service coverage, assessment of current and projected demand, and identification of strategies to enhance broadband access. Staff will present key findings, preliminary recommendations, and suggested next steps for Town Council consideration.

## ATTACHMENTS:

Sunnyvale_Feasibility_Study_Final_Draft_9_13.pdf

# Sunnyvale Broadband Feasibility Study

## [FINAL DRAFT]



**Cobb, Fendley & Associates, Inc.**
P: 713.462.3242, F: 713.462.3262
www.cobbfendley.com

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# 1 EXECUTIVE SUMMARY AND RECOMMENDATIONS

In today's increasingly digital world, robust broadband infrastructure is essential for economic development, social inclusion, and overall quality of life. High-speed internet access is no longer a luxury but a necessity, enabling communities to participate in the global economy, access education and healthcare services, and stay connected with family and friends. Effective broadband infrastructure supports innovation, attracts businesses, and drives productivity, while also bridging the digital divide by ensuring that all individuals, regardless of their geographic location, have equal opportunities to benefit from the digital age. As such, investing in broadband infrastructure is a critical priority for any community seeking to thrive in the 21st century.

Modern technologies offer various internet options. Fiber-to-the-premise (FTTP), licensed fixed wireless, and hybrid fiber-coaxial cable are the most recommended technologies. Among these, fiber is the most preferred due to its adaptability and ability to deliver the fastest speeds to users and scalability for future needs. However, factors such as cost, population density, or other external challenges may limit the feasibility of last mile fiber deployment in certain areas.

A fiber-based core network in the middle mile can support licensed fixed wireless solutions, FTTP, a hybrid fiber-coaxial approach - where a fiber-optic backbone connects to end users via coaxial cables, or an approach that combines one or more of these technologies. These strategies are all part of the initiative to enhance broadband connectivity in Sunnyvale, TX.

The Town of Sunnyvale Broadband Feasibility Study put together by Cobb, Fendley & Associates, Inc. presents a comprehensive analysis of the potential to expand high-speed internet services within the Town of Sunnyvale. The objective of this study was to assess the current state of broadband infrastructure, identify gaps in service, and explore viable solutions to enhance connectivity for residents, businesses, and public institutions.

The findings of this report underscore the Town’s need for both more fiber and tower infrastructure, despite the community being well-connected in terms of served versus unserved/underserved locations. A key goal for Sunnyvale going forward will be to ensure residents are able to access internet offerings at speeds of 100/100 Mbps symmetrical or higher, ideally with a capacity of 1/1 Gbps symmetrical via wireline fiber technology.

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## 1.1 Scope of Work

The scope for performing the study included:

- Work with Stakeholder Team, Conduct Technical Provider/Stakeholder Engagement
- Identify Existing Infrastructure & Internet Offerings
- Coordination with State BDO
- ArcGIS Online (AGOL) Spatial Database for Data Collection
- Assess Jurisdictional/Geographical Factors & Potential Barriers
- Determine Needs and Gaps in Service Throughout the Community
- Assess Advanced Technology Feasibility
- Determine Community Readiness & Enablers
- Develop A High-Level Fiber Network Design
- Explore ISP and Carrier Partnership
- Strategize Options for Infrastructure Implementation Plan
- Develop Scalable and Modular Business Models
- Develop Detailed Cost Estimate with Cost-Benefit Analysis
- Identify Applicable Funding Sources
- Draft Report Developed for Review

CobbFendley's approach to the scope of work has been forged through previous experience in performing similar studies for over 60 other municipalities. The goals for the study are to always provide unique insight and a catered report, detailing specifics that apply only to Sunnyvale.

This study responded to the scope by developing a Needs and Gap Analysis, which involved market research, stakeholder engagement, and public consultations. Based on the findings, a Network Strategy was developed to assess technology feasibility and network design. Finally, scalable and modular business models were identified, cost and funding were analyzed, and an implementation plan was developed to complete the study and consolidate the findings into this report.

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## 1.2 Initial Background

Information presented within this report is inherently technical. Before any information is presented, a few important key terms and data points are presented here to ensure an initial understanding of concepts included. To ensure alignment with the Federal Communications Commission (FCC), many of the data or definitions presented within this section are sourced directly from the FCC from various documents or websites. These sources are presented, where applicable. Additionally, there are three appendixes in the report, including: 1) Maps, 2) Acronyms, and 3) a Glossary of Terms.

### 1.2.1 Locations Identified by Internet Speed Offered

When discussing internet speeds, the written form may occasionally be seen in the format of "Y/Z" or "YxZ" where Y is the download speed (typically with units of Mbps), and where Z is the upload speed (also typically with units of 'megabits per second').

As officially defined from the Broadband Equity Access and Deployment Program (BEAD) Notice of Funding Opportunity (NOFO)[1], the terms 'unserved' and 'underserved' (see Table 1) are the broadband standards set by the FCC and were based on perceived sufficient internet usage in 2015 which focused on internet browsing, email, and limited streaming media. Videoconferencing and other common applications in recent years demand high bandwidth in the upload direction as well (see Table 2).

*Table 1: BEAD Program Definitions for Unserved, Underserved, Served*

| Terms | Definitions |
|---|---|
| **Unserved** | A broadband-serviceable location that the Broadband DATA Maps show as:<br>(a) having no access to broadband service, or<br>(b) lacking access to Reliable Broadband Service offered with—(i) a speed of not less than 25 Mbps for downloads; and (ii) a speed of not less than 3 Mbps for uploads; and (iii) latency less than or equal to 100 milliseconds. |
| **Underserved** | A broadband-serviceable location that is:<br>(a) not an unserved location, and<br>(b) that the Broadband DATA Maps show as lacking access to Reliable Broadband Service offered with—(i) a speed of not less than 100 Mbps for downloads; and (ii) a speed of not less than 20 Mbps for uploads; and (iii) latency less than or equal to 100 milliseconds. |
| **Reliable Broadband Service (Served)** | A broadband service that the Broadband DATA Maps show is accessible to a location via:<br>(i) fiber-optic technology; (ii) Cable Modem/ Hybrid fiber-coaxial technology; (iii) digital subscriber line (DSL) technology; or (iv) terrestrial fixed wireless technology utilizing entirely licensed spectrum or using a hybrid of licensed and unlicensed spectrum. |

[1] Notice of Funding Opportunity -1 NOTICE OF FUNDING OPPORTUNITY BROADBAND EQUITY, ACCESS, AND DEPLOYMENT PROGRAM EXECUTIVE SUMMARY A. Federal Agency Name. (n.d.). Retrieved January 30, 2023, from https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf

In March of 2024, the FCC annual high-speed internet assessment updated the broadband standard for internet speeds to at least 100 Mbps download speed and 20 Mbps upload speed. This is the first update to the 25/3 Mbps benchmark for high-speed fixed broadband established by the FCC in 2015.

Their evaluative report found that 'advanced telecommunications capability is not being deployed to all Americans in a reasonable and timely fashion.' They estimate that 100/20 Mbps terrestrial fixed broadband service has not been physically deployed to approximately 7% of Americans. Fixed terrestrial broadband service (excluding satellite) has not been physically deployed to approximately 24 million Americans, including almost 28% of Americans in rural areas, and more than 23% of people living on Tribal lands.[2]

*Table 2: Guide to Understanding Internet Speeds[3]*

| Internet Download Speed | Works for: | Ideal Number of Wi-Fi Users |
|---|---|---|
| 0–5Mbps | -Checking Email<br>-Streaming Music on one device<br>-Searching Google | 1–2 people |
| 5–40Mbps | -Streaming video on one device<br>-Video call with Skype<br>-Online gaming for one player | 3–4 people |
| 40–100 Mbps | -Streaming HD video on a few devices<br>-Multiplayer online gaming<br>-Downloading large files | 5–7 people |
| 100–500 Mbps | -Streaming video in UHD on multiple screens<br>-Downloading files quickly<br>-Multi-player online gaming | 8–10 people |
| 500–1,000+ Mbps | -Doing most anything on numerous devices simultaneously | More than 10 people |

Where possible, the recommendation for a minimum standard for broadband is 100 Mbps symmetrical (100 Mbps download/100 Mbps upload).

### 1.2.2 Technology Types

Residential and Business internet services use either wired or wireless connections. Wired connection types mean the wiring is connected directly to the address—these include fiber-optic, coaxial cable, and copper internet (also referred to as Digital Subscriber Line (DSL)). Wireless connection types could include satellite, fixed wireless, as well as 5G home internet. Please note that multiple technology types or providers can serve one address—therefore, one address is not representative of one provider or technology type.

The pricing and download speeds presented below were collected by HighSpeedInternet.com[4] which reviewed and compiled data directly from the FCC.

[2] Federal Communications Commission. (2024, March 14). 2024 SECTION 706 REPORT. Federal Communications Commission. https://www.fcc.gov/documents
[3] How much speed do you need?. HighSpeedInternet.com. (2024, August 28). https://www.highspeedinternet.com
[4] The Consumers Guide to Internet Speed. (2020, March 25). HighSpeedInternet.com. https://www.highspeedinternet.com/resources/the-consumers-guide-to-internet-speed

The following is a brief breakdown of each technology type[5].

**Copper/ DSL.** Fixed wireline service using copper wire (e.g., Asymmetric or Symmetric DSL, ethernet over copper, T-1, etc.). Highly malleable and durable metal used to manufacture cables that provide internet connectivity.

- FCC Data Technology Code: 10
- Typical Maximum Download Speed: 100 Mbps
- Expected Residential Subscriber Price: $39.99-$55.00/ month.
- Incompatible with fiber cables, difficult to upgrade.
- Transmits data in the form of electrical signals.

**Cable (Co-axial).** Fixed wireline service using coaxial cable or hybrid fiber-coaxial (e.g., DOCSIS 4.0). Cable uses the same infrastructure as cable television to provide homes or buildings with internet access—it runs through coaxial cables, which are the same cables used for cable TV.

- FCC Data Technology Code: 40
- Typical Maximum Download Speed: 1,000 Mbps
- Expected Residential Subscriber Price: $19.99-$109.99/ month.
- Operates on a shared network.
- Susceptible to network congestion and slowed speeds.
- Able to reach gigabit speeds for downloads, but only a few providers offer upload speeds above 50Mbps.
- Widely accessible, often offered as a bundled TV package deal.
    - **Hybrid Cable/Fiber.** A hybrid cable incorporates optical fibers and coaxial cable wires within the same jacket and is a medium for both power supply and data transmission.

**Fixed Wireless.** Connects a specific location—such as a farm or a house—to the internet using radio waves. Relies on an antenna to transmit and receive signals.

- Typical Maximum Download Speed: 50 Mbps
- Expected Residential Subscriber Price: $25.00-$144.99/ month.
- Offers speeds ranging between 3 and 1,000 Mbps, dependent on spectrum of waves, antenna technology at the tower, and distance/ line of sight (LoS) to said tower.
- Three different technology codes that filers can use when submitting data on the availability of, and subscriptions to, terrestrial fixed wireless services in the BDC system. The codes are intended to characterize the last-mile fixed wireless technology used to deliver internet access services to end users at fixed locations. Each code is described below.[6]
    - **Unlicensed Terrestrial Fixed Wireless:** Fixed terrestrial wireless service using entirely unlicensed spectrum, including service provided over Wi-Fi as a fixed solution, to make last-mile connections to fixed locations.
        - FCC Data Technology Code: 70
    - **Licensed Terrestrial Fixed Wireless:** Fixed terrestrial wireless service using entirely licensed spectrum (including priority access licenses in the 3.5 GHz band) or a hybrid of licensed, unlicensed, and licensed-by-rule spectrum to make last-mile connections to fixed locations. This includes service provided over a 4G LTE or 5G-NR mobile network

[5] bdc-availability-data-specifications.pdf | Powered by Box. (n.d.). Us-Fcc.app.box.com. https://us-fcc.app.box.com/v/bdc-availability-spec

[6] Federal Communications Commission. (2024, January 1). Technology codes for terrestrial fixed wireless. BROADBAND DATA COLLECTION HELP CENTER. https://help.bdc.fcc.gov/hc/en-us/articles/12271133620763-Technology-Codes-for-Terrestrial-Fixed-Wireless

but sold as a fixed solution. Providers that use licensed microwave spectrum for backhaul but otherwise use unlicensed or licensed-by-rule spectrum for last-mile connections to end users may not use this technology code.
    - FCC Data Technology Code: 71
- **Licensed-by-Rule Terrestrial Fixed Wireless:** Fixed terrestrial wireless services using entirely licensed-by-rule spectrum or a hybrid of licensed-by-rule and unlicensed spectrum to make last-mile connections to fixed locations. Licensed-by-rule spectrum users include operators providing last-mile connections through general authorized access (GAA) in the 3.5 GHz Citizens Broadband Radio Service (CBRS) band.
    - FCC Data Technology Code: 72

**Fiber-optic.** Works by transmitting information using light signals through thin strands of glass or plastic. Installing fiber optic infrastructure is challenging especially in areas with rough terrain.

- FCC Data Technology Code: 50
- Typical Maximum Download Speed: 6,000 Mbps
- Expected Residential Subscriber Price: $29.99-$299.95/ month.
- Higher data speeds.
- Capable of transmitting data at speeds of up to 100Gbps.
- Offers symmetrical speeds for both uploads and downloads.

**Satellite[7].** Satellite broadband, another form of wireless broadband, is useful for serving remote or sparsely populated areas. Downstream and upstream speeds for satellite broadband depend on several factors, including the provider and service package purchased, the consumer's line of sight to the orbiting satellite, and the weather. Satellite service can be disrupted in extreme weather conditions. Speeds may be slower than DSL and cable modem, but the download speed is still much faster than the download speed with dial-up Internet access. For satellite broadband service, a user must have a dish or base station – the costliest item, a satellite Internet modem, and a clear line of sight to the provider's satellite.

- Typical Maximum Download Speed: 100 Mbps
- Expected Residential Subscriber Price: $30.00-$500.00/ month.
- Offers symmetrical speeds for both uploads and downloads.
    - **Geostationary Satellite:** Fixed non-terrestrial wireless service using satellites in geostationary orbit (i.e., Geostationary Earth Orbit)
        - FCC Data Technology Code: 60
    - **Non-Geostationary Satellite:** Fixed non-terrestrial wireless service using satellites in non-geostationary orbit (i.e., Low Earth Orbit or Medium Earth Orbit)
        - FCC Data Technology Code: 60

### 1.2.3 Differences in Infrastructure

**Middle Mile[8]**— The term "middle mile infrastructure"— (A) means any broadband infrastructure that does not connect directly to an end-user location, including an anchor institution; and (B) includes— (i) leased dark fiber, interoffice transport, backhaul, carrier-neutral internet exchange facilities, carrier-neutral submarine cable landing stations, undersea cables, transport connectivity to data centers, special access

[7] Getting Broadband Q&A. (2011, May 10). Federal Communications Commission. https://www.fcc.gov/consumers/guides/getting-broadband-qa
[8] Notice of Funding Opportunity -1 NOTICE OF FUNDING OPPORTUNITY MIDDLE MILE GRANT PROGRAM EXECUTIVE SUMMARY A. Federal Agency Name. (n.d.). Retrieved May 6, 2024, from https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/MIDDLE%20MILE%20NOFO.pdf

transport, and other similar services; and (ii) wired or private wireless broadband infrastructure, including microwave capacity, radio tower access, and other services or infrastructure for a private wireless broadband network, such as towers, fiber, and microwave links.

**Last Mile**[9]— The last mile is the final leg of the network that connects the local points of presence to individual homes, businesses, or end-user devices. This is often considered the most critical and challenging part of the network due to the varying distances, diverse user needs, and potential obstacles that can affect data delivery quality. The goal of the last mile is to provide reliable, high-speed connectivity directly to the end-users. Last mile networks can take various forms, such as DSL, cable, fiber-optic, wireless (like Wi-Fi or cellular networks), and even satellite connections. The technology used depends on factors like location, available infrastructure, and the desired level of service quality.

### 1.2.4 Disclaimer: FCC Data Fluctuation

The following figures and tables shown throughout this report illustrate the available internet services offered within the Town based on information gathered from the FCC. The FCC has undertaken a massive overhaul of the data collected from Internet Service Providers (ISPs) and the way in which that is now publicly displayed. Through the FCC's Form 477, the previous method of understanding coverage was at the spatial level of census blocks. This means that if any one home address was served with a higher speed for internet or a more modern connection, such as fiber compared to DSL, for example, then the entire census block was shown as covered for that higher standard. However, in late 2022, the FCC modified its process to show proper internet representation at the address level. This now ensures that the user can be aware of what is present at an address at any given time, but it also shows the extent to which specific ISP coverage exists in each market. As the FCC continues this new process, the data that has been made public thus far is still being updated and reviewed.

The information contained in this report from the FCC is subject to constant change and potential discrepancies due to the dynamic nature of data reporting. While efforts have been made to ensure accuracy, variations can arise from changes in reporting methods, updates to services, and network infrastructure fluctuations. Readers should interpret this data as a general overview rather than an absolute representation, and exercise discretion while considering the potential for inconsistencies stemming from reporting practices. The project team recognizes the challenges in accurately capturing the ever-changing landscape of broadband services.

The data used within this study was collected by the FCC from ISPs in June 2024.

## 1.3 Current State of Broadband

The Town of Sunnyvale is home to just over 8,392 people located on the eastern border of Dallas County. Its main industries consist of an industrial base with manufacturing centers, including a regional medical center, and commercial/retail development. The most common employment sectors include Health Care & Social Assistance, Professional, Scientific, & Technical Services, and Educational Services.[10] In the following sections, internet service options, broadband infrastructure, homes served, and potential barriers will all be explored to help determine the current state of broadband in the Town of Sunnyvale.

[9] last mile | Broadband Grant Term Definition. (n.d.). Broadband.money. Retrieved May 6, 2024, from https://broadband.money/broadband-grant-terms/last-mile
[10]Sunnyvale, TX. Data USA. (n.d.). https://datausa.io/profile/geo/sunnyvale-tx

### 1.3.1 Locating the Unserved and Underserved

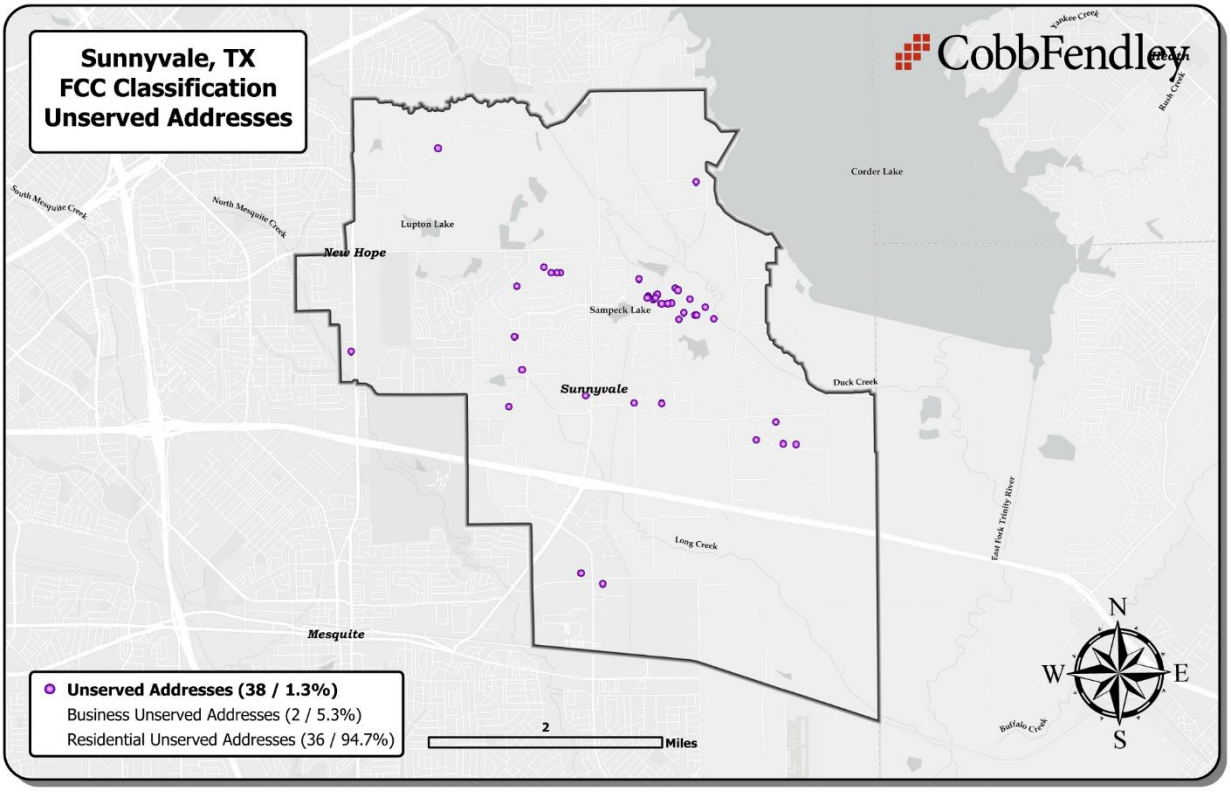



*Figure 1: Unserved Addresses, Sunnyvale TX*

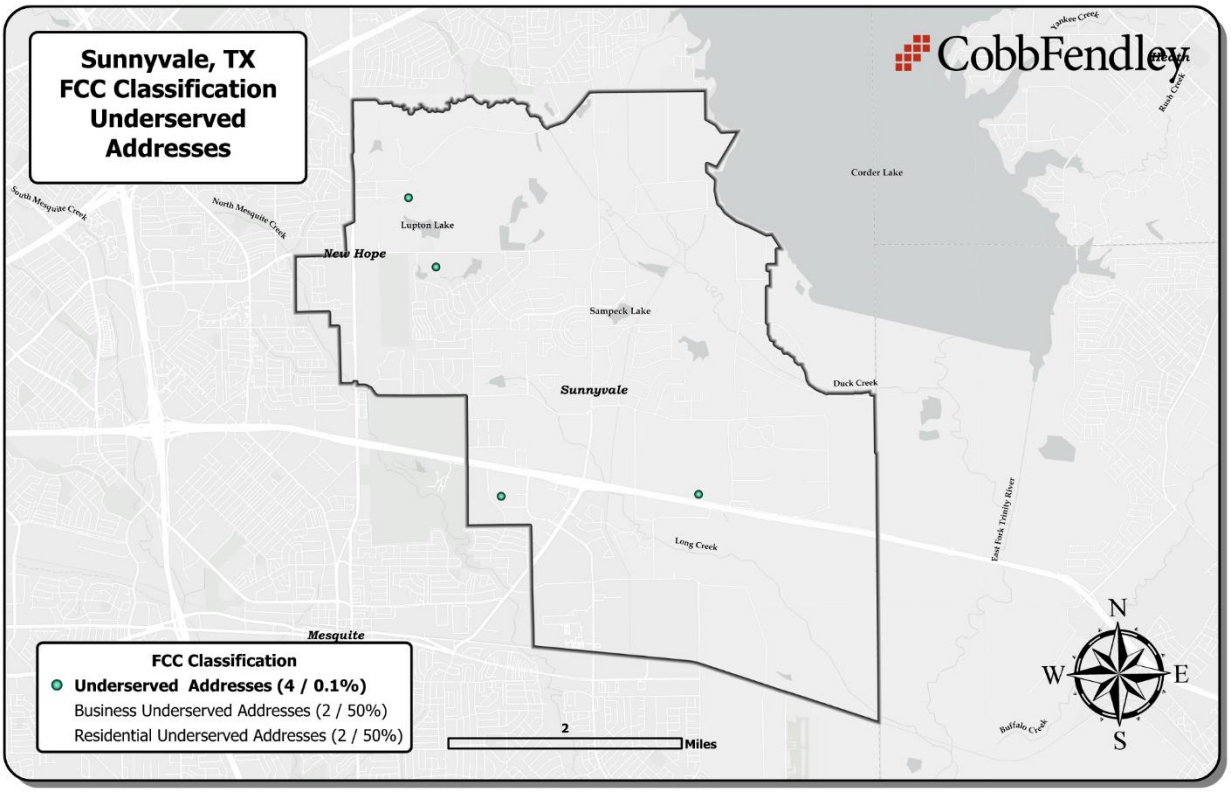



*Figure 2: Underserved Addresses, Sunnyvale TX*

In Figure 1, Sunnyvale is recorded as having 38 unserved addresses, while Figure 2 shows an additional four underserved addresses based on the FCC standards for unserved and underserved. The number of unserved addresses is spread out throughout the Town, while a small cluster is shown east of Sampeck Lake in the Villages of Stoney Creek. The served addresses can be seen in Figure 3, with almost 98.5% of total addresses considered served and 94.8% of the total being residential served addresses. Many of these addresses are in the residential areas of the Town. For the most part, the Town is shown to be well-connected in terms of broadband when assessing the data utilizing the FCC standards of less than 25/3 Mbps as unserved and between 25/3 and 100/20 Mbps as underserved.

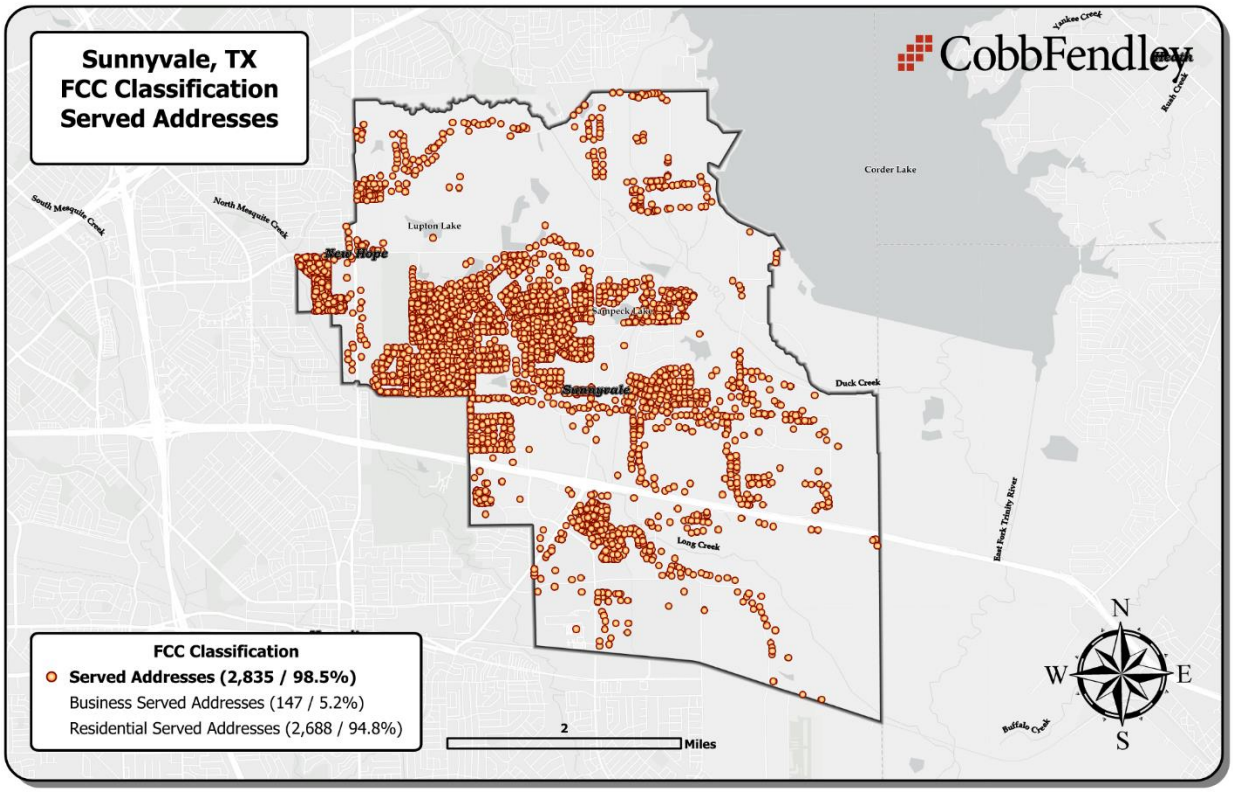



*Figure 3: Served Addresses, Sunnyvale TX*

For reference, the FCC data provides a combined 2,877 total address points within Sunnyvale. This includes both residential and business address locations. This means that only about 0.1% of all total addresses within Sunnyvale do not currently have access to high-speed internet with speeds of at least 100/20 Mbps or with modern technologies, and 1.3% of total addresses do not currently have access to the minimum FCC internet standard of at least 25/3 Mbps.

### 1.3.2 Technology Options

This section will provide a walkthrough of the main types of internet connections offered by providers that are available and being used in the Town.

Please note that multiple technology types or providers can serve one address—therefore, one address is not representative of one provider or technology type. The numbers provided are also only the highest percentages found, and do not represent all the data on providers/technologies.

Most of these providers do also offer copper cable, fixed wireless, coaxial, or fiber. Fixed wireless access and availability has grown over the years. Typical fixed wireless solutions to the home operate using point-to-point signal transmission through several types of waves from a localized radio at a high vertical location that then connects to a set-up at the user's address. The towers that supply the wireless signal are typically fed by fiber-optic cable before converting into a wireless spectrum to then reach the end user. Infrastructure placed on the tower or at the home will typically dictate the maximum download or upload speed measurable.

*Table 3: Providers and Technology Types, Sunnyvale TX*

| **Provider /Type** | **Mbps** | **Unserved (25/3 & Below)** | **Percent Coverage (Total)** |
|---|---|---|---|
| **AT&T** | | | |
| Copper | 0/0 | 237 | 5.1% |
| | 10/1 | 217 | 4.7% |
| **Provider /Type** | **Mbps** | **Underserved (Over 25/3, Under 100/20)** | **Percent Coverage (Total)** |
| **AT&T** | | | |
| Copper | 25/5 | 760 | 16.3% |
| | 50/10 | 483 | 10.4% |
| | 75/20 | 49 | 1.1% |
| **Provider /Type** | **Mbps** | **Served (100/20 and Over)** | **Percent Coverage (Total)** |
| **AT&T** | | | |
| Copper | 100/20 | 88 | 1.9% |
| FTTP | 5000/5000 | 141 | 3.0% |
| **Spectrum** | | | |
| Cable | 1000/35 | 85 | 1.8% |
| | 1000/1000 | 2458 | 52.8% |
| ***Table does not include Fixed Wireless** | | | |

Table 3 shows the providers and technology types being offered in the Town—however, this table does not include fixed wireless providers. As shown on the table, the percentage of unserved and underserved is largely due to outdated copper infrastructure. Additionally, more than 52% of addresses are shown as served by Spectrum's cable at 1000/1000 Mbps. Typically, ISPs may not choose to offer certain communities with wireline-based internet options due to the population density and the cost to build out. In these situations, the ISPs would ultimately lose money and it would not make business sense. This is where the wireless-based options make sense, in terms of business and implementation. Other factors that may impact wireline versus wireless solutions could be due to geographical barriers such as water bodies, pipelines, or other geographic barriers.

Fixed wireless internet presents a compelling option that offers efficiency, adaptability, and agility. While it is an option in scenarios where immediate deployment, remote accessibility, and scalable expansion are crucial, it is imperative to acknowledge its susceptibility to interference and potential limitations in bandwidth and speeds. The choice between fixed wireless and fiber internet hinges on the interplay of geographical context, topographical features, budget, speed requirements, and the technological circumstances of the area in question.

Modernization requires a strong fiber backbone and wireless infrastructure that can deliver heavy bandwidth services. Fiber is a technology that can scale upwards as capacity needs expansion and can also achieve symmetrical speeds, in which the download and upload speeds are identical. With futureproofing of the network in mind, it is important to recognize that existing communication technologies are limited to meeting the increasing capacity demands. While fiber may be the best technology offered in a vacuum, it is not always feasible to implement.

In the locations that do offer modern broadband solutions, many of the plans could be unaffordable for these communities. Ideally, ISPs with more advanced network architectures will fill in the gaps of the current services offered to help serve more of the disproportionately impacted communities at affordable pricing. This is where both fiber and fixed wireless options could both be mutually beneficial.

### 1.3.3 Broadband Infrastructure

The platform Fiberlocator was used to examine available information regarding long-haul fiber, metro fiber, data centers, and on-net buildings. Fiberlocator is a web-based platform that allows users access to telecom network information, including fiber optic network maps and even specific data center and on-net building information throughout the United States. However, companies typically treat network details as proprietary information and restrict access to authorize personnel on a need-to-know basis, so possible gaps in data regarding other existing fiber is a factor to take into consideration.

Fiberlocator also allows other network providers to know where dark fiber is currently available to potentially lease or buy for their own projects.

- **Dark fiber** is a term that refers to existing unused or unlit optical fiber cables laid underground or along infrastructure routes. Unlike **"lit fiber"** cables that carry data signals, dark fiber is inactive and without data traffic.
    - Organizations often lease/buy dark fiber to create their own high-speed private networks, gaining full control over data transmission and bandwidth, and without the need to invest in laying their own fiber optic cables.
- **Long-haul networks** are network fiber lines that are required to carry more information compared to a local area network (LAN) and span larger distances that include city to city across the state or country.
    - Figure 4 shows that there are a few long-haul fiber networks that run through Sunnyvale.
    - The long-haul networks in the Town run along US-80 from east to west, and on the southern border of the Town along East Scyene Road. These include Zayo, redIT, Windstream Long Haul, Uniti Fiber, Arelion, and Level 3.
- **Business-related metro networks** examine what enterprise related fiber is available compared to what may just be passing through the area with a long-haul network. They use infrastructure within the area of a city or metropolitan area, which also allows these networks to be referred to as a Metropolitan Area Network (MAN).
    - Figure 5 shows metro networks in the Town. These include: Crown Castle, ExteNet Systems, Fiberlight, Hudson Fiber, LOGIX Fiber, Texas Lone Star, Unite, Uniti Fiber, Windstream, and Zayo.
- **On-net buildings** database is a map of carrier lit building locations along with the type of connections. Carrier building types include enterprise lit buildings, points of presence (PoPs), carrier hotels, central offices, and data centers.
    - Figure 6 shows on-net buildings in the Town run along US-80, with few are scattered throughout but most are concentrated along the western and southern border of Town closest to Mesquite and Dallas.

In comparing this information with the map showing FTTP in Figure 7, fiber offerings are shown to be limited throughout the Town—only 27% of addresses have FTTP, with the majority of those being residential. The extent of fiber services offered are concentrated towards the western half of the Town as well as the western border.

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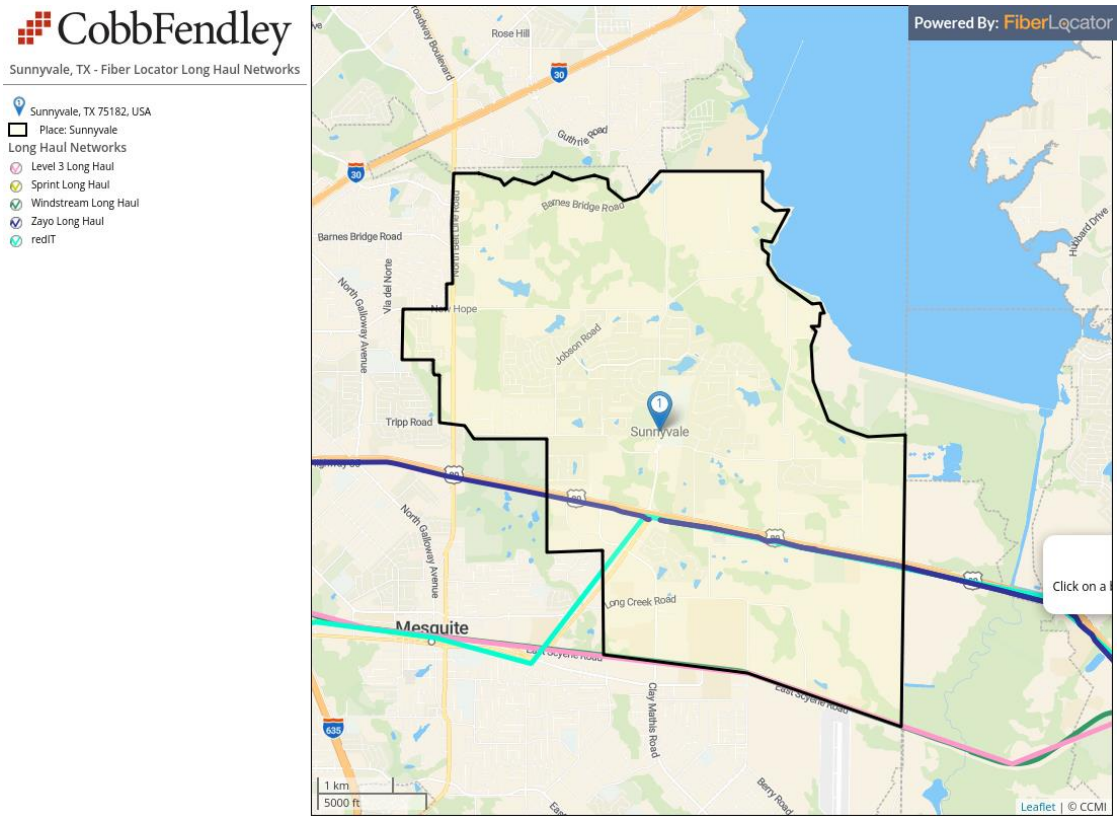



*Figure 4: Fiber Locator Long Haul Networks, Sunnyvale TX*

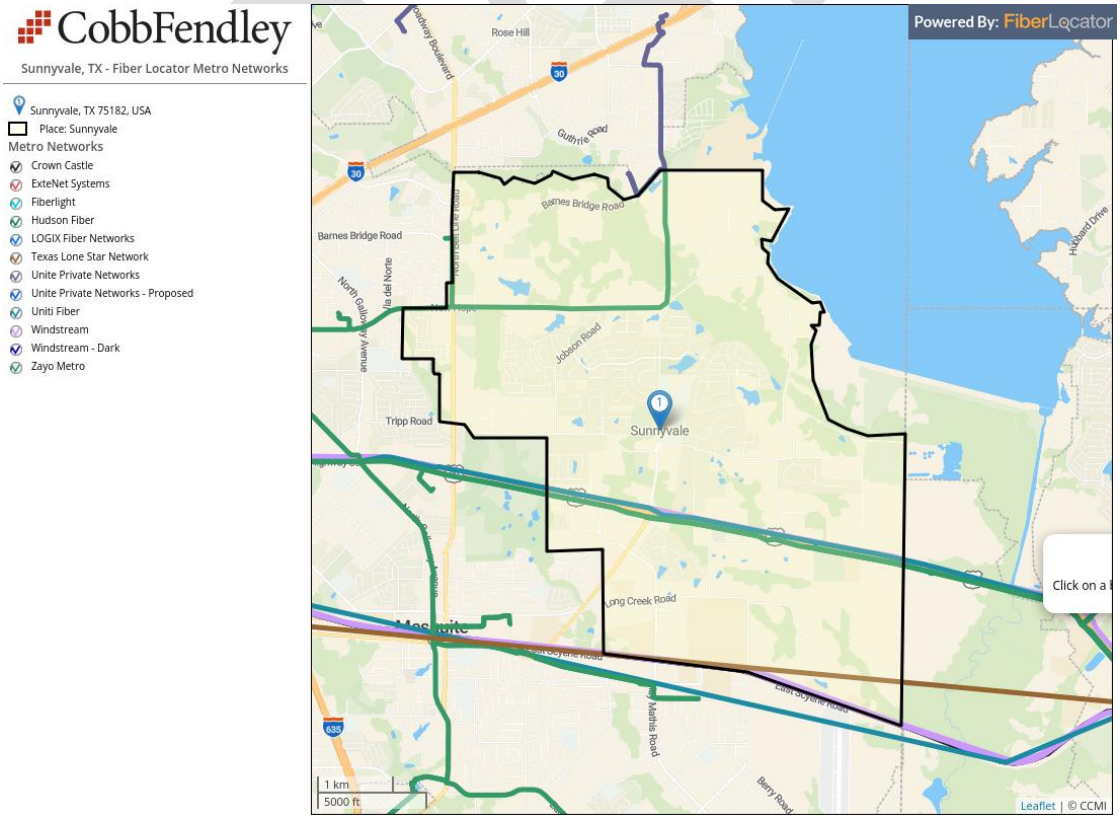



*Figure 5: Fiber Locator Metro Networks, Sunnyvale TX*

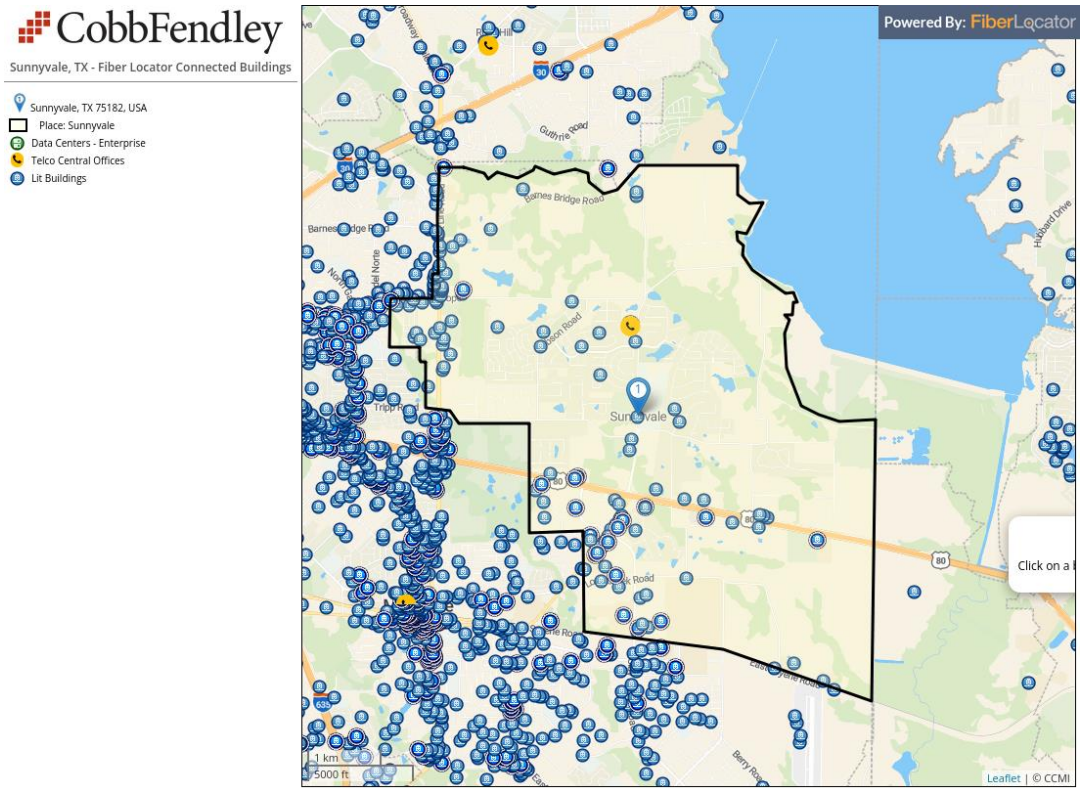



*Figure 6: Fiber Locator Connected Buildings, Sunnyvale TX*

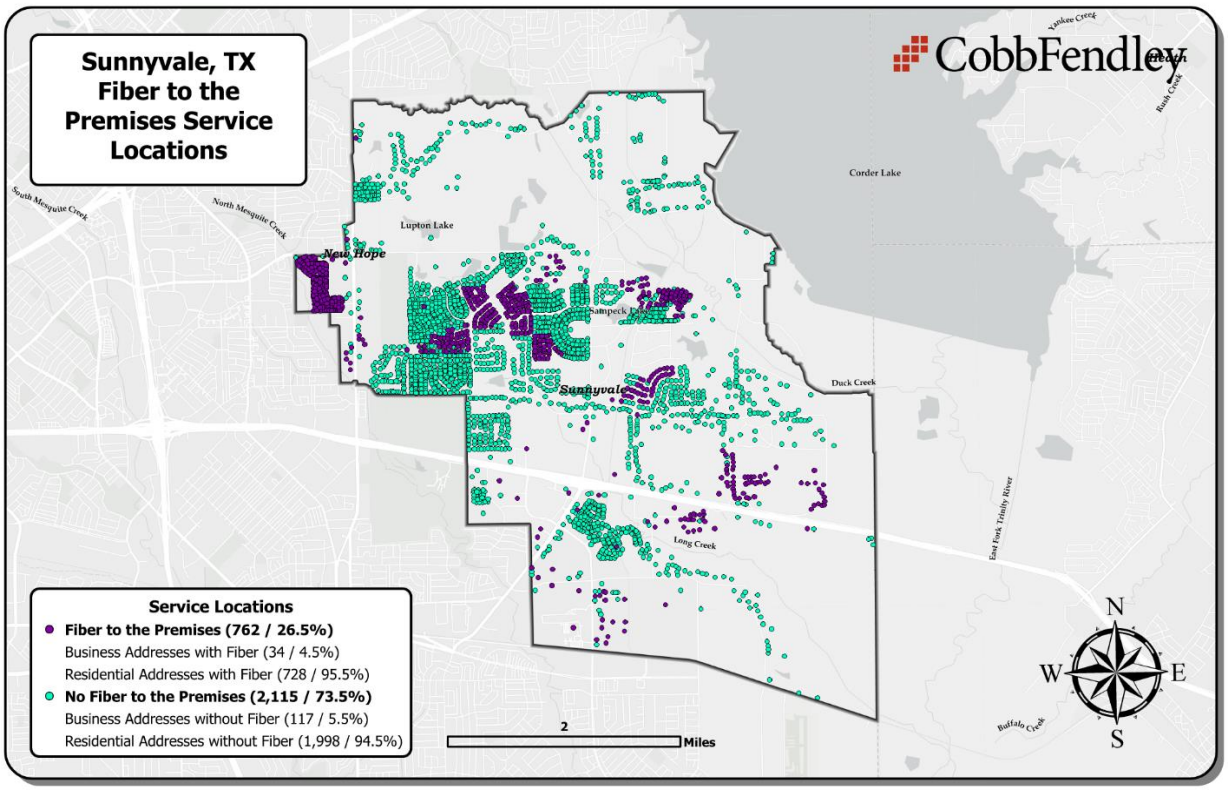



*Figure 7: Fiber Service Areas, Sunnyvale TX*

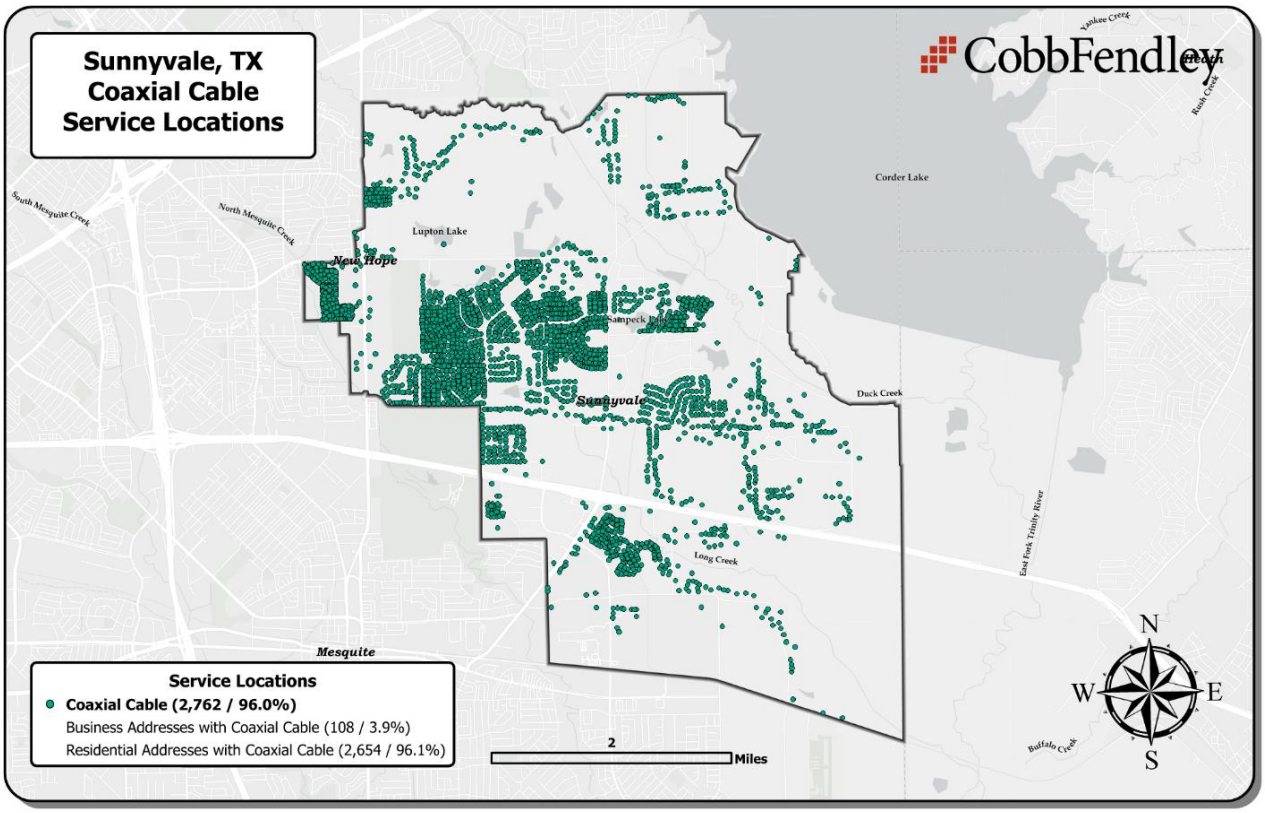



*Figure 8: Coaxial Cable Service Areas, Sunnyvale TX*

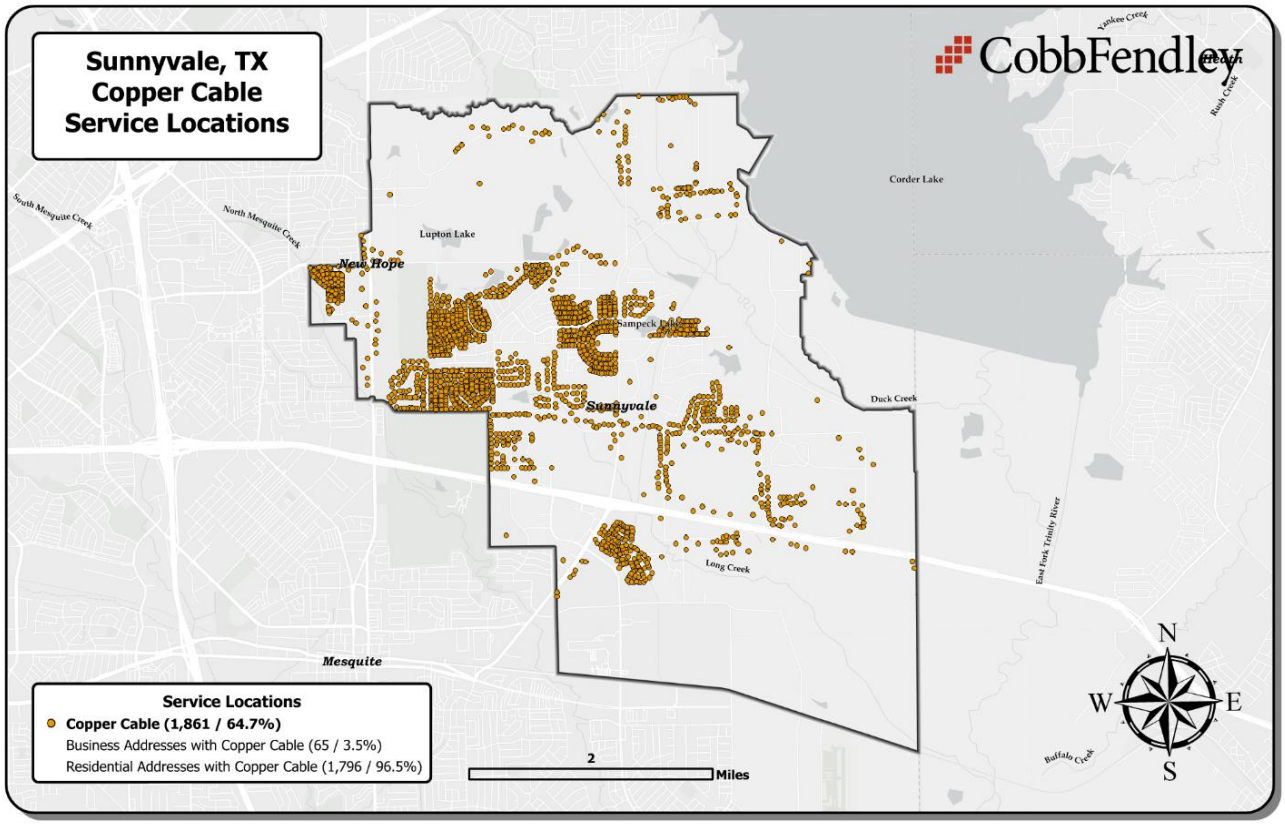



*Figure 9: Copper Service Areas, Sunnyvale TX*

Figure 8 and Figure 9 highlight the infrastructure for both cable or copper services in the Town. Copper technologies are not recommended as future-proof solutions and make up almost 65% of addresses; these are concentrated in the middle and western areas. Coaxial cable also covers 96% of addresses.

Fixed wireless options can be seen in both Figure 10 and Figure 11. Licensed Spectrum offerings (the technology recognized by the FCC to be considered served) provides the most coverage across the own with 100% of addresses served. Fixed wireless solutions in Sunnyvale may be an option for some residents. However, the Town currently lacks tower infrastructure and middle-mile infrastructure serving the residential areas and installation of such infrastructure would be needed. Fixed wireless is particularly beneficial in rural or remote areas where laying fiber cables might be economically and logistically challenging. Wireless signals can be transmitted over long distances without the need for extensive infrastructure, making it a viable option for areas where traditional wired solutions are not feasible. Among the available options, fixed wireless offers the solution which can be most quickly installed to provide broadband service at 100/100 Mbps.

Unlicensed spectrum options for fixed wireless cover 65% of the Town as well (Figure 11). While the end user (residents) may not recognize a difference between licensed or unlicensed spectrum service, the FCC does. Unlicensed fixed wireless is not recognized as a "Reliable Broadband Service," and therefore will not be shown as a served address, even if service does meet or exceed the 100/20 Mbps threshold.

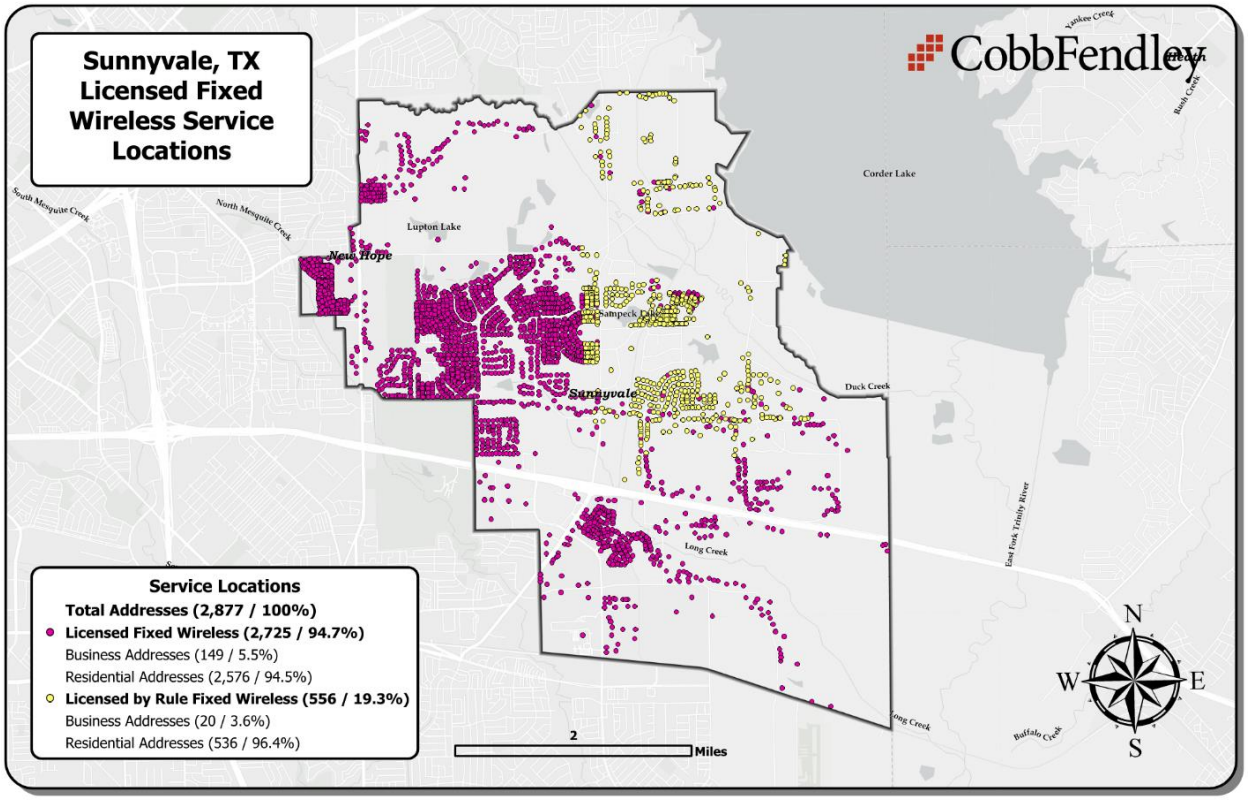



*Figure 10: Licensed Wireless Service Areas, Sunnyvale TX*

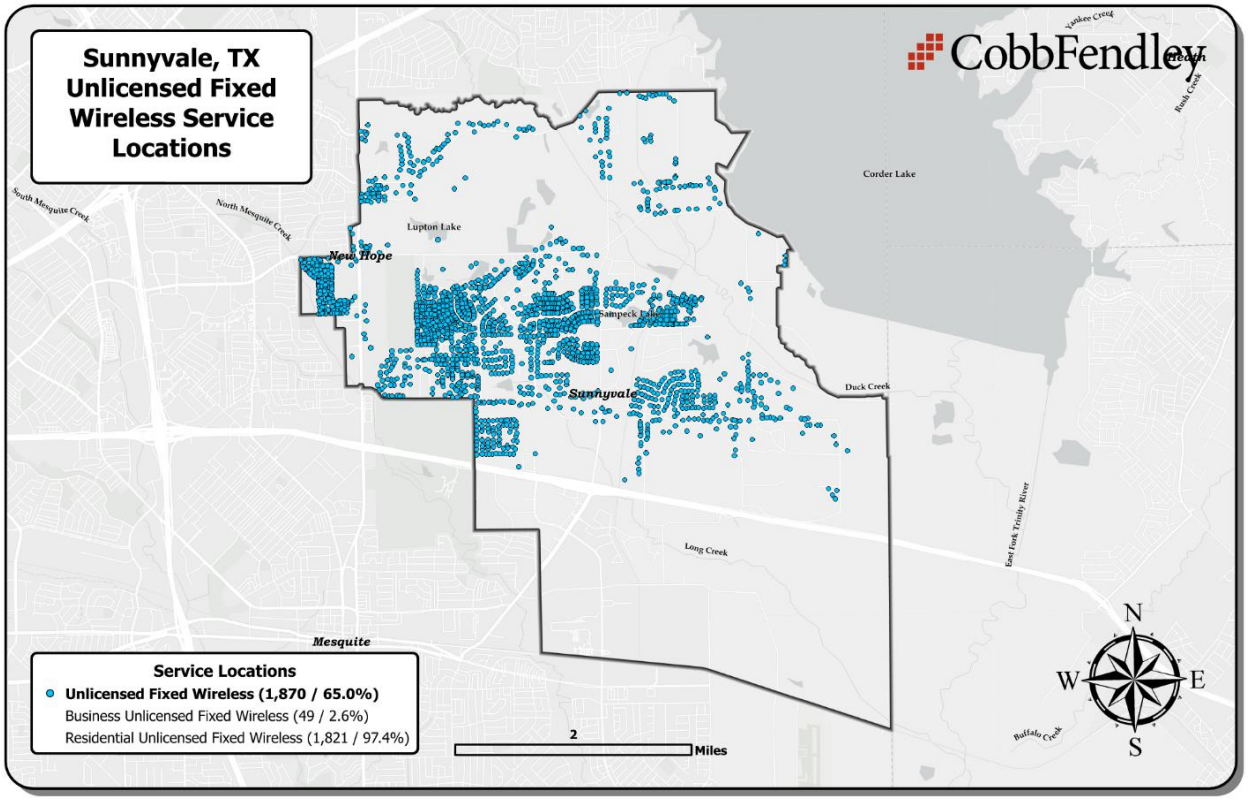



*Figure 11: Unlicensed Fixed Wireless Service Areas, Sunnyvale TX*

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Sunnyvale, TX currently has only five existing towers within the Town boundaries, shown in Figure 12, resulting in a significant lack of infrastructure that negatively impacts both wireless broadband and mobile connectivity in the area. The limited number of towers can restrict the reach and reliability of internet services, creating connectivity issues for residents and businesses alike. This shortage hinders the ability to support high-speed internet access, which is essential for modern communication, remote work, education, and economic growth. Expanding the number of towers in Sunnyvale is crucial to improving connectivity for the community.

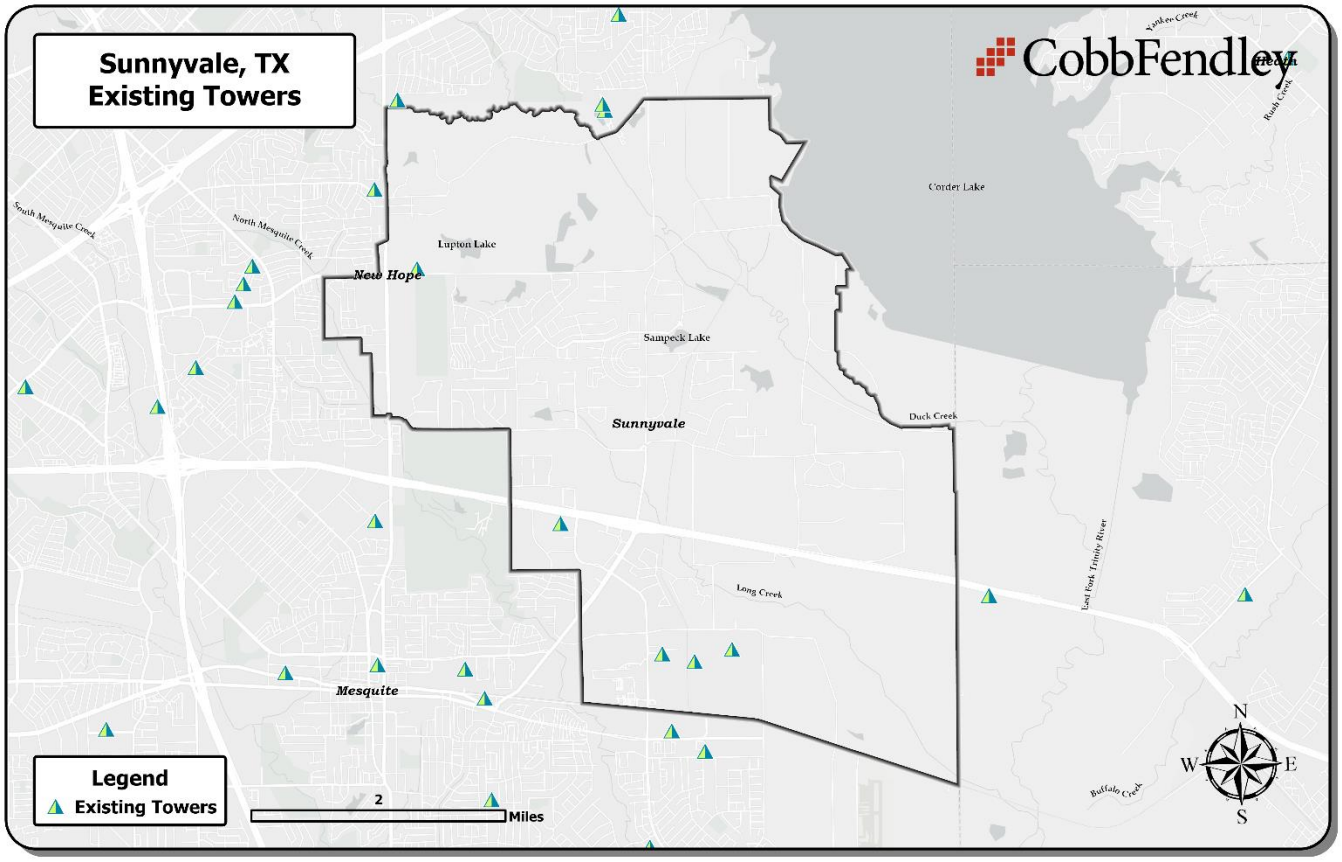



*Figure 12: Existing Towers in Sunnyvale TX*

### 1.3.4 Potential Barriers to Additional Infrastructure

This section will identify the challenges specific to Sunnyvale and explore efficient approaches to address these challenges, ensuring the successful implementation of fiber deployment. Obstacles related to right-of-way can cause notable delays or disruptions in broadband projects, influencing both the deployment schedule and expenses. Common obstacles in deployment often include regulatory compliance, existing infrastructure, and topographical barriers.

One potential challenge to additional infrastructure is the minimum lot size in many residential areas (one acre or two acres depending on the zone). This type of low-density residential zoning can pose several challenges for infrastructure deployment. For example, if fiber was being deployed, the cost per household for laying fiber might be significantly higher because the infrastructure needs to cover more ground with fewer potential customers. Additionally, low-density means there are fewer households to serve, so the revenue generated may not justify the high initial investment. Simply put, the physical distance between homes means more materials and labor are required for deployment and a potentially lower source of revenue due to fewer potential customers.

Additionally, another obstacle in permitting includes access regulations, permitting procedures, and right-of-way access, which can introduce complications and delays. A simple one-mile deployment may require many permits if it runs through many different jurisdictions (County, Town, TXDOT, or otherwise), so close attention should be paid to lands/properties in during any deployment design (see Figure 13).[11]

Another important challenge on the cellular and fixed wireless side of things are the restrictions included in the Town of Sunnyvale's Unified Development Ordinance (UDO). A Special Use Permit (SUP) will be required for siting a tower in Sunnyvale, this could halt or slow the construction of any new towers going forward and has likely limited tower placement and construction in the past. Additionally, requiring residential setbacks in non-residential areas may be potentially prohibitive. Exact UDO wording below:

> *"Commercial antenna support structures are allowed by right if they do not exceed the maximum building height allowed for the zoning district in which they are located. Structures in excess of the height allowed in the zoning district may be allowed by conditional use. In all nonresidential zoning districts, antenna support structures must meet the setback requirements from residential districts."*

Other potential barriers include 1) the rural classification of some portions of the community, 2) existing provider infrastructure and service agreements that could limit the entry of other ISPs into the market; and 3) overall lack of towers in the city for fixed wireless and cellular coverage whether due to existing ordinance restrictions or market dynamics.

[11] National Telecommunications and Information Administration. (2022, December). Preparing for Permitting to Accelerate Broadband Deployment. Internet For All. https://broadbandusa.ntia.doc.gov/sites/default/files/2022-12/IFA_Permitting_101_PDF.pdf

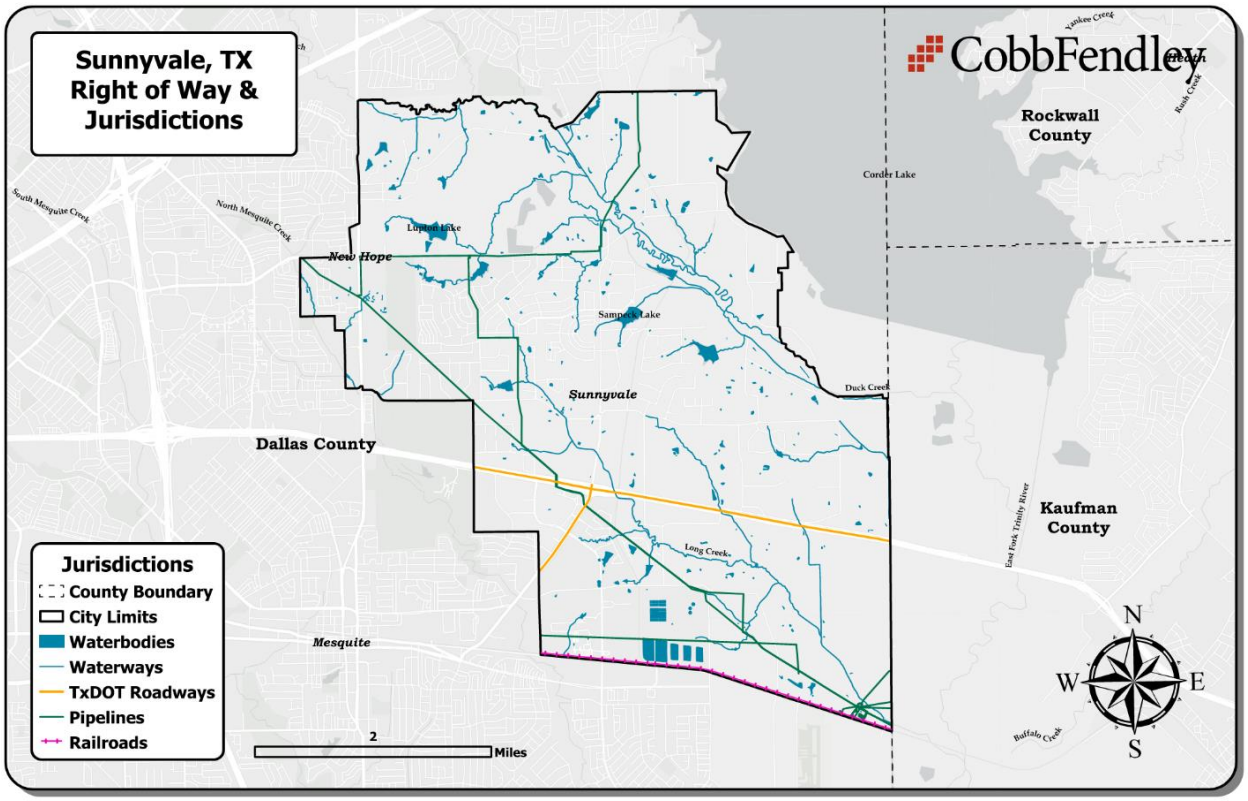



*Figure 13: Right of Ways & Jurisdictions, Sunnyvale TX*

### 1.3.5 Stakeholder Engagement

To gain a more comprehensive understanding of broadband in Sunnyvale, this initiative combined quantitative data with qualitative insights by engaging with ISP's in the community. This outreach effort was instrumental in providing context to the additional data points gathered during the Needs and Gaps Analysis phase. Additionally, conducting stakeholder engagement helped evaluate everything from existing conditions to potential partnerships, enabling the project team to make informed decisions about the feasibility and scale of broadband expansion initiatives across the Town.

Engaging broadband service providers was essential, as it provided insights into the existing infrastructure, technological capabilities, and market dynamics. This collaboration not only ensures that new broadband initiatives build upon the current infrastructure but also allows for a comprehensive understanding of potential future developments, ensuring a strategic and sustainable approach to expanding connectivity access for all.

As a part of the stakeholder process, several internet service providers highlighted a few notable points regarding their future expansion plans as well as current coverage areas.

- Charter/Spectrum will be upgrading the cable technology (DOCSIS 4.0) in the Dallas Market, with a goal of completing the updgrades in 2025.
- Nextlink and Rise Broadband are both providers of fixed wireless and fiber networks, each are separately open to partnerships with local governments in Texas.
- Zayo was awarded the NTIA middle mile Grant that runs along US-80 to create new access points.

- Verizon has looked at its current mobile network configuration for Sunnyvale and has indicated openness to partnering with the Town.
- AT&T indicated interest in RFI/RFP process participation.
- Frontier has a fiber footprint near Sunnyvale and is open to partnerships.

The overall goal of this process was to get input from ISPs/ internet infrastructure providers. While not all contacts could be reached through this study, the information gathered throughout this stakeholder process has helped understand the current state of broadband and shape the determined needs and gaps for broadband in Sunnyvale.

This study included discussions with the following stakeholders:

- Charter/Spectrum
- Frontier
- Rise Broadband
- Verizon
- Zayo
- Nextlink

## 1.4 Needs and Gaps Analysis

The current state of broadband infrastructure in Sunnyvale, TX and the scope of the digital divide have been examined through the research and data collection undertaken in this study. Alongside public data on accessibility, affordability, and adoption, three additional factors were evaluated: input from the community and stakeholders, economic development goals, and the existing network's overall capabilities. Together, these elements will help determine how to improve Sunnyvale's infrastructure.

Based on the comprehensive data presented in this and the other sections, the key factors indicating areas of need, whether related to access or adoption would be:

- Primary Need for Sunnyvale: Access to High-Speed Broadband Options
  - High-speed internet infrastructure with a goal for high-speed broadband at symmetrical speeds of 100/100 Mbps or higher, ideally scalable to 1/1 Gbps, is needed in the Town.
- Need for Improved Mobile Connectivity
  - The Town needs enhanced mobile connectivity to ensure reliable communication and access to digital services for all residents and businesses.
  - Sunnyvale is lacking tower infrastructure within the Town limits and near residential areas.
- Lack of Middle Mile Infrastructure
  - The community does not have full fiber access, with only 26% of the Town currently covered, partially due to the absence of middle mile infrastructure running through residential areas in Sunnyvale.

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The yellow address points within Figure 14 indicate the Areas of Need in Sunnyvale. This map is a combination of data that includes all unserved and underserved address points within the Town (pink and green respectively), as well as addresses missing from FCC Fabric Data Version 5 depicted in blue address points. While some of the NG 911 addresses may show developments that have or will have broadband service installed in the near term, these locations were included in the Areas of Need map given they were not shown in the FCC broadband data.

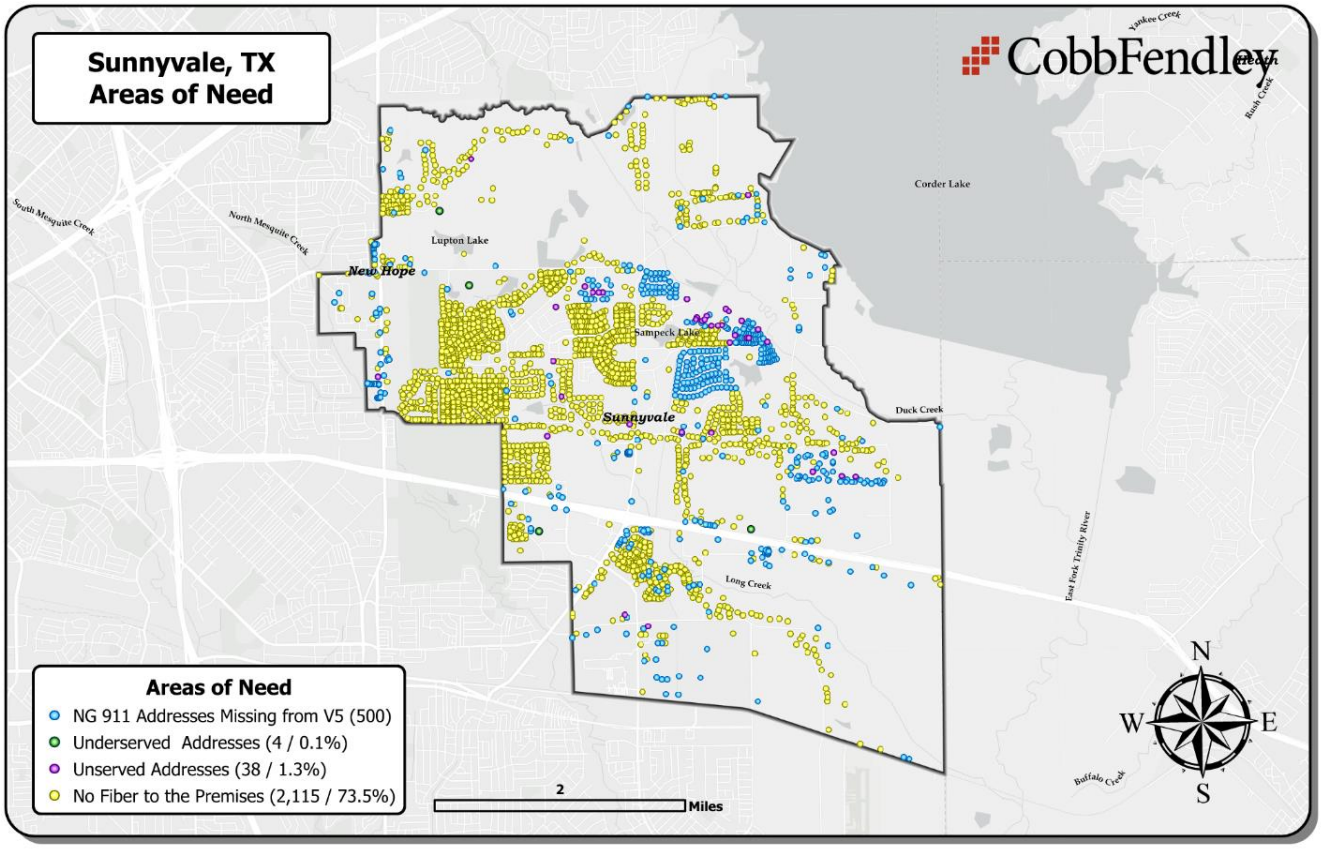



*Figure 14: Areas of Need, Sunnyvale TX*

## 1.5 Network Design Plan

The High-Level Design (HLD) outlines the proposed broadband infrastructure to address the connectivity gaps in Sunnyvale. The goal is to provide high-speed internet access across the Town by developing a robust broadband network that meets the needs of the Town's assets and local partners. The HLD offers three distinct designs—each targeting different aspects of Sunnyvale's connectivity requirements.

The design process starts by defining the geographical boundaries of Sunnyvale and identifying areas lacking broadband services. Spatial data, market research, and stakeholder feedback are analyzed to develop a comprehensive map of demand points. Existing infrastructure, such as private sector fiber networks and public assets, is also considered to determine where new facilities are needed. The HLD provides a foundation for future Low-Level Design (LLD) and detailed engineering work.

### 1.5.1 High-Level Designs

**High Level Design "A": Proposed Tower Retrofit**

Design "A" as seen in Figure 15 focuses on retrofitting two existing towers to expand their coverage area, each within a 3-mile radius, covering about 2,872 addresses. The retrofit involves upgrading the tower infrastructure to support advanced communication technologies, enhancing signal strength, and expanding capacity. This approach leverages existing resources to reduce deployment time and costs, making it a practical and time-efficient solution for improving network reliability, coverage, and speeds.

**High Level Design "B": Proposed Tower and Middle Mile Network**

Design "B" as seen in Figure 16 involves constructing a new communication tower and deploying a middle mile network to cover a 5-mile radius, serving approximately 2,877 addresses. The new tower, along with a 72-strand fiber optic cable, will act as the backbone of the network, providing high-speed data transmission capabilities. This greenfield approach optimizes land use, reduces environmental impact, and minimizes the challenges associated with existing infrastructure. The design offers an intermediate solution that is scalable and capable of supporting future services.

**High Level Design "C": Last Mile Fiber Network**

Design "C" as seen in Figure 17 aims to provide direct fiber connections to individual homes and businesses, covering approximately 2,115 addresses. This last mile approach involves detailed planning and extensive groundwork, including trenching and laying fiber cables. It is the most time-consuming and labor-intensive option, but it offers the highest quality of service, future-proofing the network against technological changes. This design is ideal for long-term connectivity needs rather than immediate deployment.

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### 1.5.2 Key Elements of Each Network Design

- **High Level Design "A" Proposed Tower Retrofit:**
  - Shown in Figure 15, the design upgrades two existing towers for a broader, more reliable signal.
  - Offers a moderate-cost solution with a relatively short deployment timeline.

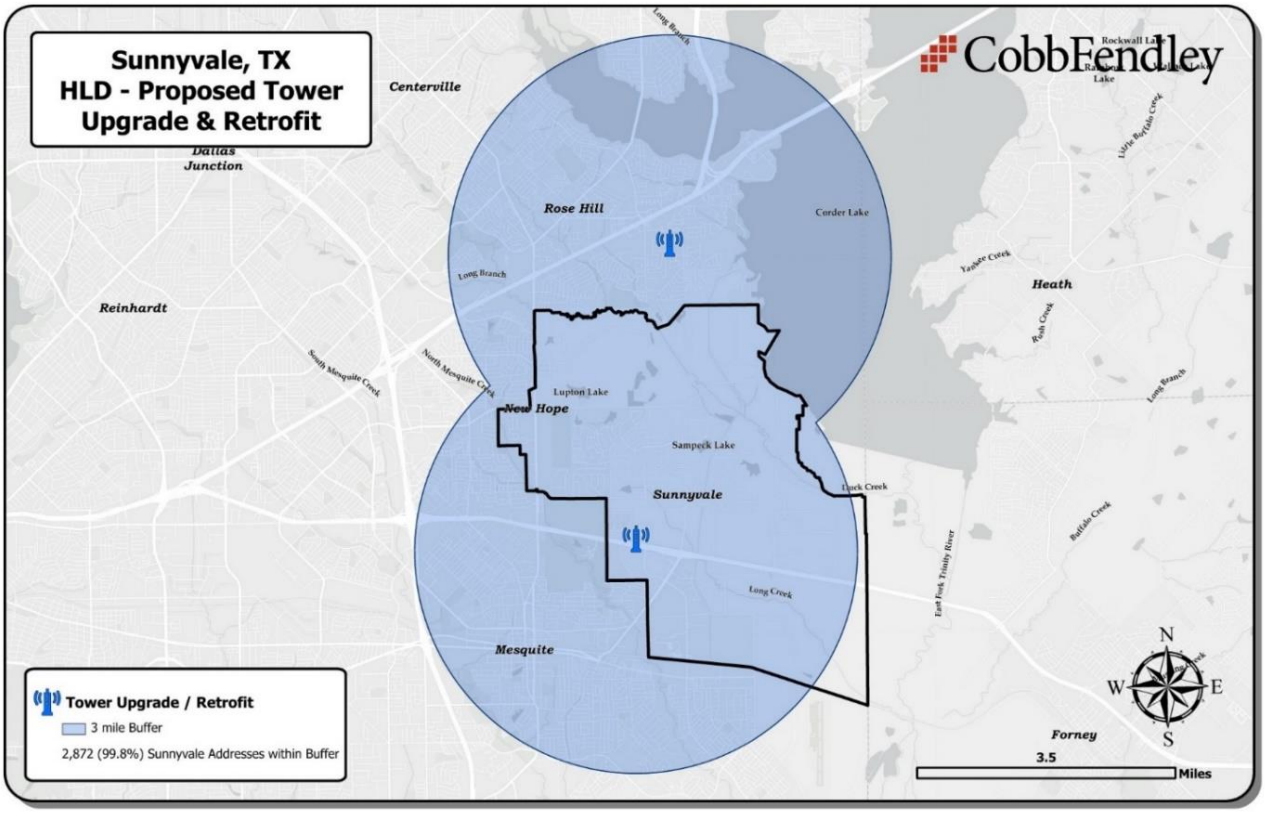



*Figure 15: High Level Design "A" Proposed Tower Retrofit*

- **High Level Design "B" Proposed Tower and Middle Mile Network:**
  - Construction of new tower and 72-strand fiber middle mile segment (Figure 16).
  - Cost-effective and time-efficient for meeting immediate connectivity needs.
  - This option can also be pared down to its discrete components, tower or middle mile fiber dependent on community needs

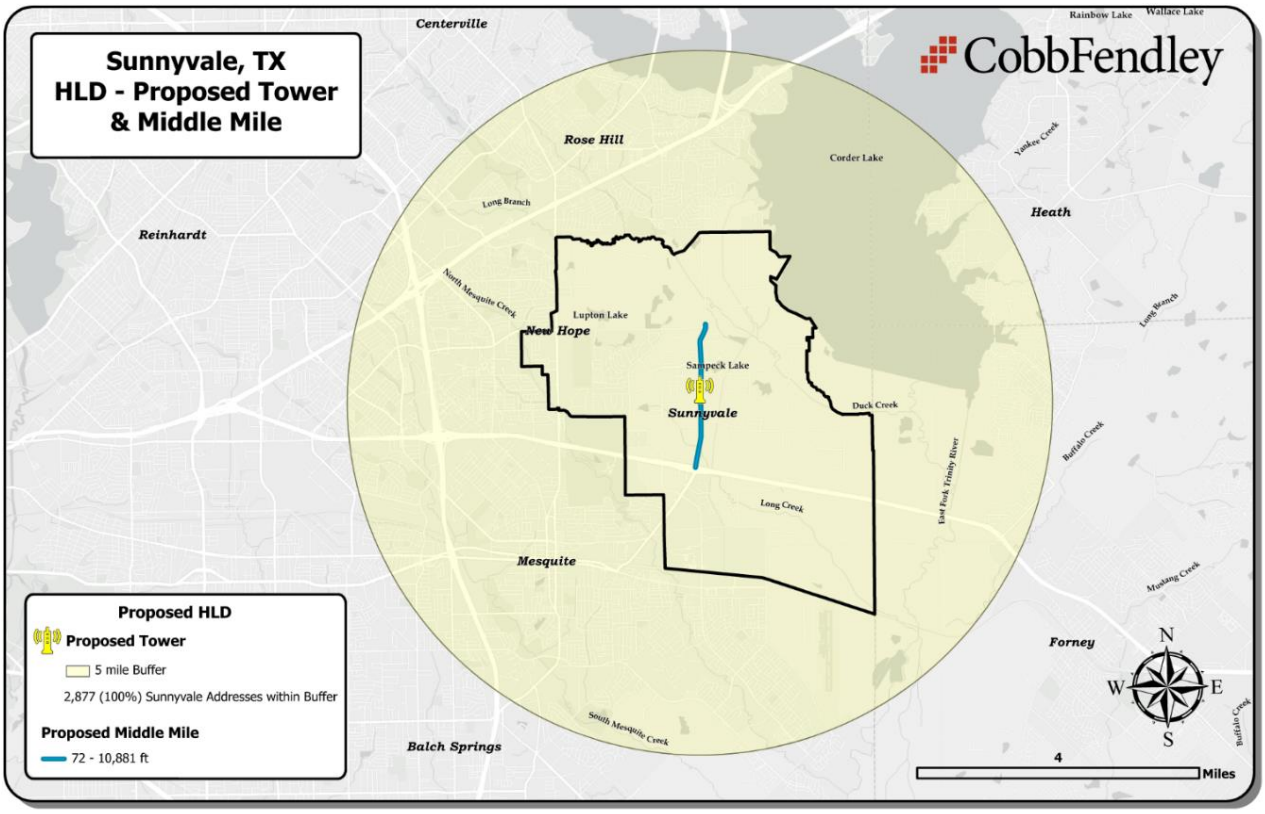



*Figure 16: High Level Design "B" Proposed Tower and middle mile*

- **High Level Design "C" Last Mile Fiber Network:**
  - Direct fiber connections tailored to specific community needs (Figure 17).
  - Ring topology for enhanced reliability and scalability.
  - Involves various fiber sizes to accommodate different areas and future growth.
  - Longer term solution to deliver 1/1 Gbps fiber to the community

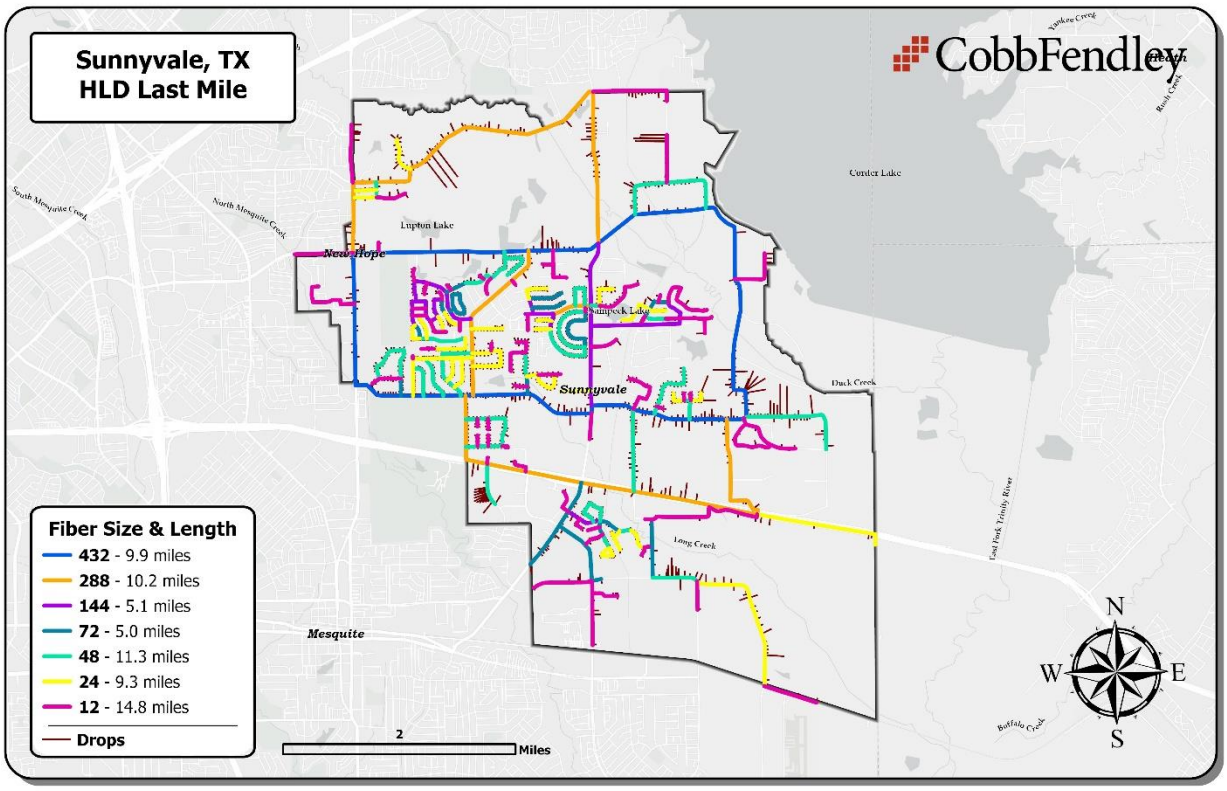



*Figure 17: High Level Design "C" Fiber Last mile*

### 1.5.3 Network Topologies and Methodologies

Sunnyvale's network design includes multiple topologies to serve both urban and rural areas effectively:

- Ring-Based Topology: Provides redundancy and self-healing capabilities, reducing downtime for network maintenance or damage. This topology is beneficial for both business and residential properties, ensuring continuous service.

- Aerial and Underground Routes: The design balances the use of buried conduits and aerial pole infrastructure. While aerial attachments are faster and cheaper, buried fiber is preferred for its safety and protection from environmental hazards.

### 1.5.4 Material and Capacity Considerations

The network design uses a combination of 1-1.25" and 2-1.25" HDPE pipes to allow for future growth, maintenance, and potential leasing of spare capacity. Fiber cables are upsized to accommodate anticipated future demand, promoting scalability and cost-efficiency. Inside plant facilities, such as data centers and distribution points, are strategically placed for optimal connectivity and scalability.

### 1.5.5 Implementation Strategy

The implementation strategy emphasizes flexibility in meeting current and future connectivity demands. The network's capacity is designed to scale up based on demand analysis, ensuring cost savings while providing room for growth. The HLD's considers both immediate and long-term needs, balancing time-efficient solutions with future-proofing the network against technological changes.

### 1.5.6 Cost Estimates and Considerations

Cost estimates for the proposed broadband network include various scenarios for different high-level designs (HLD's):

- HLD "A" focuses on retrofitting existing towers, estimated at $1,874 per address passed, which includes costs for equipment, installation, and services.
- HLD "B" involves building new towers and a middle-mile network at an estimated cost of $1,948 per address passed or $23 per linear foot.
- HLD "C" covers the last mile network independently at $5,622 per address passed or $207,200 per mile, assuming an underground construction approach.

These estimates reflect the costs associated with a greenfield design and do not account for potential savings from leveraging existing infrastructure. Utilizing existing facilities can reduce costs, minimize disruption, and enhance network sustainability by avoiding the need for entirely new constructions.

Additional cost considerations include the construction and upgrading of data centers and POPs, which were not covered in the initial estimates. Also, any electronics included within. Placing these facilities in existing Town-owned buildings can further reduce expenses, while a passive infrastructure model offers cost-efficiency and strategic central connectivity.

### 1.5.7 Additional Infrastructure Costs

The deployment of fixed wireless solutions requires careful planning for both new construction and co-location on existing towers. Co-locating on existing towers can range from $20,000 to $75,000 per tower, whereas building new towers may cost approximately $400,000. Additional costs for ground equipment, such as cabinets and power supplies, vary based on site conditions and regulatory requirements.

While aerial fiber deployment could be less expensive, underground placement is preferred due to its increased resilience against weather-related damage and accidents. This decision aligns with the goal of creating a robust, reliable network infrastructure.

### 1.5.8 HLD Cost Analysis and Business Cases

The prior sections outline the capital expenditures required for each of the HLD options to install the various network options in the community. However, these figures do not represent the entire cost to deploy broadband in Sunnyvale. There are additional operational costs that include but are not limited to salaries for network administration or technician positions, managed services, customer support, marketing, and maintenance costs. Debt service costs may also be required if the initial capital investment requires securing a loan with a 10-30 year repayment timeline. The infrastructure is usually

the costliest and is essential to support the network but it also may not include the necessary transport equipment and connections for access or equipment and provisioning for internet services. Any revenue would be drawn from subscriber payments, income from dark fiber (fiber not being actively used) leasing, and in the case of tower construction, leasing revenue for the placement of equipment on the structure.

HLD "B" will offer multiple revenue streams including income from dark fiber leasing and revenue from providers paying to place equipment on the tower structure. Subscription revenue may also be potential if the middle mile serves town facilities, public schools, or other community anchor institutions (CAIs). Monthly dark fiber lease rates can vary but a relatively conservative range of $125 to $250 per strand mile for the first then fibers can be used as an assumption. These leasing rates would be combined with a revenue stream for tower space leasing at a value between $25,000 to $50,000 per year. These are leases often last five to 10 years and in some cases contain a 3% yearly increase. The anticipated number of providers leasing each asset would be 1-3 providers, ideally more. The revenue generated from these leases would be less than the operational costs (expected to increase at a rate of 5% each year) and likely debt service (at an assumed 6% interest rate) over a 10 year time horizon. However, given the lower capital expenditure, a lower upfront cash investment or funding from an infrastructure partner or ISP could make the project more viable.

For the construction of last mile fiber to all 2,115 locations in Sunnyvale (HLD "C"), a take rate will need to be applied given that though the network would ideally serve every location, only a certain number of those locations may subscribe. A standard take rate for this kind of network would be between 25% to 40% of all locations, meaning of the 2,115 locations an estimated 529 to 846 would become monthly subscribers. The subscription pricing can be set at a level between $60 to $80 a month in line with average broadband fiber rates in the United States. However, once again, the revenue generated would be less than the operational costs (expected to increase at a rate of 5% each year) and likely debt service (at an assumed 6% interest rate) without a large upfront cash investment or outside funding from a telecommunications partner. It may be possible to supplement the subscription revenue with dark fiber leasing or by structuring the business subscription rates differently dependent on the commercial broadband demand needed.

HLD "A" would most likely involve a partnership with a provider to upgrade equipment on existing towers. This may involve some investment in the total cost by the Town or no expense at all depending on the partnership agreement. However, both HLD "B" and HLD "C" could include a range of options from full ownership to a formal partnership to limited investment and/or pure public policy support only. Further conversations with potential providers and/or a formal RFP process would need to be undertaken to carry forward and of these designs and determine the total investment available from various parties. More information on business models is included in Section 1.6 and in Section 4.

## 1.6 Business Models Options

The final two sections of the study are heavily dependent on partnerships and subsequent funding as a component of the partnerships. As such, insight, references, and recommendations are provided as to the most practical business models and applicable funding for the Town.

Based on conversations with Town Officials and various stakeholders, the Town would consider owning some infrastructure but the overall goal is to ensure better access to high-speed broadband services. A likely scenario to achieve this outcome is through Public Private Partnerships (PPPs, or sometimes named as 'P3').

Public-Private Partnerships take the best of both worlds where all parties focus on their areas of expertise and share the risks and benefits associated with the network development. P3s can allow counties/municipalities to attract private capital when it would not be feasible otherwise[12]. Collectively, the partnership compartmentalizes and accommodates all aspects of the network, leveraging assets from both the private and public sectors for mutual benefit. The initial infrastructure investment, operational and maintenance costs, and revenue sharing are all considered in the following PPP contracts.

In a Concession Contract, the network is funded, built, and operated by a private operator. The private operator collects subscription fees as well. This contract requires that the Town allows the private operator access to its resources or assets such as utility poles and ducts. Concession fees are paid to the Town for use of their assets.[13]

*Table 4: Various Forms of Broadband Public Private Partnerships*

| Contract | Town/County | Private Operator | Town/County | Private Operator |
|---|---|---|---|---|
| **Lease** | Town/County | Private Operator | Private Operator | Town/County |
| **Special Purpose Vehicle** | Both | Both | Both | Both |
| **Build Operate Transfer** | Private Operator | Private Operator | Town/County | Private Operator |
| **Concession** | Private Operator | Private Operator | Private Operator | Town/County |

Additionally, utilizing a Passive Infrastructure primary model with an addition of Public Policy, Public Service, Commercial, and Residential accessory models could help aid the PPP, should partnership occur. In this model, the Town's involvement is limited to facilitating some or all of the passive infrastructure needed for the broadband network. Passive infrastructure includes labor and network materials such as conduit, dark fiber, utility poles, towers, buildings, and properties for Data Centers and Points of Presence (POPs). A private sector provider or operator would manage the access and service components.

The additions of the accessory models allow a low-risk promotion of broadband expansion through the available policy tools, allows Town and local public entity support to address broadband needs for public entity facilities and relative applications, provides commercial services to businesses and commercial properties, and finally provides residential services to underserved communities in need.

[12] Municipal Broadband Networks—Opportunities, Business Models, Challenge. Ifc.org. https://www.ifc.org/wps/wcm/connect/publications_ext_content/ifc_external_publication_site/publications_listing_page/municipal+broadband+networks. Published 2022. Accessed June 1, 2022.
[13] Municipal Broadband Networks—Opportunities, Business Models, Challenge. Ifc.org. https://www.ifc.org/wps/wcm/connect/publications_ext_content/ifc_external_publication_site/publications_listing_page/municipal+broadband+networks. Published 2022. Accessed June 1, 2022.

## 1.7 Funding Analysis

Table 5 displays the most applicable federal and state funding opportunities that apply to Sunnyvale. The Infrastructure Investment and Jobs Act (IIJA) has prioritized broadband infrastructure allocating $65 billion in federal funds to be administered across several federal agencies working on broadband deployment. Of the total allocation, $42.5 billion will be administered by the National Telecommunications and Information Administration (NTIA) through the "Broadband Equity, Access, and Deployment (BEAD)" program as a part of the "Internet for All" initiative to provide affordable, reliable high-speed internet to every American across the country. This initiative also includes the "State Digital Equity Planning Grant" which will promote digital inclusion. Federal agencies developed standards for determining adequate access to broadband and typically associated eligibility for funding with unserved areas followed by underserved areas. Outside of these residential speed thresholds, goal speeds for Community Anchor Institutions (CAI) are to be at least 1 Gbps symmetrical (1/ 1 Gbps).

The state broadband office, known as the Texas Broadband Development Office (BDO), will oversee allocating funds as well as providing the best understanding of requirements for grant applications. Official eligibility requirements or application dates are likely to change over time, so it will be best, for all aspects of funding and broadband events, to stay in constant communication with the Texas BDO office during next steps of this process and while heading towards implementation. The Texas BDO will provide awareness of available offerings, provide knowledge towards broadband education on speeds and technologies, and promote the need of smart devices, which are all additional steps needed to help close the digital divide.

*Table 5: Specific Funding Opportunities*

| Grant Program | Funding Agency | Description | Award Timeline | Total Allocation |
|---|---|---|---|---|
| **Bringing Online Opportunity to Texans (BOOT) Program- Capital Projects Fund** | U.S. Department of Treasury - American Rescue Plan Act (ARPA) | Designed to provide internet service with speeds of 100/100 Mbps to households and businesses deemed eligible. Only for 24 TX Counties. | Round 2 closed Awards Fall 2024. | $729.9 million. |
| **Digital Equity Capacity Grant Program** | National Telecommunications and Information Administration (NTIA) | States to implement plans and promote digital inclusion; additionally, the program funds an annual grant program for five years. | Fall 2024 | BDO awarded $55.6 million to develop the State Digital Equity Plan. Application due May 2024. Expected allocation is $100 million for Texas. |
| **Broadband Equity, Access, And Deployment (BEAD) Program** | National Telecommunications and Information Administration (NTIA) | Program intends to expand high-speed internet access by funding planning, infrastructure deployment and adoption programs. | November 2025 | Texas allocated $3.3 billion. State BDO call for projects in Summer 2024. NTIA approval of State plan anticipated Spring 2025. |
| **Texas Proposition 8: Broadband Infrastructure Fund (BIF) Amendment** | State of Texas, administered by the Texas Comptroller | Funds in the BIF could only be used for expanding broadband and telecommunications across the state. Potentially can be used to help meet match costs. | Ongoing – Funds other grant programs like Pole Replacement and BOOT II | Anticipated $1.5 billion. |
| **Texas Pole Replacement Program** | State of Texas, administered by the Texas Comptroller | A portion of BIF, this program reimburses a portion of eligible pole replacement costs. Eligible rural participants can receive reimbursements. | Fall 2024 | $75 million |

### 1.7.1 Broadband Equity Access and Deployment Program (BEAD)

Funded by the Bipartisan Infrastructure Law, BEAD is a federal grant program that aims to get all Americans online by funding partnerships between states or territories, communities, and stakeholders to build infrastructure where we need it to and increase adoption of high-speed internet. BEAD prioritizes unserved locations that have no internet access or that only have access under 25/3 Mbps and underserved locations that only have access under 100/20 Mbps.[14]

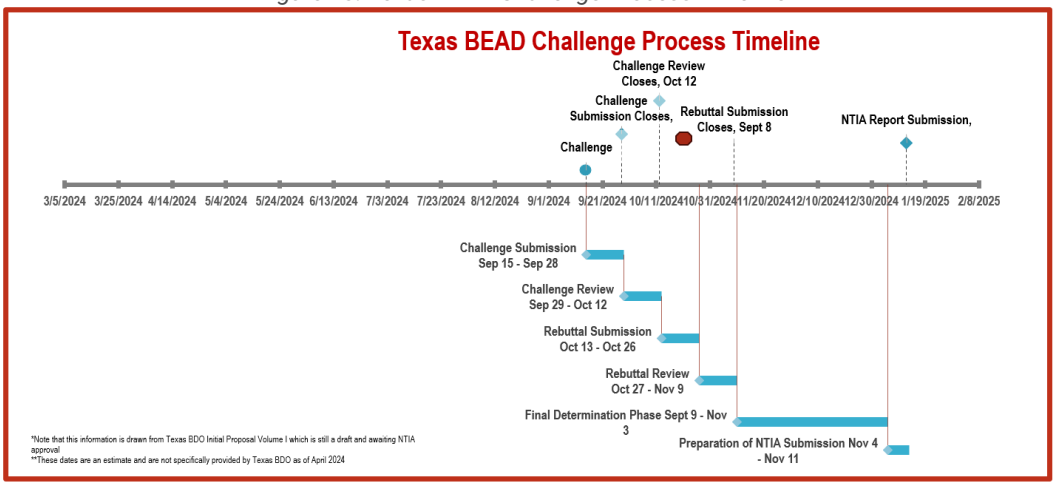
Because the BEAD program prioritizes unserved areas, it is likely that Sunnyvale would not be competitive in receiving grant funding because it is already well-served in terms of broadband access. Only 1.3% of all locations in the Town are considered unserved in the Town (Figure 1) and only 0.3% are underserved (Figure 2). While these locations may be included in a BEAD project area, this grant program is not likely to assist in widespread delivery of 100/100 Mbps internet service across Sunnyvale.

#### 1.7.1.1 BEAD Challenge Process

The FCC is collecting data from ISPs and creating a map to identify unserved locations. The FCC map: 1) was used to determine each state's BEAD funding allocation; and 2) is the starting point for each state's BEAD challenge process to identify unserved locations, underserved locations, and CAIs eligible for BEAD funding.

Eligible Entities will develop a challenge process for stakeholders to challenge whether a location or CAI is served, unserved, or underserved. The BEAD timelines will be determined by each Eligible Entity but must comply with NTIA requirements. NTIA requires that the entire challenge process be completed within 120 days per the Policy Notice. The BEAD Challenge Process will determine the locations and community anchor institutions within each jurisdiction that are eligible for BEAD funding. Participation in the BEAD Challenge Process could be valuable, particularly for challenging the CAIs. The current list for the State of Texas only has one CAI contained within the Town of Sunnyvale and the list is lacking Town facilities and public schools.

*Figure 18: Texas BEAD Challenge Process Timeline**




[14] National Telecommunications and Information Administration. (n.d.). Broadband Equity Access and Deployment Program. BroadbandUSA. https://broadbandusa.ntia.doc.gov/funding-programs/broadband-equity-access-and-deployment-bead-program

*Note that this information is drawn from Texas BDO Initial Proposal Volume I which is still a draft and awaiting NTIA approval. These dates are an estimate and are not specifically provided by Texas BDO as of April 2024

### 1.7.2 Existing Funding Awards in Sunnyvale

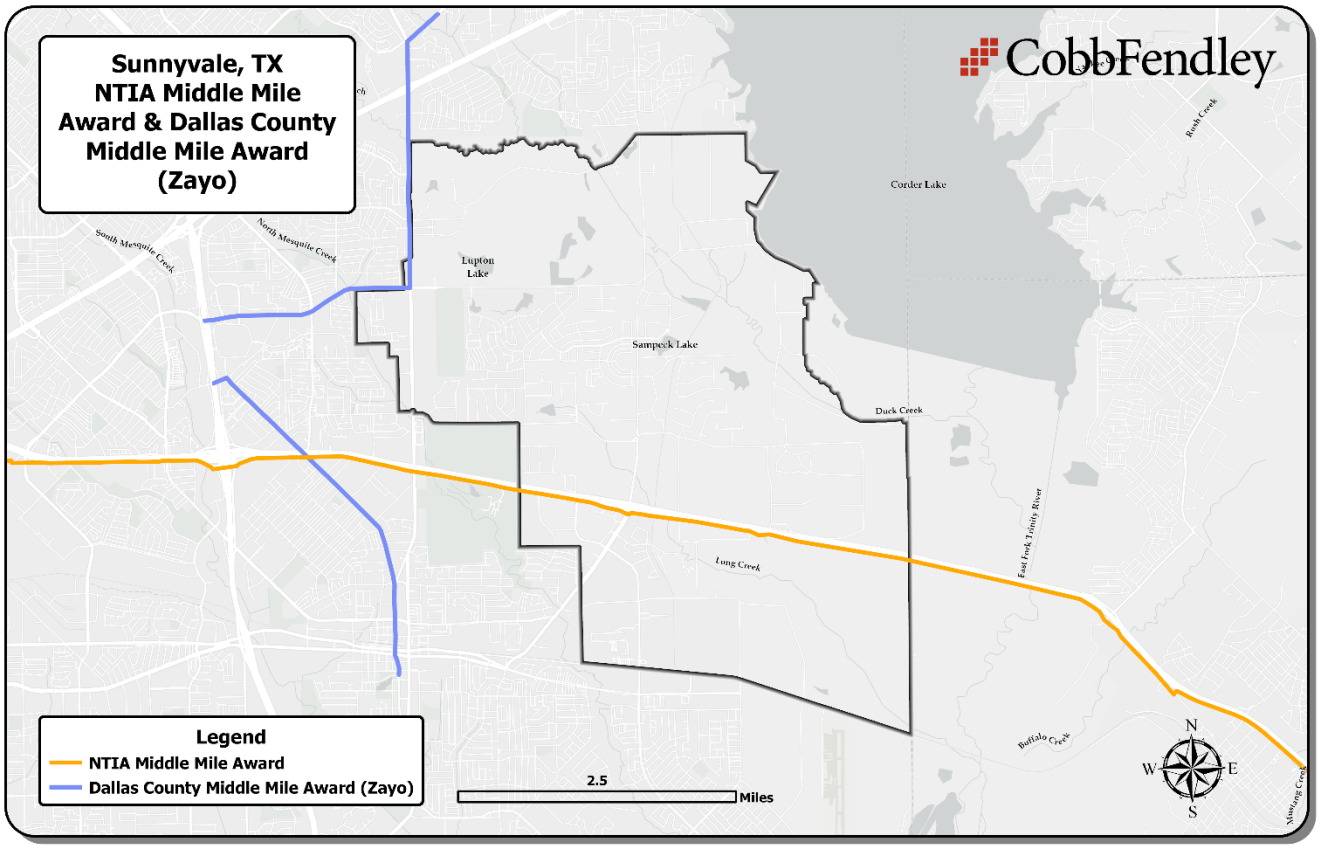



*Figure 19: Middle Mile Awards, Dallas County*

**NTIA Middle Mile (Zayo)** - The Dallas to Atlanta middle mile (Figure 19 in Orange) project by Zayo funded by the NTIA Middle Mile Grant Program that runs along US-80 in Sunnyvale and should be taken note of. The purpose of the project is to create new access points along the applicants 822-mile, five-state, underground existing middle mile fiber route, providing a highly resilient alternative to the aerial fiber used currently, to provide better service to unserved and underserved areas. The aerial fiber in place is subject to outages. The applicant identified 209 CAIs that are located within 1 mile of the fiber route that could have access to the network. A portion of the funding will allow the project partner to construct 180-foot towers that will provide non-discriminatory access to up to four wireless ISPs to provide mobile and fixed broadband service within a 5-mile radius of each tower.[15]

**Dallas County Middle Mile (Zayo)** - In 2024, Dallas County awarded Zayo $31 million for a middle mile project show in Blue on Figure 19 to 1) construct fiber or lease existing fiber to form a fiber ring of approximately 624.3 route miles through and around Dallas County, 2) Zayo will utilize existing POPs within the Dark Fiber IRU (Indefeasible Right of Use) portion of the Zayo System throughout the county housing network electronics, 3) design of the last mile network will not be determined until final engineering on the Zayo Network and final engineering by those last mile partners recruited by Zayo through the teaming agreement and has been performed and negotiations with potential dark fiber providers has been completed.

[15] National Telecommunications and Information Administration. (n.d.). Funding Recipients. Broadbandusa. https://broadbandusa.ntia.gov/funding-programs/enabling-middle-mile-broadband-infrastructure-program/funding-recipients

**American Rescue Plan Act** - On March 10, 2021, the House of Representatives approved a Senate-amended version of President Biden's $1.9 trillion COVID-19 relief package - the American Rescue Plan. The package includes $350 billion in aid for state and local governments, along with additional funding for other areas like education, rental assistance and transit. The President signed the bill into law on March 11, 2021. Sunnyvale currently has approximately $1 million in available ARPA funding.

**Other Non-Governmental Sources** – Other mechanisms exist for funding broadband infrastructure projects without utilizing federal or state government dollars. Private investment is available from various types of entities and businesses. In recent years, private equity investment in broadband networks has increased. Additionally, bonding could be an option to seek funding through debt markets. There are also non-profit entities and funders that support broadband projects, however these programs are typically associated with a specific need criteria or social vulnerability. Eligibility criteria, reporting, and administrative red tape may also be a barrier to these primary programs and so partnerships with private financial institutions and non-profit based organizations can be a major asset to the financial viability of many cost components of the initiative.

## 1.8 Recommendations

CobbFendley provides the following recommendations based on the Stakeholder Outreach, Asset Mapping, Needs and Gaps Analysis, High-Level Network Design, Cost-Benefit Analysis, and supplementary research with a goal of ensuring residents are able to access internet offerings at speeds of 100/100 Mbps symmetrical or higher, ideally with a capacity of 1/1 Gbps symmetrical via wireline fiber technology.

1) **Work with local Fixed Wireless ISPs and/or Mobile Providers for potential Public Private Partnerships in order to Upgrade Existing Technology:** The Town of Sunnyvale aims to efficiently provide high-speed internet and mobile access to its unserved and underserved residents. One of the shorter term solutions is improving fixed wireless and mobile service. Multiple towers and wireless equipment already exist throughout the Town and surrounding areas, though as noted not with extensive coverage in residential areas. The Town can collaborate with an ISP, or multiple ISPs, to upgrade their existing towers, upgrade the equipment located on towers to more advanced technology, and upgrade current spectrums to frequencies that are recognized by the FCC as served, thereby extending coverage to more locations. This is a short term solution aligned with HLD “A” for fixed broadband service improve the high speed options at 100/100 Mbps or greater. For mobile, working with existing telecommunications providers can help ensure residents receive improved service but additional tower infrastructure may also be needed to fully cover the community. If such collaboration needs to go through a Request for Proposal (RFP), HLD “A” can be included in Recommendation 2.

2) **Publish a Request for Proposal (RFP) to identify an Internet Service Provider (ISP) for potential Public-Private Partnerships (PPP):** The Town’s goals for this project are to connect its current and future unserved and underserved residents to high-speed internet (ideally fiber and 100/100 Mbps at a minimum) and completing that as efficiently as possible. The Town recognizes that partnering with an established ISP, or multiple ISPs, is the most effective way to accomplish that goal for its community. The Town can collaborate with providers and broadband services partners to determine the optimal network build based on the provided HLD options of middle mile backbone and tower insfrastructure (HLD “B”) or Town-wide last mile fiber (HLD “C”). As mentioned, HLD “A” could also be carried out through a formal RFP process if deemed necessary. There are providers currently operating within the Town, with options for additional providers seeking to invest in the near term. An

RFP process will enable Sunnyvale to further explore applicable business models and expand on potential PPP contract structure and terms, allowing for a well-informed partner selection and implementation plan.

The goals of the RFP would be to:

- Evaluate the potential for developing public/private partnerships with providers and broadband services partners for implementation.
- Evaluate the various applicable broadband solutions presented concerning the study findings and recommendations based on the existing conditions in Sunnyvale with opportunities to discover existing infrastructure or capacities of local providers.
- Understand the financial model structure and overall costs for the project(s) and analyze financial risk and benefits within the partnership.

Evaluation criteria and requirements for potential RFP bidders would include:

- Provide evidence of past performance and ability to provide a low-cost option for reliable internet service.
- Ability to supply levels of service at 100/100 Mbps or higher.
- Documentation of existing assets in and around Sunnyvale, particularly fiber routes, tower infrastructure, and wireless equipment.
- Documentation of any funding applied for or received within the Town's boundaries or planned service in Sunnyvale.

3) **Adopt Ordinance and Permitting Policies to Ease Installation of Telecommunications Infrastructure:** A key issue for both mobile and fixed wireless service in Sunnyvale is the existence of tower infrastructure in or near residential areas. Adjusting the Special Use Permit (SUP) requirement to reduce the residential setback requirement for antennae in non-residential areas and ease the height requirement for strctures would help resolve the lack of tower infrastructure. Additionally, ensuring a smooth permitting process for FTTP services and middle mile assets can help providers more rapidly deploy broadband within the community.

4) **Participate in the BEAD Challenge Process:** A review of the various funding sources that can be utilized for broadband infrastructure can be found in the section titled Funding Analysis. While only a few locations may be eligible for BEAD, participating in the BEAD Challenge Process would be worthwhile to ensure the most up to date information is being utilized to allocate funds. Challenging the CAIs under the BEAD Challenge Process would be particularly beneficial. The current list for the State of Texas only has one CAI contained within the Town of Sunnyvale and as of September 2024 the list is lacking Town facilities, libraries, public schools, and public safety facilities.

DRAFT

# 2 NEEDS AND GAPS ANALYSIS

To function efficiently, residents, businesses, schools, and local governments all depend on having an affordable, capable, and dependable communications infrastructure. Achieving this goal is not possible when relying on inconsistent coverage and pricing structures that lack competitiveness, and do not prioritize the quality of service (QoS) for the end user. The national attention on the concept and consequences of the digital divide has intensified, largely due to the impact of the COVID-19 pandemic.

Without a comprehensive understanding of the underlying causes behind the absence of infrastructure in specific regions or a deep comprehension of the digital divide's effects on communities, it becomes challenging to develop a meaningful solution that is tailored to address the broadband gap and meet the unique needs of the community.

## 2.1 Needs Determination

The existing condition of broadband infrastructure in the area and the extent of the digital divide can be substantiated through the research and data collection conducted as part of this study. In addition to analyzing public data related to accessibility, affordability, and adoption, three additional factors were also considered: community and stakeholder input, economic development considerations, and the capabilities of the network itself. All these elements will collectively help determine whether the primary need in Sunnyvale lies in enhancing infrastructure access, promoting greater adoption of existing networks, or a combination of both.

To ensure that Sunnyvale residents can receive the adequate service they deserve, the Town is looking into various ownership and partnership models, including a fiber backbone and/or fiber to the home (FTTH). These decisions will be stakeholder-dependent, but the Town is focused on ensuring a reliable service that can be offered to those living there.

## 2.2 Needs Discovered in Sunnyvale TX

This section summarizes the Town's current needs and was discovered through evaluating several data resources and maps. Sunnyvale was actively engaged in the stakeholder engagement process by relaying their known contacts, proposed demand points (facilities needing broadband service), preliminary research, and observations, all of which contribute to understanding the Town's needs to shape these future projects. Discussions with stakeholders addressed the goals for future projects, the state of the current broadband infrastructure footprint, perceived service and application needs, potential for future expansion, and any concerns or constraints that would help formulate recommendations. Engagements with local public entities focused on understanding their needs and gaps. In contrast, engagements with providers, operators, and other potential partners directly involved them in the planning and implementation process. The Stakeholder Engagement process took place over several weeks.

Based on an analysis of the current state of broadband and discussions with Sunnyvale staff regarding local infrastructure in Sunnyvale, Texas, the following needs were identified related to both mobile and broadband connectivity:

- There is a significant lack of reliable mobile connectivity throughout the Town, affecting both residents and businesses. Many areas experience poor signal strength, frequent call drops, and slow data speeds, which hampers everyday communication and access to essential services.

This connectivity issue is particularly challenging in certain parts of the Town, where coverage gaps are more pronounced due to geographic barriers, outdated infrastructure, or insufficient cell towers.

  - The lack of consistent mobile also impacts public safety, emergency response, and economic activities that depend on reliable mobile networks. For example, emergency services may struggle to receive critical calls, and businesses may face difficulties in conducting transactions or maintaining contact with clients. Additionally, the inability to connect to a stable mobile network can deter new businesses or residents from moving to the area, potentially stalling economic growth and development.

  - Addressing these mobile connectivity gaps requires strategic investments in telecommunications infrastructure, such as installing new cell towers, upgrading existing equipment, or deploying small cell solutions to enhance signal strength. Partnering with mobile network operators and considering innovative solutions like fixed wireless access could help bridge these gaps and improve overall mobile service quality across the Town.

  - These can be addressed with High Level Design “A” and High Level Design “B” included in the Network Design Plan.

- Much of Sunnyvale currently uses cable technology with coaxial cables to provide internet services, but this approach has limitations that result in slower speeds and unreliable connections. Coaxial cables, initially designed for television signals, struggle to handle modern internet demands, especially since the network bandwidth is shared among users in the same area. This often leads to congestion, inconsistent speeds, and high latency during peak usage times, impacting activities that require stable, high-speed internet. While there are potential coaxial technology upgrades (DOCSIS 4.0) underway in the DFW Metroplex market, there are alternatives that can reliably deliver speeds of 100/100 Mbps or higher.

  - Fiber-optic technology offers a much better alternative, using thin strands of glass or plastic to transmit data as light pulses. Unlike cable, fiber provides dedicated, direct connections to homes or businesses, ensuring consistently high speeds and low latency regardless of the number of users online. Fiber's higher data capacity and immunity to electromagnetic interference make it more reliable and less prone to degradation over time, supporting advanced technologies and future-proofing the Town's network infrastructure. In Figure 20, a total of 2,115 addresses can be seen without a fiber connection to the premises.

  - Transitioning to a fiber network is essential for Sunnyvale to deliver high-speed, reliable internet services to its residents and businesses. Fiber technology's scalability and resilience are critical for meeting current and future digital demands, supporting economic growth, enhancing the quality of life, and keeping Sunnyvale competitive in an increasingly digital world. To achieve 100% broadband connectivity with future-ready solutions for all Sunnyvale residents, High Level Design “C” last mile, was developed in detail in NETWORK DESIGN PLAN.

- The Town currently lacks dark fiber middle mile infrastructure serving community facilities and residential areas of the community, which is a critical component for providing high-speed, scalable internet services. Dark fiber refers to unused or “unlit” optical fibers that can be leased

or owned by service providers or municipalities to create a dedicated network. The middle mile represents the network segment that connects a community's local internet infrastructure to larger regional or national networks. Without a robust dark fiber middle mile, the Town relies on third-party providers for this connection, limiting control over network capacity, speed, and reliability, and often resulting in higher costs.

- Implementing a dark fiber middle mile infrastructure is important because it allows the Town to build a flexible and future-proof network. It provides the essential backbone that enables internet service providers (ISPs) to deliver high-speed connections directly to end-users through the last mile. This infrastructure also supports various other critical services, such as public safety communications, smart city applications, and local business operations. Additionally, a municipally controlled middle mile can be upgraded or expanded more easily than leasing bandwidth from external providers, ensuring that the network can accommodate growing data demands and emerging technologies over time.

- Moreover, having dark fiber middle mile infrastructure can attract new ISPs, fostering competition and potentially lowering costs for residents and businesses. It gives the Town the ability to manage and optimize its connectivity, promoting economic development, enhancing digital equity, and ensuring that all community members have access to reliable, high-speed internet. Ultimately, additional fiber middle mile is vital for creating a resilient, high-capacity network infrastructure that supports the Town's long-term digital needs and growth.

A summary of expressed needs:

- Existing broadband options lack the preferred high-speed capabilities necessary to adequately serve public locations and Town facilities.
- The Town suffers from a pronounced deficit in mobile connectivity.
- The Town lacks middle mile infrastructure.

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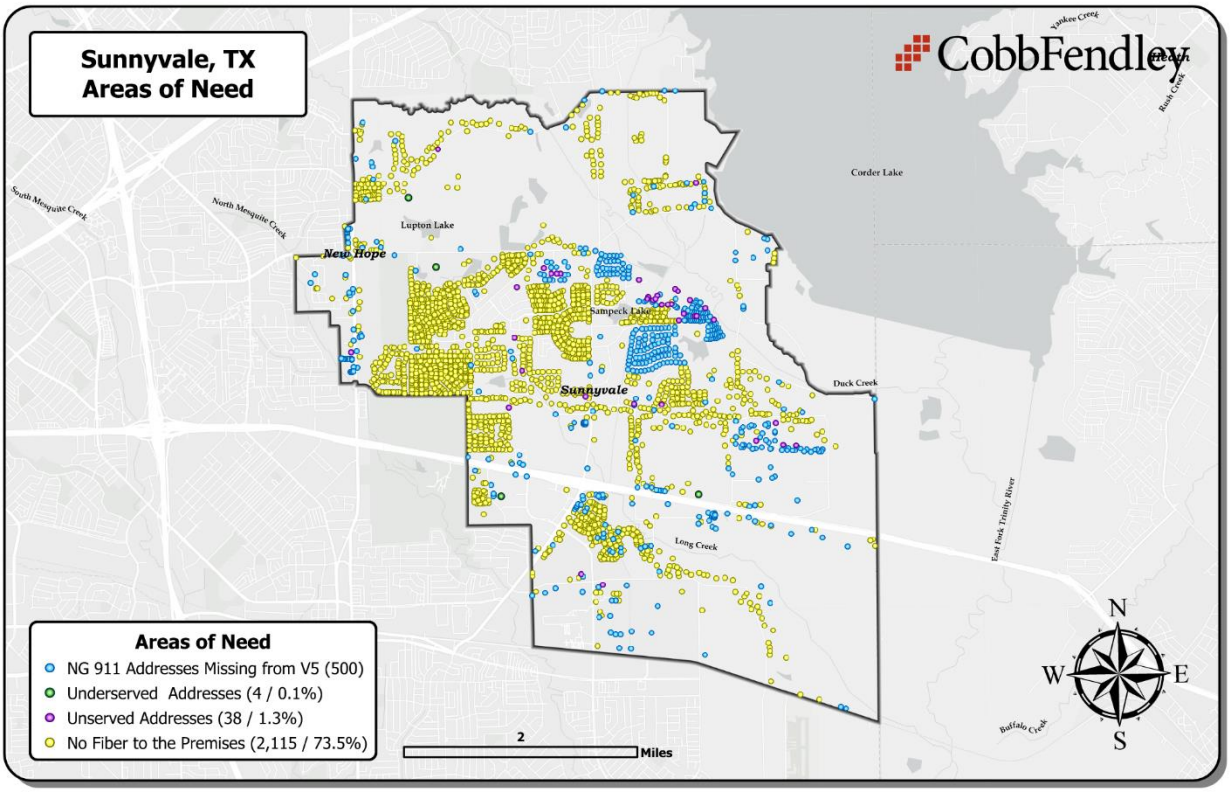



*Figure 20: Areas of Need, Sunnyvale TX*

## 2.3 Evaluating the Determined Needs

When evaluating broadband access and infrastructure, it's important to recognize that relying solely on FCC data can be misleading; however, it provides a useful reference point for more comprehensive research. This study began by using the latest publicly available broadband data as a foundation, which was then supplemented with additional information, including the proposed network footprint and service requirements. Various figures and maps in this report are based on data from multiple sources, such as FCC Form 477, the American Community Survey (ACS), and USDA data for urban and rural designations. This combined data helps identify areas of need and clarify whether issues are related to access or adoption.

Figure 26 (page 46) highlights the census-based areas designated as urban and rural, illustrating the typical disparity in broadband access between them. Urban areas with higher population densities are more likely to receive better internet services due to the higher return on investment for providers, while rural areas, with fewer homes spread over longer distances, often lack adequate infrastructure. This lack of access can exacerbate socio-economic challenges for rural residents. For this analysis, rural areas in the Town will initially be assumed to have an access gap. The following narrative will reference various figures to assess these potential access issues by reviewing the service levels and provider options available throughout the Town.

As shown in Figure 27 (page 47), most of the Town boasts multiple broadband providers, offering at least three or more options. This data shows every provider offering per address, regardless of speed, but without satellite included (as it would cover every address in the Country). This would typically be a good starting point in evaluating access as it can be determined where infrastructure or service area gaps may

be more prevalent throughout the Town. However, it is important to note that this data, as mentioned previously, can be misleading. This data encompasses multiple fixed wireless options. From a numbers point of view, this does not consider spectrum used or quality of service, while some fixed wireless options can technically reach homes up to about 12 miles from the tower.

Common barriers to adoption often include factors like customer age, limited provider choices, subpar customer service, income constraints, and digital literacy. Access to options plays a significant role in this, which means not only having physical network infrastructure available at homes or businesses but also having devices capable of utilizing this technology. Figure 28 (page 47), displays census tracts with percentages of residents lacking smart devices, such as computers, smartphones, or tablets, needed to fully utilize broadband services. These percentages vary, with some communities showing 2 to 3.6% of households lacking smart devices.

Figure 29 (page 48), illustrates the proportion of households lacking internet connectivity. This is defined by the ACS as, "if any member of the household has access to the internet. "Access" refers to whether or not someone in the household uses or can connect to the internet, regardless of whether or not they pay for the service."[16] This encompasses various residential structures such as houses, apartments, and mobile homes. This suggests the presence of a digital divide within the rural communities where the lack of access is noticeably higher. If adequate internet access is absent, it is unlikely that individuals will invest in devices and equipment that cannot fulfill their desired digital needs where a digital divide may further be increased.

When analyzing median household income within a community, it is beneficial to consider household size as well. Larger households may have less disposable income compared to single individuals or childless couples. In Figure 31 (page 49), it is shown that the greater Sunnyvale area has a household median income ranging from $95,000-$175,000 and most of the non-northern parts of the Town have a household median income of $95,000 or less. Figure 30 shows Average Household size, with the Town-wide average being about 3.

## 2.4 Mobile Broadband

Mobile broadband refers to wireless internet access to portable devices that is provided through mobile phone networks by way of cell phone towers—including cellular network technology, such as 3G, 4G, or 5G. Users can access mobile broadband through portable modems, wireless, modems, or directly via smartphones or tablets. The FCC defines mobile wireless broadband service as allowing end users to receive information from and/or send information to the Internet from a mobile device and using a mobile network at information transfer rates exceed 200kbps in at least one direction. A mobile network enables providers to reuse frequencies and accomplish seamless handoff of subscriber data connections.[17]

The main providers of mobile broadband in Sunnyvale include AT&T, T-Mobile, and Verizon. Figure 21 shows the mobile providers in Sunnyvale—much of the Town is covered by at least three providers, or AT&T and T-Mobile. Please note that this data is based on the level of service at fixed locations and does not cover areas in between those locations.

[16] American Community Survey and Puerto Rico Community Survey 2022 Subject Definitions. (n.d.). https://www2.census.gov/programs-surveys/acs/tech_docs/subject_definitions/2022_ACSSubjectDefinitions.pdf
[17] *Mobile Broadband Subscription* . Federal Communications Commission. (2015). https://www.fcc.gov/licensing-databases/forms

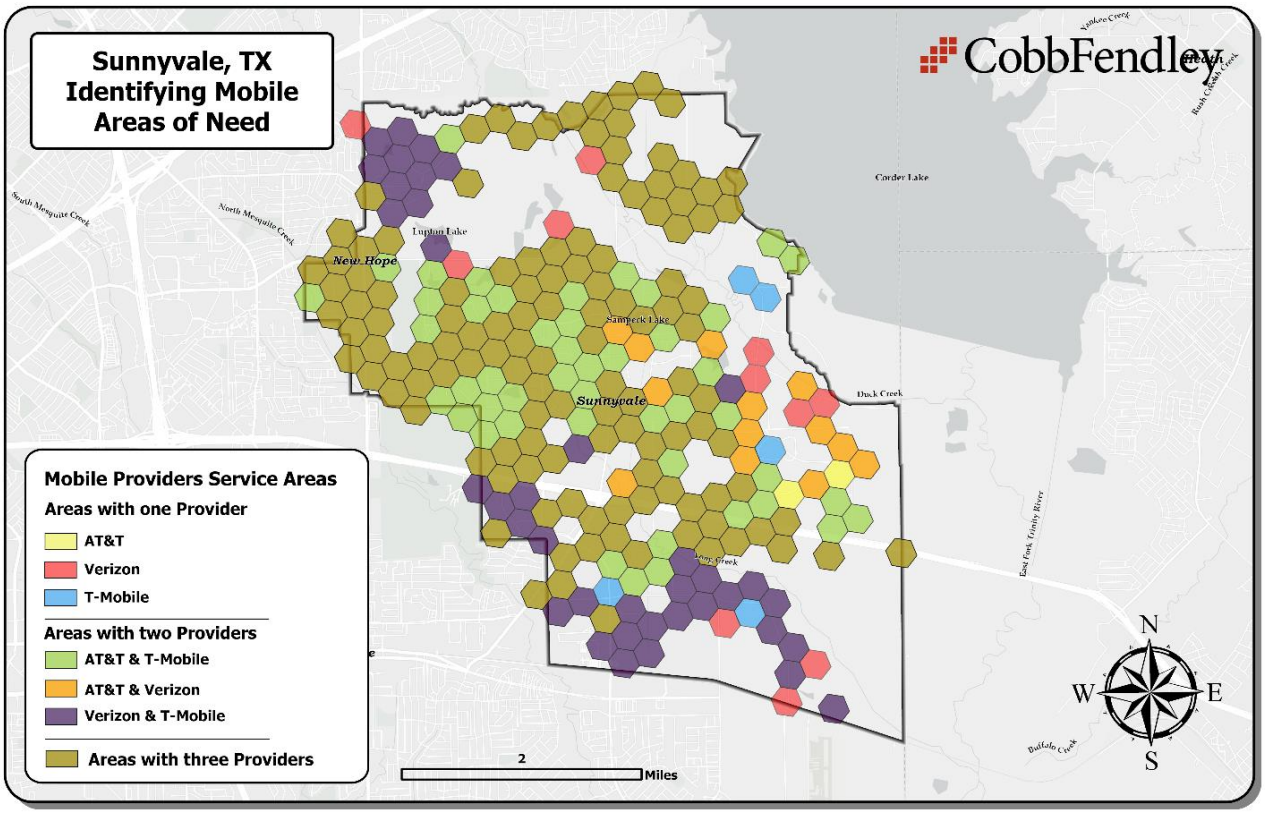



*Figure 21: Mobile Providers Service Areas, Sunnyvale TX*

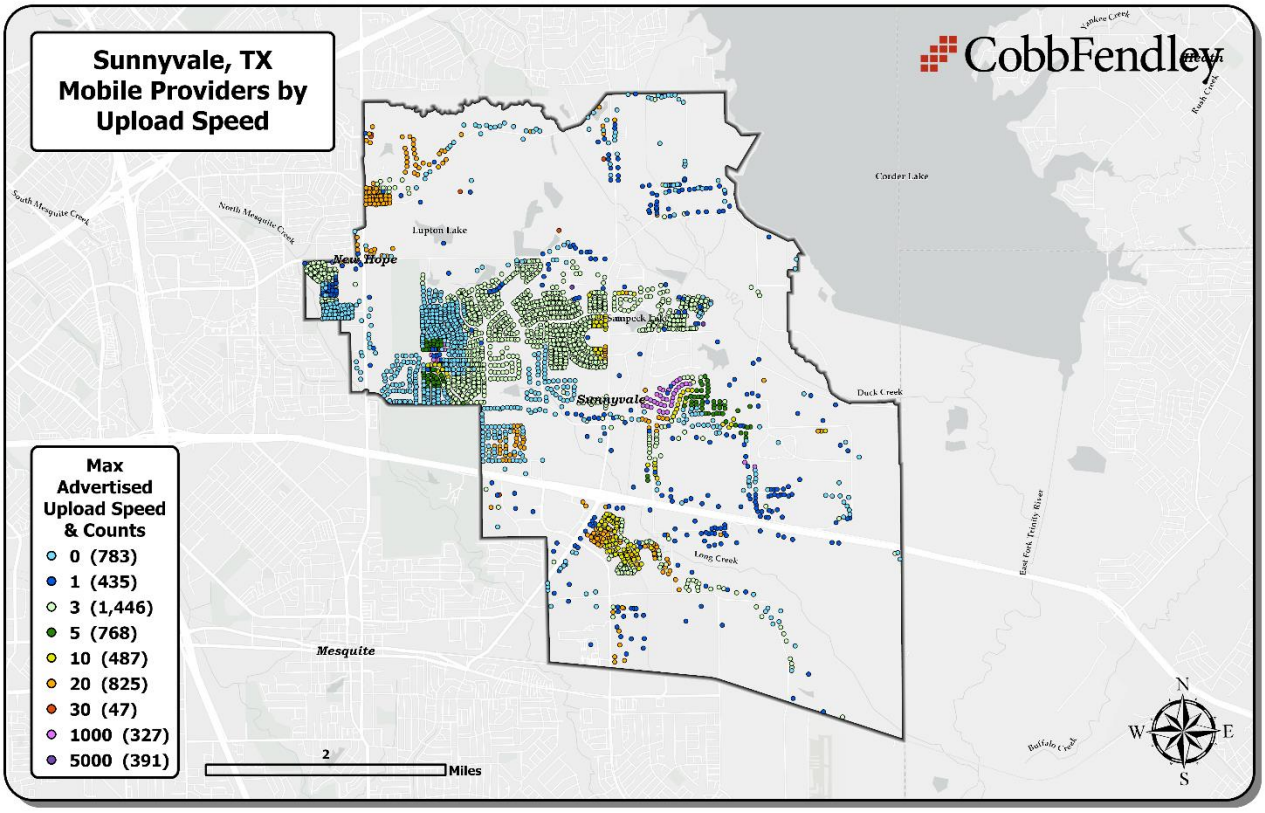



*Figure 22: Mobile Providers by Upload Speed, Sunnyvale TX*

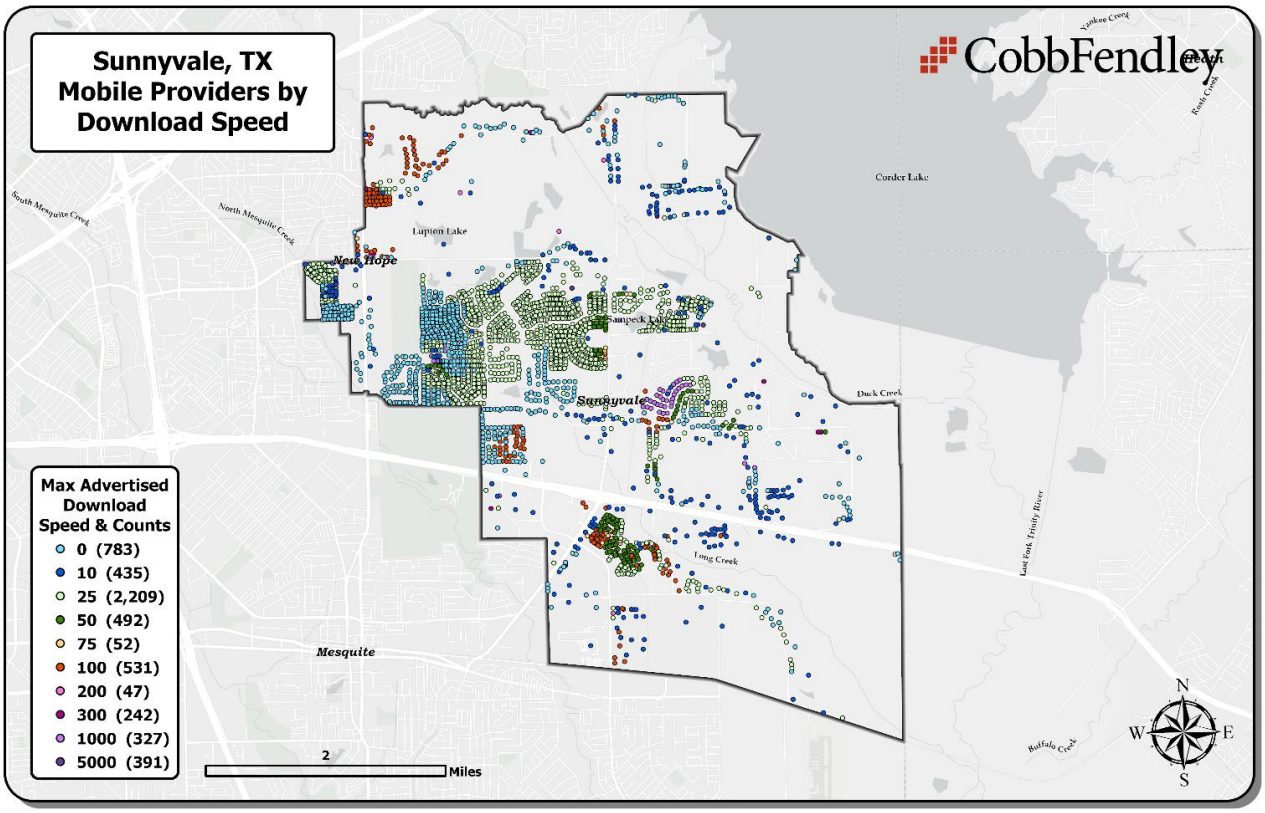



*Figure 23: Mobile Providers by Download Speed, Sunnyvale TX*

## 2.5 Needs and Gaps Figures

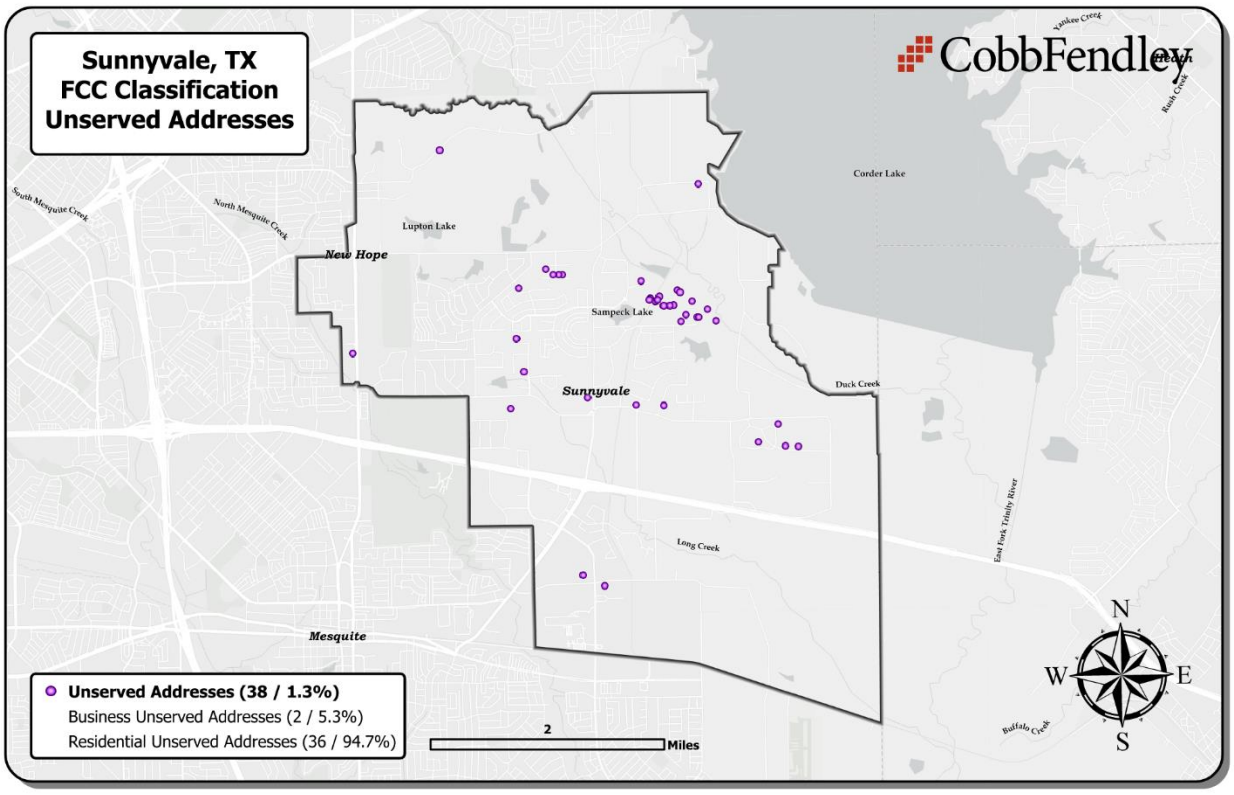



*Figure 24: Unserved Addresses, Sunnyvale TX*

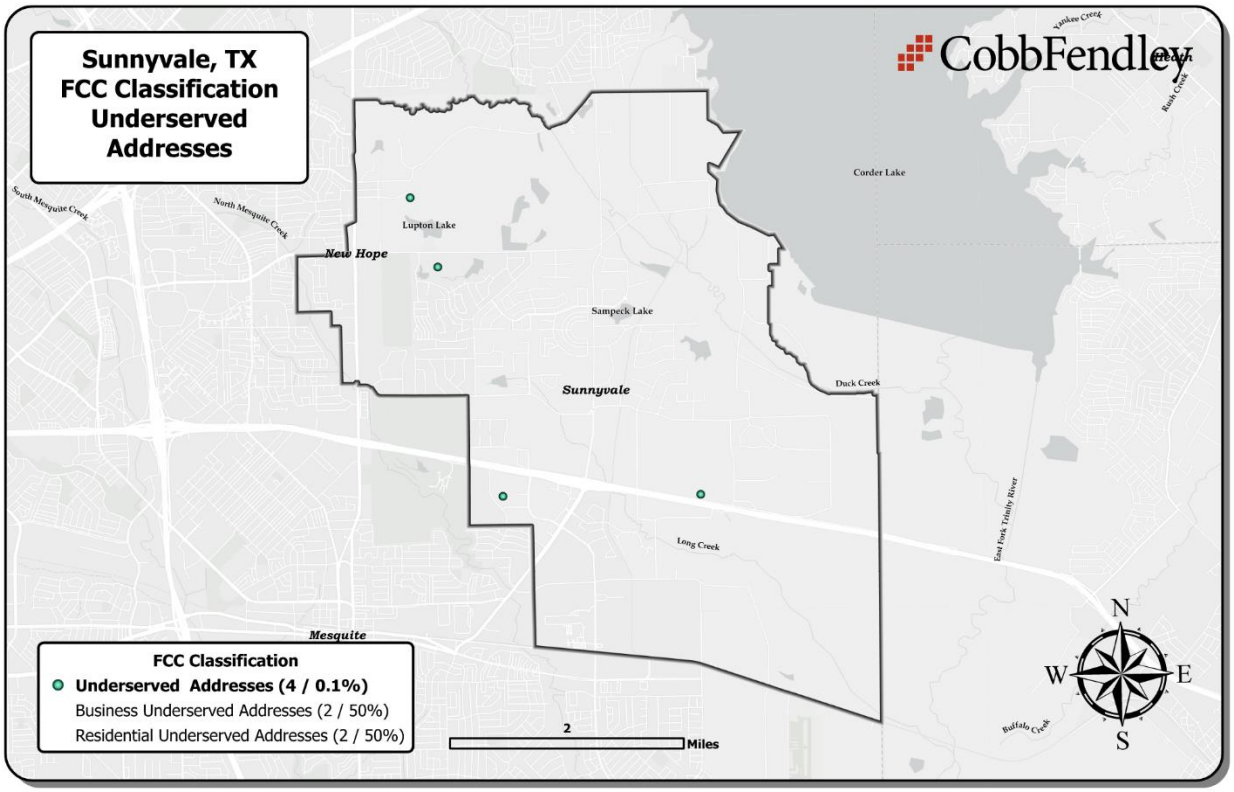



*Figure 25: Underserved Addresses, Sunnyvale TX*

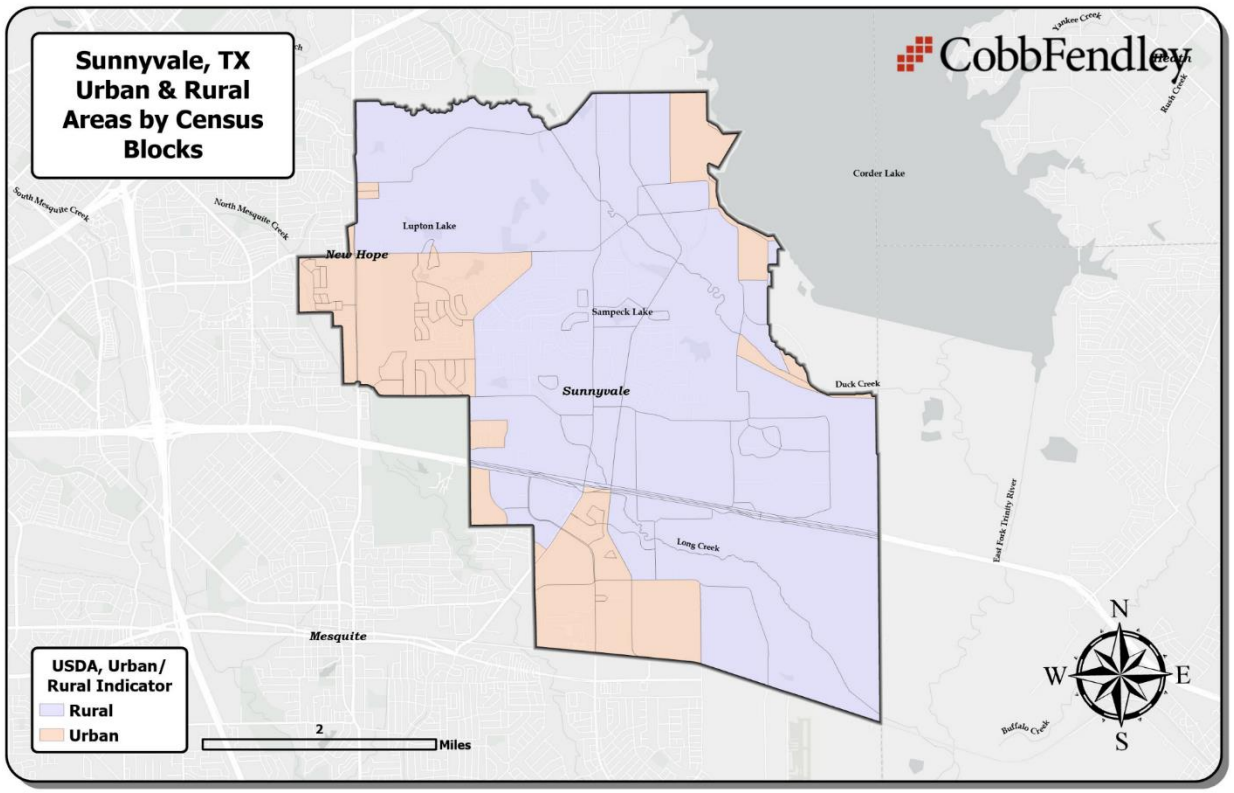



*Figure 26: Urban & Rural Areas, Sunnyvale TX*

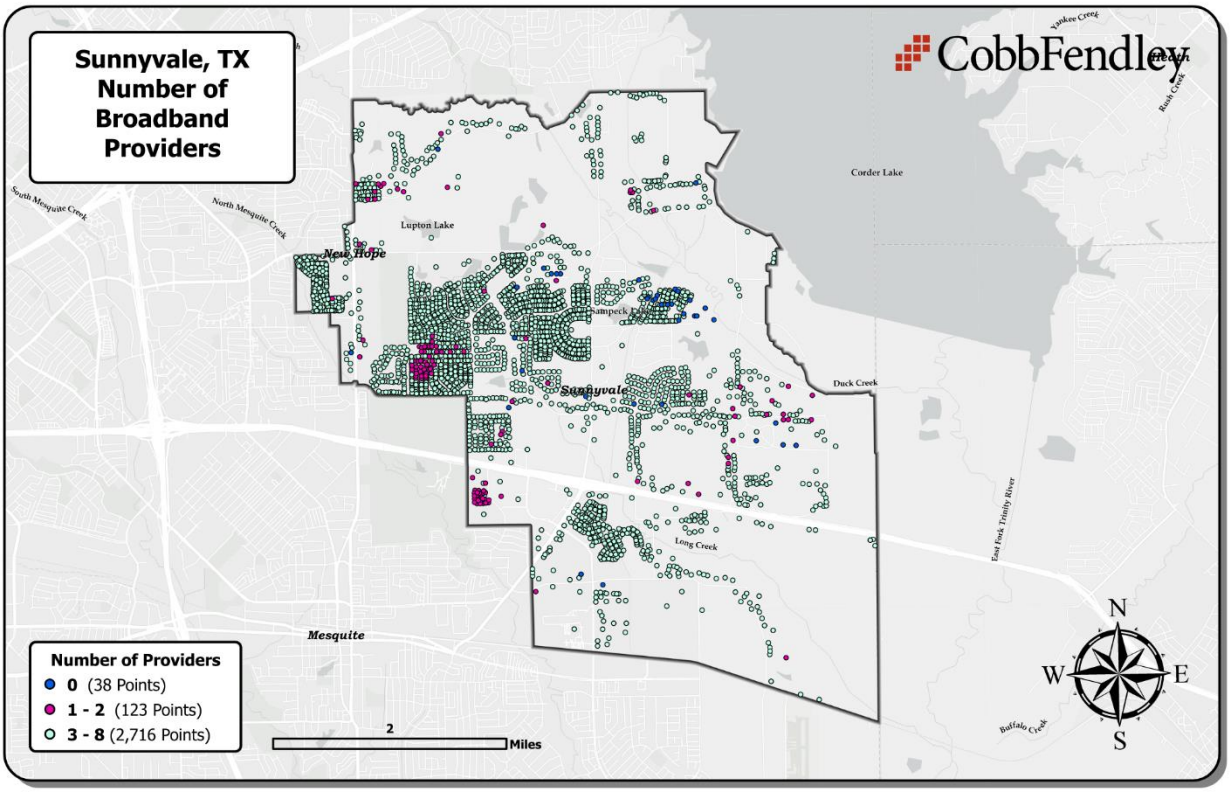



*Figure 27: Number of Broadband Providers, Sunnyvale TX*

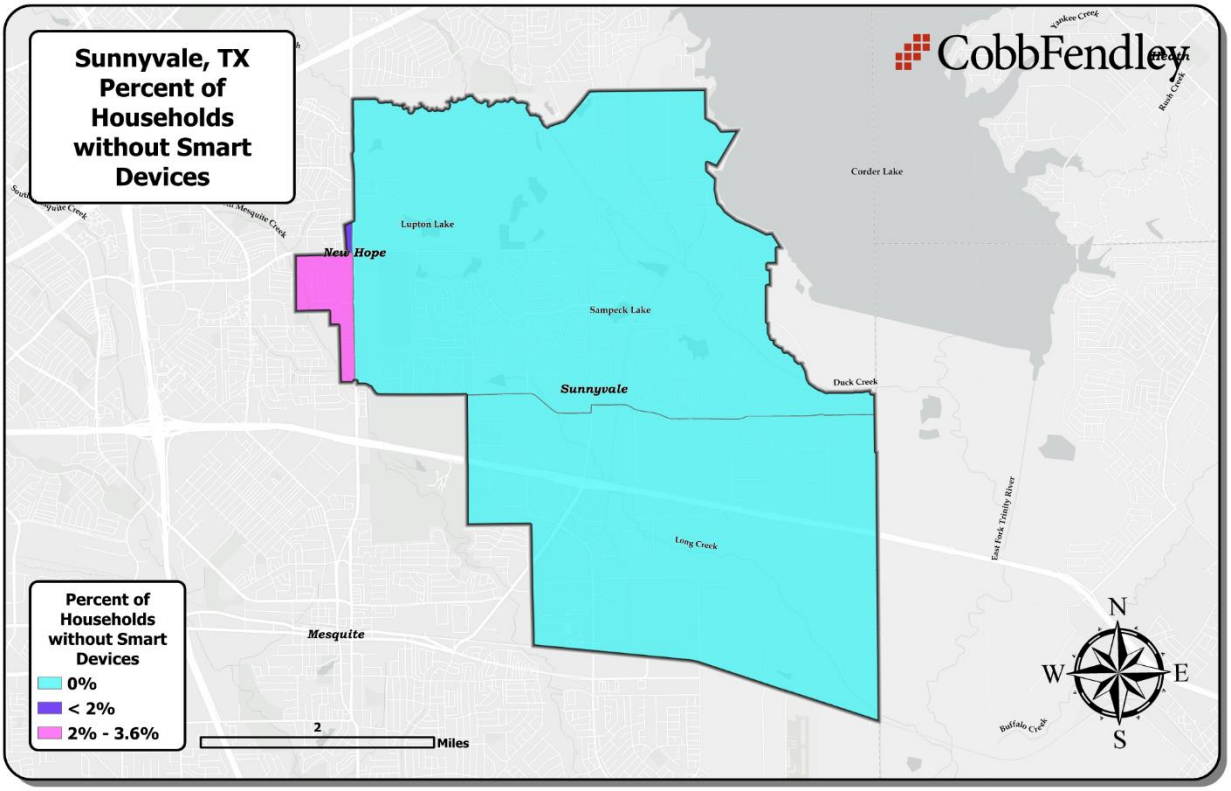



*Figure 28: Percent of Households Without Smart Devices, Sunnyvale TX*

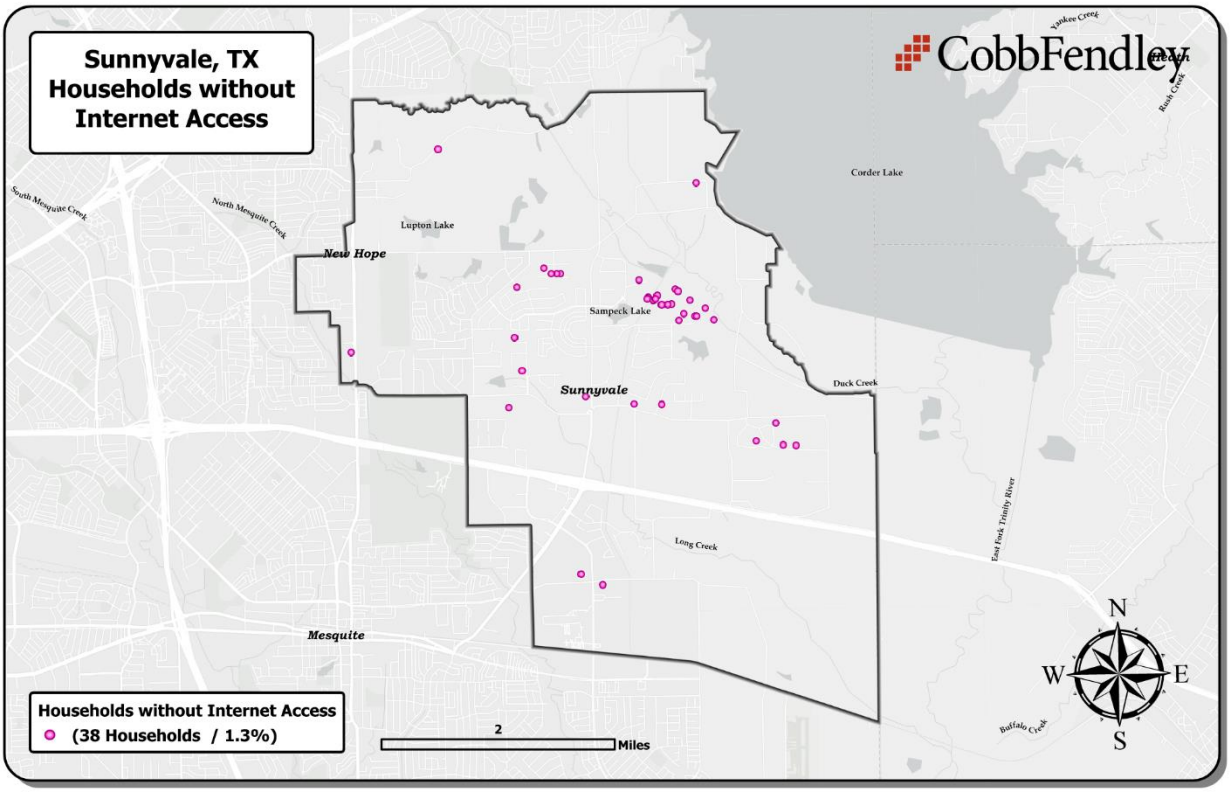



*Figure 29: Percent of Households Without Internet Access, Sunnyvale TX*

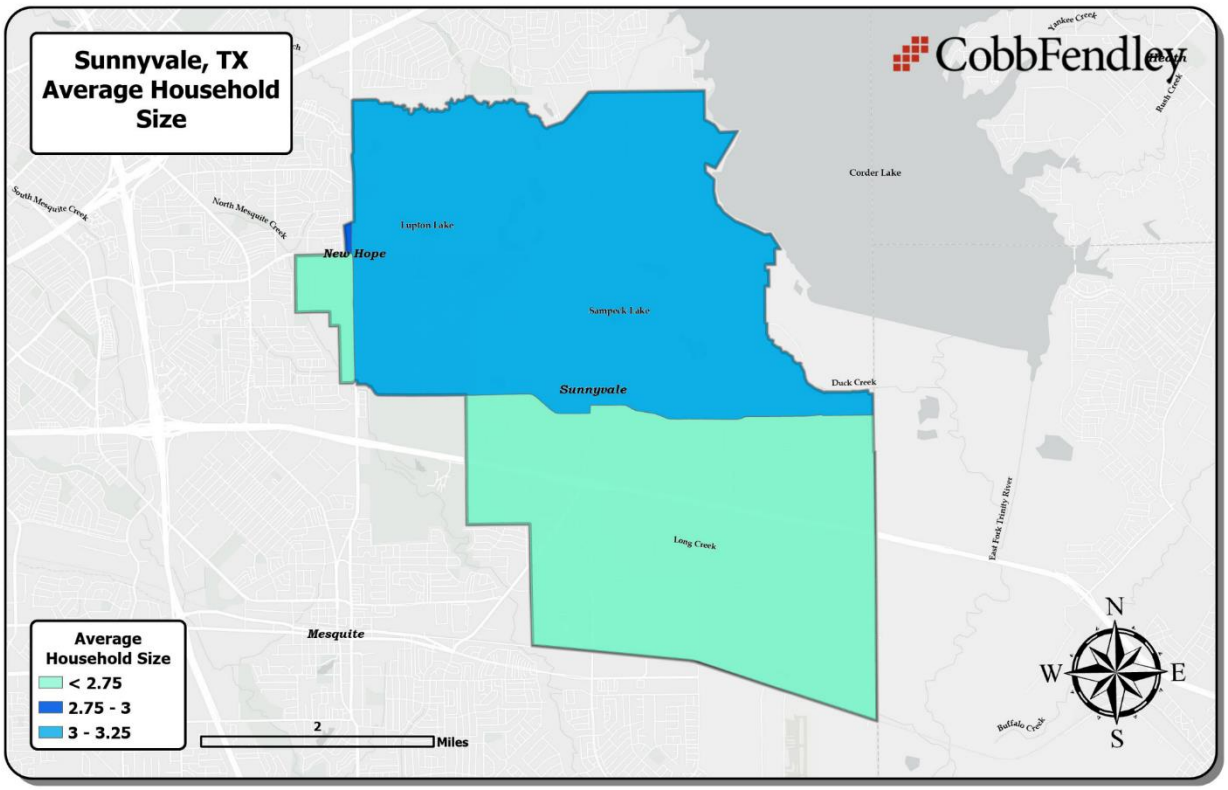



*Figure 30: Average Household Size, Sunnyvale TX*

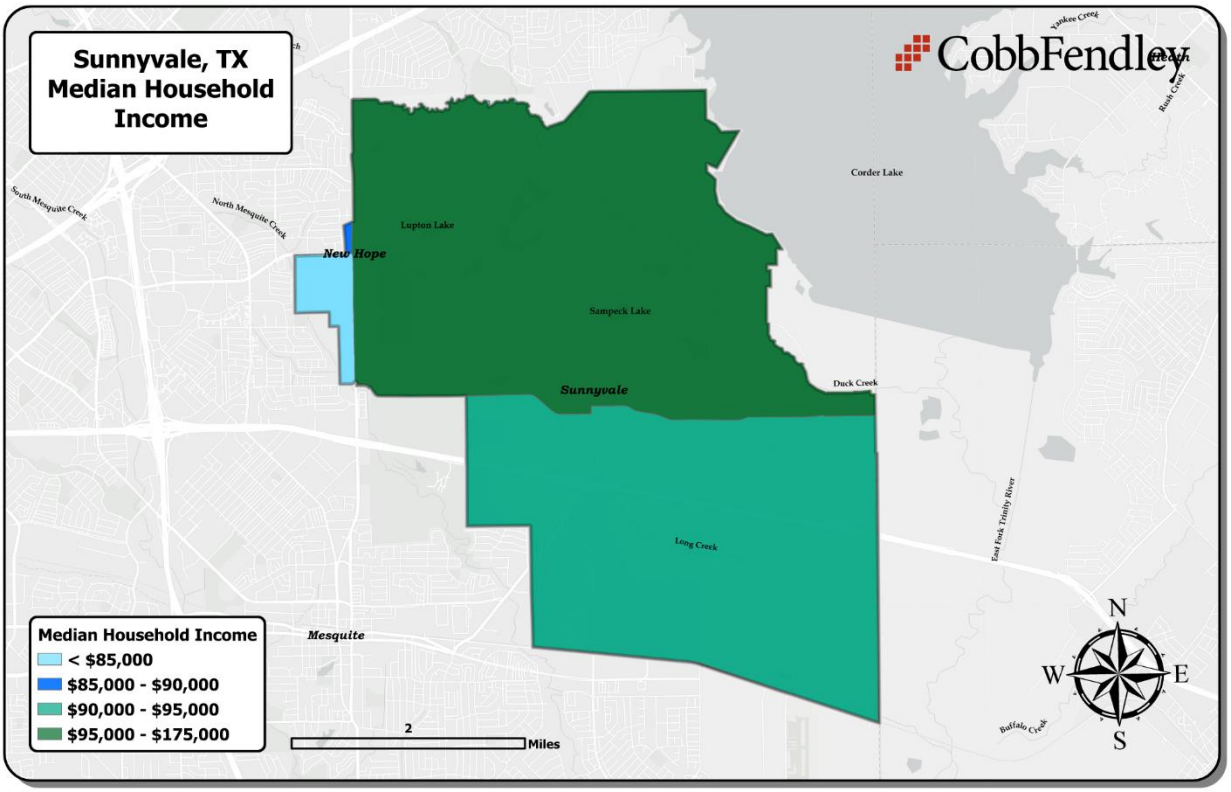



*Figure 31: Median Household Income, Sunnyvale TX*

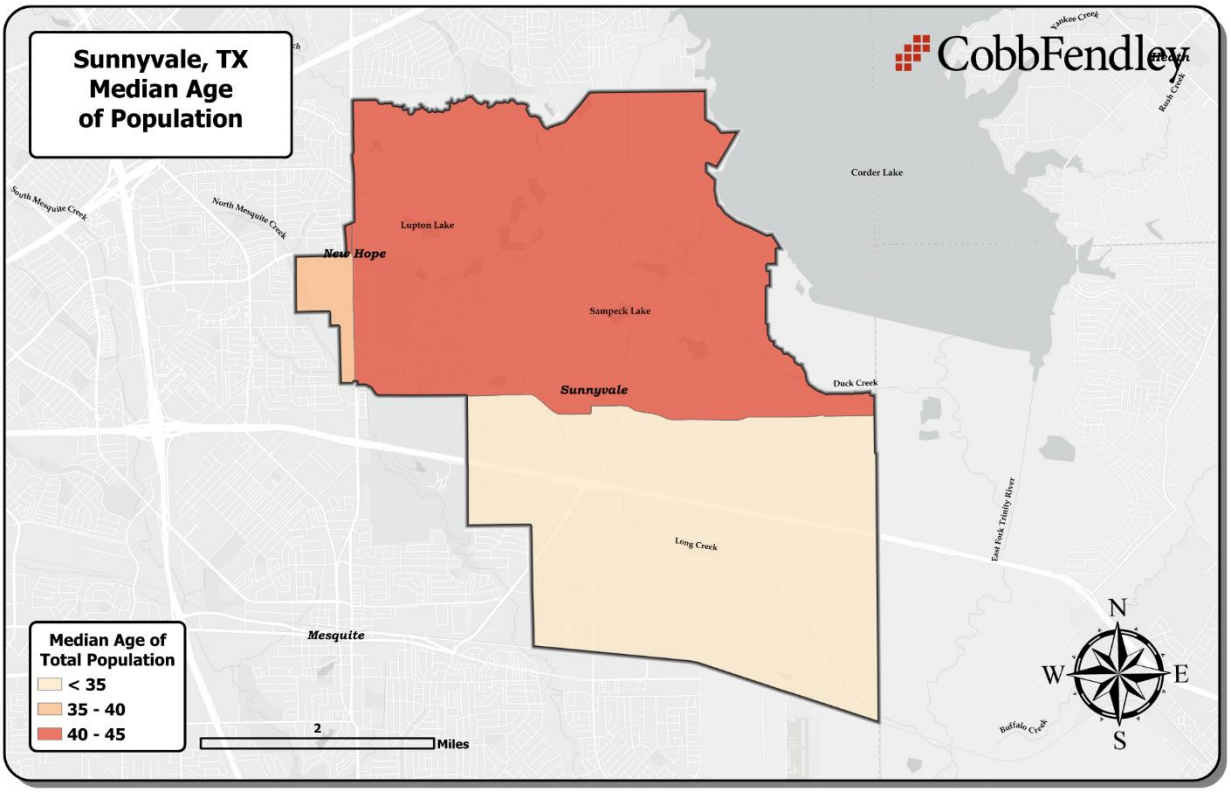



*Figure 32: Median Age, Sunnyvale TX*

# 3 NETWORK DESIGN PLAN

## 3.1 High-Level Design

The High-Level Design (HLD) visually outlines the broadband infrastructure needed to meet the identified needs and gaps discussed in previous sections. The main objective of the proposed network infrastructure and solutions is to ensure sufficient high-speed internet access through the implementation of a broadband network. This plan considers the connectivity requirements of the Town's assets and local partners while aiming to expand broadband infrastructure. Developing this HLD begins with understanding the factors that influence network design criteria and incorporating them as visual overlays onto the map of Sunnyvale.

This section presents three distinct designs, each aimed at enhancing broadband access within the Town or establishing necessary infrastructure where it is currently lacking. Each design has been carefully developed to address specific needs, whether it's improving existing services or introducing new broadband networks in areas without adequate connectivity. The designs are tailored to different aspects of the Town's broadband needs, ensuring a comprehensive approach to expanding and upgrading the network infrastructure.

The design process began by defining the boundaries, primarily the Sunnyvale Town limits. Spatial data was then layered within this boundary to identify demand points and areas in need. Through discussions with the Town, public entities, and various communities, locations lacking adequate broadband services were mapped. Market research, including data on unserved and underserved communities, was also integrated and compared with stakeholder feedback to develop a proposed network infrastructure footprint.

Finally, existing assets such as private sector network fiber and towers, as well as any public network infrastructure, were overlayed as a reference, before adding any proposed facilities as part of the HLD. As partnership is a potential focus to moving forward with implementation, understanding where infrastructure exists was necessary in determining where the gaps in coverage currently are located throughout the Town. Please note that many of these partner-based layers were reviewed internally and cannot be used on public map displays.

It should be noted that routing for a HLD does not include detailed alignments at the street level, with considerations for the right of way, easements, existing utilities, permitting design requirements, or final construction methodology. Routing at the high level does allow for providing an overall order or magnitude and is the foundation for a successful Low-Level Design and engineering.

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HLD "A" is a tower retrofit; it focuses on upgrading two existing towers to optimize coverage across the Town. These towers have been carefully selected based on their strategic locations, which are ideal for maximizing coverage within a 3-mile radius each. Once retrofitted, these towers will have the potential to cover 2,872 addresses, ensuring broad and reliable service for both residential and commercial areas. The retrofit shown in Figure 33 will include modernizing the tower infrastructure to support advanced communication technologies, enhancing signal strength, and expanding capacity to meet the growing connectivity needs of the community.

This design is the most time-efficient solution, as it leverages existing infrastructure, which significantly reduces both deployment time and costs associated with building new structures. While not as fast as a greenfield approach, this retrofit still offers a relatively short-term solution that can be implemented. This approach ensures efficient use of existing resources while significantly improving the Town's overall network coverage and reliability.

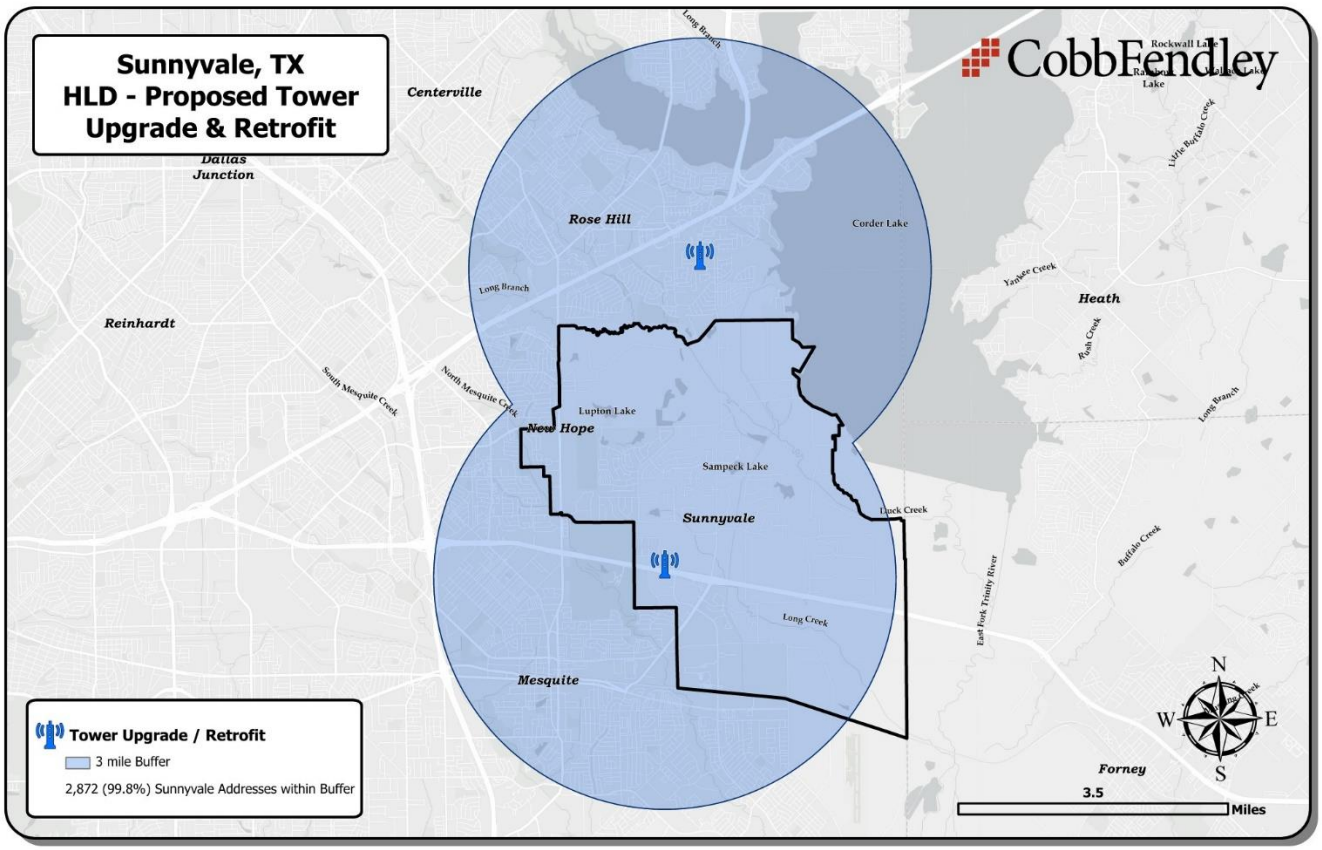



*Figure 33: High Level Design "A" Proposed Tower Retrofit*

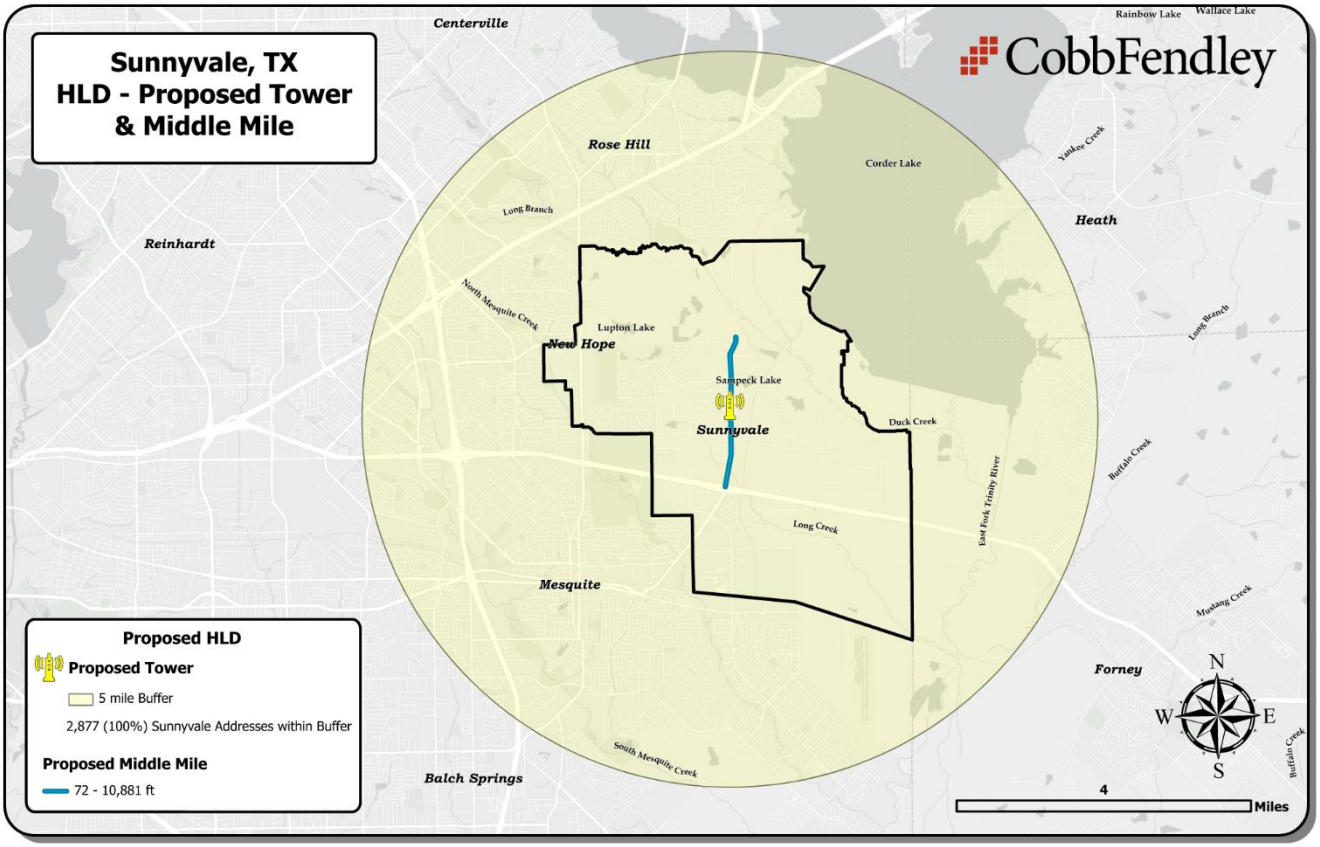



*Figure 34: High Level Design "B" - Proposed Tower and Middle mile*

HLD "B", as represented in Figure 34 consists of a proposed tower and middle mile combination in Sunnyvale, this aims to create a robust communication infrastructure capable of reaching a 5-mile radius, effectively covering 2,877 addresses within the area.

The tower will be strategically located to maximize coverage, facilitating mobile and broadband connectivity to all residential and commercial addresses within the designated. Accompanying the tower will be a size 72 fiber optic cable. This fiber cable will serve as the backbone of the network, providing high-speed data transmission capabilities necessary to meet the growing demands of the community. With dark fiber strands available, ISPs will be able to lease from the Town and provision last mile fiber to residential areas. The design includes two miles of fiber on Collins Road due to its central location within the town with access to residential areas, multiple schools, and community anchor institutions (CAIs). This segment would also connect between existing middle mile on US-80 and Town East Boulevard.

It represents the an intermediate solution with an approximate construction timeline of 2 years. This design is a more time-efficient and short-term solution than a full last mile fiber build, ensuring that the infrastructure can be deployed rapidly to meet immediate connectivity needs. The design ensures that the infrastructure is scalable, future-proof, and capable of supporting additional services as needed, thereby enhancing the overall digital landscape of Sunnyvale, Texas. HLD "B" contains aspects of a "greenfield" approach meaning that it does not consider service provider or other existing infrastructure, and therefore includes a design created from scratch with Town needs as priority. This design method offers a unique opportunity to optimize and tailor the infrastructure and systems to meet specific needs and incorporate the latest sustainable and efficient technologies.

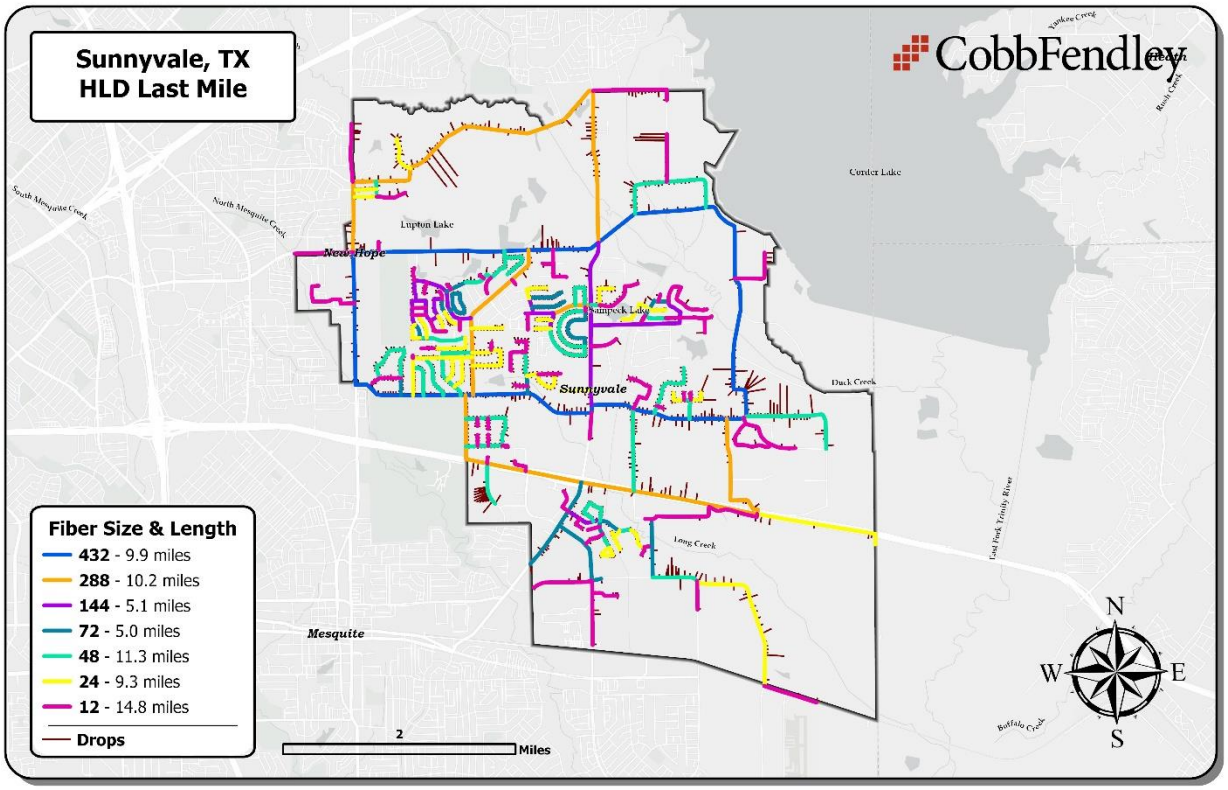



*Figure 35: High Level Design "C" Last mile*

In Figure 35, HLD "C" is presented. This last mile fiber approach involves meticulous planning and execution to ensure efficient coverage and optimal connectivity, targeting a total of 2,115 addresses. Unlike the tower-based approaches of HLD's "A" and "B," which provide broad coverage through centralized infrastructure, the last mile design requires direct fiber optic connections to each individual home or business. This involves a highly granular approach to network deployment, where the strategic allocation and distribution of fiber sizes — ranging from 432 to 12 strands — are critical. The fiber sizes will be carefully chosen based on the number of addresses in specific areas, which requires detailed mapping and analysis to determine the optimal configuration for each location.

This design is the most time-consuming option among the three because it requires extensive groundwork, including trenching, boring, or laying underground or aerial cables throughout the entire coverage area. Each connection must be meticulously planned and implemented, taking into account the unique topography, existing infrastructure, and regulatory requirements of the area. The complexities involved in obtaining permits, coordinating with multiple stakeholders, and securing access to private properties further extend the project timeline, making it the least efficient in terms of time. Additionally, the deployment process is more labor-intensive, with significant construction and installation efforts required to bring fiber directly to every address.

In contrast, HLD's "A" and "B" focus on leveraging existing or new towers to provide more immediate coverage over a large area, making them much faster to implement. HLD "A" retrofits existing towers, while HLD "B" uses a greenfield approach to build a new tower, both of which can be completed relatively quickly compared to the extensive network build-out required in a last mile approach. The last mile design offers the highest quality of service, with direct fiber connections capable of supporting high speeds and future-proofing against technological changes. However, it is a long-term solution rather than a quick fix.

### 3.1.1 Key Elements of the Network Design

The key elements of each network design are listed down below.

**High Level Design "A" - Tower Retrofit**:

- The selection of the towers was primarily determined by their location, with a focus on maximizing coverage for the entire Town. The two towers chosen are strategically positioned to provide the broadest and most effective coverage, ensuring that as many areas as possible within the Town receive a strong and reliable signal. By selecting these particular towers, we aim to enhance connectivity and service quality for residents, businesses, and visitors across the community.

**High Level Design "B" - Proposed Tower and Middle mile***:

- This HLD outlines the development and construction of a new tower.
- In addition to the construction of the new tower, a middle mile network will be established, featuring two miles of 72-count fiber optic cable. This fiber installation will serve as a crucial backbone, providing high-capacity, high-speed connectivity to support the new tower's operations, allow for dark fiber leasing, and enhance overall network performance in the area.
- Overall, this design of the middle mile was created to efficiently meet the needs of the Town, be cost effective, and enable last mile connectivity for residential and enterprise needs. The sizing of the fiber provides allocations for various network components such as backhaul for Tier 1 transport, localized transport and backhaul, and the various front haul applications (FTTx).

**High Level Design "C" - Last mile*:**

- The criteria for this last mile design focused on creating a ring topology where applicable, tailored to meet the specific needs of the Town while ensuring redundancy for enhanced reliability. The design aims to connect communities identified as requiring improved connectivity and to integrate with existing infrastructure options provided by various stakeholders whenever possible.
- The larger loop routing design allows for quadrants to be created which will alleviate any capacity or network demands.
- This last mile design incorporates fiber cables of various sizes, including 432, 288, 144, 72, 48, 24, and 12 strands, covering a total distance of approximately 66 miles. The total linear footage of all these values can be seen in Table 9. Slack was included as an estimate based on where handhole locations would be, approximated to account for any future build and redundancy needs. This is included for cost estimate purposes rather than HLD needs.
- Next steps towards implementation will determine more precise locations and material sizes, only approximate routes and fiber sizing were included within this design.
- Any future neighborhood builds that use G-PON or XGS-PON architecture would have plenty of capacity and infrastructure available, even after enterprise needs are met and allocated for.
- In this greenfield design, 72 count fiber was utilized to reach areas where facilities are within a short distance from the middle mile such as: Courthouses, Public Schools, Private Schools, Fire Stations, Hospitals, Law Enforcement, Nursing Homes, and EMS.

*The conduits along these design routes are upsized to the size and quantity of 2-1.25" conduits, to account for significant network traffic, allocating both physical spaces with spare conduit. Multiple conduits are included for redundancy, but also in case spare conduit could be used for revenue generating for the infrastructure owner or for any additional future needs.

Table 6: Quantities for Design "C" Last mile

| Design "C" Last mile Quantities | |
|---|---|
| Fiber Size | Linear Footage |
| 432F | 52,198 |
| 288F | 54,103 |
| 144F | 27,178 |
| 72F | 26,217 |
| 48F | 59,490 |
| 24F | 49,114 |
| 12F | 78,037 |
| Estimated Slack | 111,038 |
| Conduit Size | Linear Footage |
| 1-1.25" | 93,900 |
| 2-1.25" | 363,475 |

Inside plant considerations to the network build for connections to core network facilities such as data centers, distribution points of presence (POPs), customer premises, and other network assets outside of the public right-of-way (ROW) are likely to be decided upon by potential partners. Based on HLD, a data center would be best located within the center of the Town along Collins Rd, with POP locations at various end points of the quadrant.

This HLD was created with buried fiber and conduit in mind. While aerial pole infrastructure is another recommended method for routing this design and may be seen as more advantageous in terms of cost and time management, buried fiber offers significantly greater protection against environmental factors, physical damage, and accidental cuts. By being underground, the fiber is less susceptible to damage from severe weather conditions, falling tree limbs, or vehicle collisions with poles. Although it presents its own challenges, such as higher initial installation costs and potential complications with underground utilities, buried fiber remains the safest method for maintaining the long-term integrity, environmental resilience, reliability, and physical security of the network.

Regarding last mile needs, fixed wireless should be an option for consideration for the residents within Sunnyvale, as it is a cheaper and faster build out compared to FTTP, but traditional licensed fixed wireless networks operate within a fiber backbone as is the example in Proposed Tower and middle mile HLD. An estimated swath of coverage could be assumed conservatively of a five-mile radius from tower location. Under optimal conditions, the proposed tower could potentially reach a 12-mile radius; however, to ensure more reliable and consistent coverage, a conservative radius of five miles was selected. While fixed wireless for the end user cannot reach top symmetrical speeds today like fiber-optic cable can, it is still more than suitable for today's needs and the needs of the immediate future, under optimal usage.

### 3.1.2 Middle Mile vs. Last Mile

In a fiber network, the middle mile and last mile are distinct segments that play crucial roles in delivering high-speed internet and other telecommunications services to end-users.

The middle mile refers to the part of the network that connects various local communities or neighborhoods to larger data centers, internet exchange points, or network hubs. It acts as a bridge between the backbone of the network, which spans across cities and regions, and the last mile connections that reach individual homes and businesses. The middle mile is typically made up of high-

capacity fiber optic cables and plays a key role in aggregating and transporting data over longer distances. It ensures that data can flow efficiently from the broader internet to the local level, where it can then be distributed to end-users.

On the other hand, the last mile is the final leg of the network that directly connects individual homes, offices, and businesses to the ISP or telecommunications company. This segment often involves shorter distances but presents challenges, such as navigating through densely populated urban areas or reaching remote rural locations. The last mile infrastructure may include various technologies like fiber optics, DSL, cable, wireless connections, or even satellite links. It's a critical component because it determines the actual speed and reliability of the internet service experienced by end-users. Building and maintaining efficient last mile connections is a priority for ISPs to ensure fast and consistent internet access for customers.

### 3.1.3 Areas of Need

To successfully finalize the routing of a middle mile network design spanning the entire Town, it was crucial to gain a spatial understanding of the geographical extent of requirements across the area and identify specific locations in need of connectivity. The Needs and Gaps Analysis within this report serves the purpose of identifying addresses, which lack sufficient network coverage. These unmet needs form a foundational component of the HLD. Figure 36 provides a visual representation of the addresses that do not have fiber to the premises, are either unserved or underserved and lastly are missing from the FCC Fabric Data.

Creating an Areas of Need map involves a thorough analysis that integrates data from multiple sources. This process begins with evaluating key factors such as population distribution, density, and the specific needs of different communities. It also takes into account anticipated future development patterns to foresee potential growth and its impact on the Town. Figure 20 (page 42) provides a strategic visual representation of the areas requiring targeted attention for improved resource allocation and planning.

On the map, yellow address points represent locations without a fiber connection to the premises, pink points indicate unserved addresses, green points show underserved addresses, and blue points mark locations that are included in the Town's NG911 data but are missing from the FCC Fabric Data.

The Retrofit ("A") and Proposed Tower ("B") HLD option's present two distinct solutions for achieving coverage across all identified addresses. These designs are based on the assumption that each tower will utilize a technology capable of providing coverage within a conservative three-mile radius, though the actual coverage area may differ based on the tower's capacity and the specific technology used. Within this estimated three-mile radius, between 2,872 and 2,877 areas of need would be covered, representing approximately 100% of the total identified areas through a fixed wireless solution.

While fiber additions would be the preferred option of proposed implementation where possible, implementing fixed wireless (proposed or modified to existing equipment), may be the most feasible on a tighter timeline and budget. For any provider that currently has fixed wireless infrastructure in place, all that would be required would be to upgrade the technology to achieve faster speeds. Newly proposed fixed wireless equipment at these tower locations may only require 2-4 months to install.

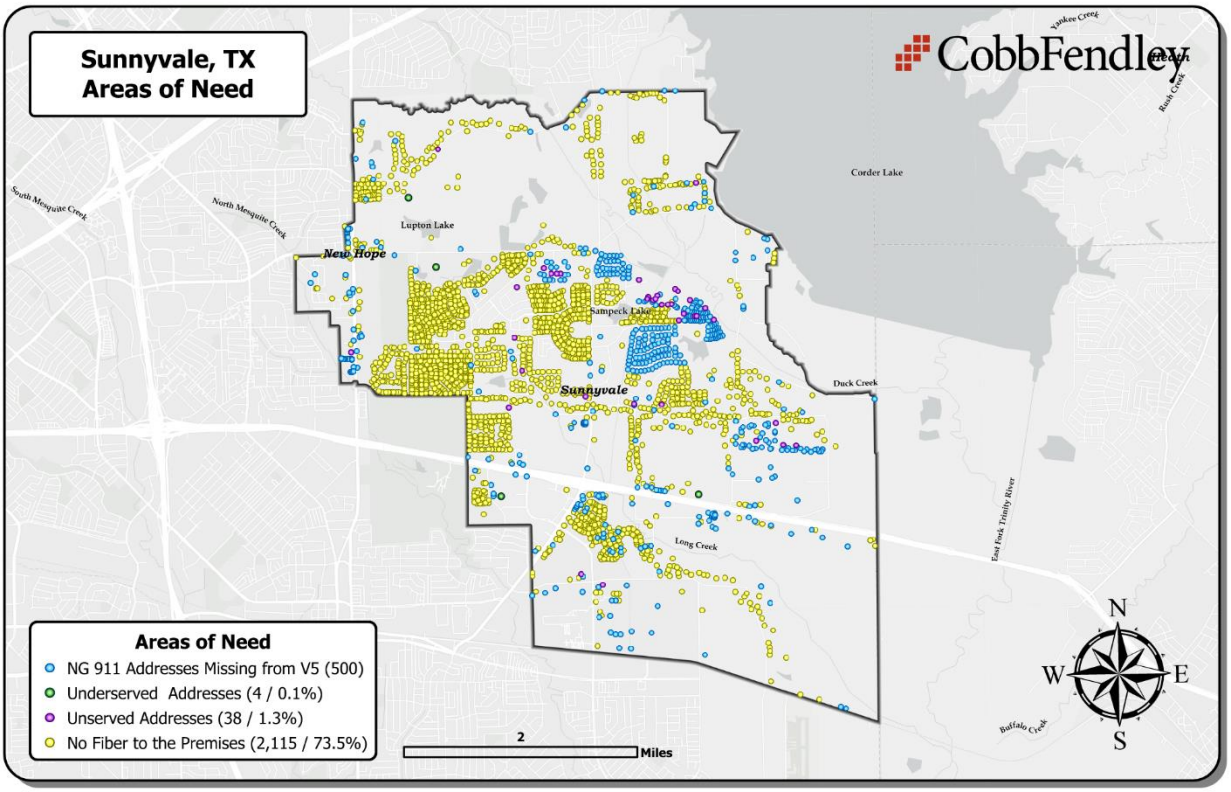



*Figure 36: Areas of Need, Sunnyvale TX*

## 3.2 Design Methodology

The OSP is the most visible and physical component of a fiber-optic network within the public ROW. This fiber-based, centralized core network primarily aims to support an access network for internet and data services. Foundationally, this allows for flexibility in access architectures that last mile providers can implement and converge to meet the market needs. Both fiber wireline and wireless broadband solutions can facilitate the last mile while meeting the service level requirements recommended in this study.

OSP includes the civil engineering and construction to design and install underground conduits, fiber optic cables, handholes, and splicing cases among various other components. The outside plant is designed, constructed, and implemented per both jurisdictional and owner standards. In this case, there were not excess jurisdictional standards to be met regarding applicable clearances from existing utilities, placement in the ROW following required typical cross section alignments, and other specified design and construction standards. Placing the fiber route within the Texas Department of Transportation (TXDOT) or Sunnyvale ROW was the priority where possible. TXDOT ROWs already contain most long-haul utilities and have utility pole infrastructure, green space for buried construction, and a utility accommodation process in place to allow for simplified design, permitting, and construction measures.

### 3.2.1 Network Topologies to Serve Urban and Rural Markets

Since a portion of Sunnyvale is considered rural there are established broadband gaps the middle mile footprint needs to distribute out in all directions and to each corner of the designated boundary, so that each fiber cable, or spoke, can be centrally located for an effective serving area. In new fiber builds with no existing infrastructure, known as greenfield, a star topology is initially used, beginning with a

centralized location at the heart of the service area. From there, additional rings are added, dividing the area into quadrants that represent the sub-service areas to be served.

It is important to reiterate that although the middle mile does not route directly through each community, additional laterals and last mile services to all other targeted areas can now be connected to this network, given the established proximity and improved feasibility through this effort. However, it should be noted that in rural communities where population density is lesser than that of urban areas, more infrastructure is typically needed to reach residents, and therefore should be considered in the project costs. By extending fiber from the centralized location across the middle of these quadrants, any demand points on either side of the fiber can be tied into the network without extensive laterals going from one end to the other. The last mile leverages a couple of network topology elements to position the network to capture as many communities that meet as many broadband-needs criteria as possible.

The ring-based topology allows for redundant connections to demand points by the lateral extensions connecting back to core network infrastructure, which are "self-healing" or can redirect connections if any part of the ring is damaged or undergoing maintenance. Many business and commercial properties require this kind of connection as it eliminates or at least reduces any downtime for network maintenance or damage.

Identifying assets that may be utilized to promote broadband deployments, such as streetlights or existing conduits, could also help consolidate an efficient implementation process and be more cost effective for rural and urban areas. This type of data is likely proprietary in nature and cannot typically be shared publicly. However, in the next stage of this feasibility study process, should it go the RFP route for partnerships, the Town can request for those that respond to specifically respond with data of existing infrastructure. While that will likely not be something the Town can keep and display publicly, it will help add an additional layer to the knowledge base of existing broadband assets.

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### 3.2.2 Material and Capacity Considerations

The proposed conduit systems for the fiber deployments would consist of 1-1.25" and 2-1.25" HDPE pipes, allowing space for overpulling additional fibers, maintenance, and potentially leasing. Fiber cables would be upsized to allow for growth in the middle mile and any distribution directly off the cable to demand points along the route. The additional capacity in the proposed fiber cables promotes growth, redundancy, and a potential source of revenue via dark fiber leasing. Any laterals and ring routed design help carry the bulk of the network across the Town and facilitate fiber lateral construction to help expand the network to various locations that could be considered last mile, which includes any stakeholder-provided demand points or tower locations. For the transition of OSP to ISP, whether at tower locations, demand points, or anywhere else, responsible fiber sizing and allocations ensure proper connectivity in case of emergency and additionally will promote growth for nearby future projects.

For the capacity of the network, the most crucial factor to consider is scalability. The capacity of a large Town-sized network will not experience the same demand today that it does 20 years from now. As the surge capacities for each identified demand point and future demand points are unknown, a lower capacity is manageable and can increase as the network traffic is monitored and analyzed. This is the most economical and responsible method to scale the network capacity. While this does not necessarily impact the routing, it is important to consider in terms of the inside plant facilities the relative space needed for equipment and associated costs. Network technologies allow existing infrastructure to yield more capacity than when originally placed via intelligent network routing and multiplexing.

When reviewing network capacity, it is important to understand that there is traffic that stays within the network to communicate within and between the connected facilities, and there is also traffic that needs to leave the network and connect to a larger access network such as the internet. Traffic that leaves the network requires transport circuits, the capacity of which is dependent upon the scale and consistency of the traffic. When determining the transport capacity, it is important to consider that this is easily scalable and does not need to be sized to the future anticipated growth of the network.

From a cost-savings perspective, transport capacity should be estimated to meet the immediate needs, monitored, and increased as the network grows. This concept not only applies to transport, but also to all network links or connections. The estimated capacity requirements for example demand points based on their function or as recommended by the stakeholders can be seen in Table 7.

*Table 7: Proposed Capacity Based Upon Location Type*

| Location Type | Proposed Capacity per Location (GB) |
|---|---|
| LOCAL GOV. FACILITIES | 1 |
| FIRE STATIONS | 1 |
| MEDICAL | 1-2 |
| POLICE/SHERIFF | 1-2 |
| SCHOOL | 5-10 |

Another key concept when considering capacity is bandwidth management, which consists of understanding that advanced fiber networks can control traffic in ways that individual links are making efficient use of bandwidth through techniques such as multiplexing. What this translates to is that individual capacity estimates for customers represent the absolute maximum capacity needs which will rarely, if ever, be required at a given time. These links share bandwidth where applicable and so the

determination of the network capacity is not simply a summation of all estimated max capacities. Instead, it is based on an estimation of the surge capacities.

As the surge capacities for each currently identified demand or future point is unknown, it is logical to begin with a lower capacity that is manageable and increases as the network traffic is monitored and analyzed. This is the most economical and responsible method to scale the network capacity. It is also the reason that future proofing and modularity of network components are critical as they need to have the ability to scale with the network from both a distribution and capacity standpoint.

With the understanding of the concepts above and capacity estimates for all demand points, it was determined that a good starting point for the network would be two 40GB transport circuits for redundant connections to the access network. The backhaul links should be 100GB between network data centers and distribution POPs. Individual demand points in the middle mile will have anywhere from 100Mb-10GB links depending on their classification and anticipated needs. However, as proposed infrastructure is likely to be a part of a growing network, the ideal partner should be able to cover these estimates, if not more.

The HLD's presented in this section represents the collective understanding of the existing conditions, needs and gap analysis, stakeholder/partner capabilities and assets, broadband network design criteria, and with consideration for scalability, futureproofing, economic growth, and local connectivity.

## 3.3 Additional Considerations for Broadband Network Implementation

Network implementation is one of the most complex and challenging portions of establishing a broadband network. Preliminary engineering was conducted as a necessary part of this study to determine capacity requirements of the proposed network footprint, network equipment, efforts to ensure modularity and futureproofing of the network, and external environmental constraints in constructability and sustainability. Most of these items below are needed for the greenfield design approach, and less likely for potential partnerships as providers may already have these matters covered for future-proof scenarios. However, with any proposed infrastructure the additional capacities and materials are likely to consider growth of the supporting implementation elements. More information can be found on these topics below.

### 3.3.1 Aerial Attachment Considerations

The necessity of accessing existing pole infrastructure is critical for implementation while understanding the positives and negatives of a purely underground solution, such as the potential impact to construction costs and timelines. In areas with harder soil conditions, boring and trenching can be incredibly expensive and may delay project timelines. Where the hard soil conditions overlap with existing utility pole infrastructure, pole attachment for an aerial route is recommended. While Sunnyvale soils are mostly favorable towards buried construction, the availability of pole infrastructure should be considered to reduce additional disturbance of the ROW and can be leveraged to mitigate maintenance issues associated with flood-prone areas. Buried fiber is generally more protected, as it is less exposed to wind events or damage from traffic accidents or vandalism. Aerial attachments of the fiber-optic cable include the following conditional benefits:

- Cost Considerations: Attaching fiber to poles is generally less expensive than burying it underground, particularly in areas with hard rock conditions. However, this cost advantage may

vary depending on the pricing policies of pole owners, which are often influenced by terrain demands. In Sunnyvale, this is not expected to be a significant issue.

- Faster Installation: Aerial fiber installation can typically be completed more quickly than underground methods such as trenching or boring, despite the need for pole analysis before each attachment. However, this speed advantage comes at the expense of long-term durability and protection.
- Reduced Risk of Utility Damage During Construction: Aerial installations are less likely to cause damage to existing utilities within the right-of-way (ROW) because the existing attachments and power conductors are visible. Conversely, underground installations require subsurface utility engineering (SUE) or utility locates to avoid conflicts with unseen buried facilities.
- Easier Repairs: When repairs are needed for fiber attached to poles, the process is generally faster and less complex, reducing downtime. However, buried fiber provides superior protection against environmental damage, physical wear, and accidental cuts, ensuring greater network reliability and longevity over time.

### 3.3.2 Network Architecture

Last mile network architectures for FTTH, such as GPON, share capacity among multiple customers. The latest variant of this architecture is XGS-PON (or 10 Gigabit Symmetrical PON) which follows the same concept but is not limited to 1GB connections and can support variable optics up to 10GB. This architecture can be used to service 32 or more large customers requiring up to 10GB services on the same active link.

Fixed wireless last mile solutions also provide an opportunity to share capacity between multiple customers, with the advantage of reducing the wireline fiber build into the customer premise while also providing high-quality wireless connections required in an advanced broadband network. While GPON and XGS-PON are more efficient from a fiber distribution standpoint, fixed wireless solutions provide the necessary flexibility in last mile connections. These proposed network infrastructures must be able to support these architectures and therefore building a robust core network in the OSP with scalable capacity equipment is crucial. Latest technological advancements have fixed wireless solutions reaching symmetrical speeds at about 500 Mbps.

### 3.3.3 Data Center and POP Considerations

The physical plant must correlate with and complement the network equipment that will ultimately facilitate and manage the network connection. Data centers and distribution POPs are where the distribution and core networks converge and connect to transport networks through centralized network equipment.

Data centers are the primary facilities that transport connections house the core/edge routers which manage the network. These locations can be centralized or diversified on opposite ends of the network to provide physical separation for ISP connections. Robust power supply, storage, and management are required at these locations to condition or rectify power and allow the network to operate reliably. Placement of these facilities is dependent on network topology and suitability criteria such as flood adverse locations, security, access to sustainable power sources, and necessary space to accommodate equipment and network staff.

POPs differ from data centers in that they contain mainly distribution equipment and do not typically receive the ISP transport connection and core/edge routing equipment. Distribution POPs are placed centrally, along the backhaul, in customer-heavy areas where the distribution OSP can be condensed and reduced in terms of the physical plant to individual customers. POPs can be as small as a handhole in the public ROW where the network can tie into other networks and leased lines or as large as a data center depending on the required function.

Depending on the capacity needs of the area the POP will distribute into, the required space will likely be no larger than a large storage closet or small room to house distribution switches, patch panels, power supply, and cooling systems. Data center and POP facilities, like the equipment they contain, need to be scalable and should consider the feasibility of future expansion in considering suitable locations. Based on the HLD, a data center would likely be located at the center of Sunnyvale area.

### 3.3.4 Local Public Policy for Implementation

Ordinances, design manuals, and permitting requirements should be updated and clarified to protect the ROW, but also streamline processes for partners of this initiative, as well as other broadband expansion projects. Civil engineering design considers constructability to develop both an economical design, on behalf of the client, and a feasible design, to ensure the contractor is set up for success. Constructability considerations include understanding soil conditions and the method of construction that is most conducive, whether that is aerial construction, directional drilling, plowing, or trenching. Having a clear-cut process is an enticement for broadband providers as this reduces costly delays and frustration for all parties.

The Engineering Division should have a defined role and involvement on all proposed broadband projects, for both visibility and strengthening relationships with local providers. Successful implementation of the fiber network requires that the preliminary and detailed design engineering work be thoughtful and comprehensive to support the subsequent construction effort, without delay and need for change orders.

### 3.3.5 Procurement & Equipment

Another critical component of the implementation is continued refinement of the network build Order of Magnitude (OOM) into the detailed bill of materials (BOM), cost estimates, and schedules. The OOM serves as a project charter document that guides the client in the procurement process, especially considering the global shortages and increasing price tag of essential network materials such as HDPE and fiber cable, which are experiencing more than 26-week lead times and quotes are only held for weeks to months at best as demand surges. Given the state of the industry when it comes to the supply chain, it is essential that the OOM is flexible and adaptive to quickly swap out various materials and equipment to provide insight on the updated costs and ensure compatibilities.

Changes in equipment and materials during the procurement process may have impacts on the OSP design and ISP equipment may lose functionality that provides for futureproofing, modularity, and sustainability of the network. Therefore, it is essential to implementation that the services and materials procurement effort is collaborative and deliberate so that these impacts are discussed and weighed before making final decisions so that there is not an excessive redesign of the network through a continually varying BOM. Partnering with well-established operators in the telecommunications industry or contracting purchasing cooperative services presents the most favorable options for procurement, which is key in enabling the implementation of the broadband network build.

### 3.3.6 Operations And Maintenance

To ensure proper performance, regular maintenance will be needed to repair any problems with the fiber network. One benefit of a fiber network is the low amount of maintenance needed to keep the system up and running. The system should work properly unless there is specific damage that occurs somewhere in the network. It is recommended that to reduce the risk of damage to fiber infrastructure the contractor should install tracer wire with the conduit. The cost estimates in the following section include tracer wire for both middle and last mile operations.

The current outlook for maintenance responsibilities is that the partnership collaboration will lead to hiring an operator who would perform all maintenance. During the building phase of the route, the contractor is responsible for the build until it is completed. Therefore, the costs are covered by the builder for any issues that occur during the build phase such as cracked handholes. As the equipment ages, the maintenance needs will grow, especially in more rural areas. Maintenance costs will not be consistent from month to month, especially in the early years of the equipment where they are expected to be more minimal.

To ensure proper performance of the fiber network, some level of permanent staff will likely be needed to monitor the system and perform regular preventative and reactive maintenance. The operator may be planning on leasing fiber strands out to commercial clients for internet access on behalf of the Town, and the operator will need staff in place to manage all billings for commercial client use of the network. Effort levels for Town staff are dependent on terms of potential partnerships.

Maintenance for the end equipment for each run of fiber located at the network hubs will need to be routinely checked and maintained by qualified IT staff. There are a few options for maintenance of the equipment located in the field, such as the fiber-optic cables and splice cabinets.

Costs for replacement are expected to be low for the first 20 years following construction. However, since all circumstances are unknown initially, the Town should consider allocating a portion of funding for a replacement fund. These funds would be utilized in the event of a catastrophic failure where entire portions of infrastructure would be required to be replaced. This would also include end equipment such as switches or routers, which may have expired warranties after 3-5 years. The Town may also consider earmarking revenue generated by the system, via commercial clients, for a replacement fund. This revenue, and revenue created via last mile networking, could also help pay for any maintenance costs over time.

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## 3.4 Cost Estimate

### 3.4.1 Infrastructure Costs for Reference High Level Designs "A", "B" and "C".

*Table 8: High Level Design "A" Proposed Tower Retrofit Cost Estimate Values*

| Greenfield HLD Cost Values | |
|---|---|
| Cost Factor | Cost Value |
| Cost per Address Passed | $1,874 |

*Table 9: High Level Design "B" Proposed Tower + Middle mile Cost Estimate Values*

| Greenfield HLD Cost Values | |
|---|---|
| Cost Factor | Cost Value |
| Cost per Address Passed | $1,948 |
| Cost per Linear Foot | $23 |

*Table 10: High Level Design "C" Last mile Cost Estimate Values*

| Greenfield HLD Cost Values | |
|---|---|
| Cost Factor | Cost Value |
| Cost per Address Passed | $5,622 |
| Cost per Linear Foot | $40 |
| Cost per Mile | $207,200 |

Table 8 represents the cost estimate for HLD "A" Proposed Tower Retrofit, and includes access equipment, switching equipment, power equipment, routing equipment, modems, and routers, along with the installation labor for the retrofit. It also accounts for engineering services, environmental services, project management services, and professional services. The retrofit of these two towers is projected to reach 2,872 addresses in the Town of Sunnyvale.

Table 9 represents the cost value for HLD "B" Proposed Tower Build + middle mile and provides an estimate of the construction cost for the middle mile network if Sunnyvale were to independently undertake this project without any collaborative partners. This estimate encompasses the required infrastructure as outlined in HLD "B" and assumes an underground buried construction approach. It is important to note that values presented in Table 9 solely reflect the costs associated with the proposed greenfield design. It is probable that, during next steps towards implementation and possibly selecting potential partners, or partnering with existing infrastructure providers, a significant portion of the required infrastructure could already be in place. Leveraging existing infrastructure allows for cost-efficiency, saving both time and resources that would be otherwise spent on entirely new implementations.

Table 10 provides the cost estimate for the HLD "C" last mile deployment, which is fiber-specific and reflects the construction costs for Sunnyvale to undertake the last mile network independently, without collaborative partners. This estimate covers all necessary infrastructure outlined in the HLD, assuming an underground, buried construction approach. It is important to note that the values in Table 10 pertain only to the costs associated with the proposed greenfield design. However, during subsequent steps, such as implementation and selecting potential partners, or collaborating with existing infrastructure

providers, much of the required infrastructure may already be in place. Utilizing existing infrastructure can lead to significant cost savings in both time and resources, avoiding the need for entirely new construction.

By leveraging existing infrastructure, the design can enhance the network's capacity, reliability, and coverage while minimizing disruptions for end-users and promoting sustainability by optimizing current resources. This approach enables a cost-effective, incremental upgrade that improves overall network performance and aligns with environmental responsibility.

The greenfield design assumes handhole placement based on spacing, demand points, and fiber length, with specific handhole sizes for different segments. Splicing requirements for both the middle and last mile are also accounted for, with considerations for various conditions, such as fusion splicing, splitters, and plant transition materials, to ensure seamless integration and connectivity throughout the network.

### 3.4.2 Additional Cost Considerations for Data Center, POP Locations, Towers, and Aerial Costs

The materials estimate did not account for the construction and upgrades of Data Centers and POPs. The proposed solution should include at least one data center, likely situated centrally in Sunnyvale, and one large POP location within a designated network quadrant. These locations would house the necessary networking components and be managed by a potential partner, eliminating the need for Town staff. Required materials would include port line cards, breakout cables, servers, firewalls, batteries, and other hardware, which were not factored into the initial cost.

Co-locating data centers and POPs within existing Town-owned buildings is recommended to avoid the expense of new facilities. A passive infrastructure model would offer cost-efficiency, especially if a central location near Collins Rd is utilized, aligning with the middle mile network design. The choice of location is strategic for central connectivity and optimized network management.

The selection of infrastructure for fixed wireless solutions also requires careful consideration. Fixed wireless options are considered future-ready, with co-location on existing towers or the construction of new towers being the primary options. Co-locating on existing towers may cost between $20,000 to $75,000 per tower, depending on the equipment already in place, while building new towers could cost around $400,000. Additional costs per end-user, ranging from $1,948 to $3,000, are also anticipated.

The cost of ground equipment for towers will depend on several factors, including the number of cabinets, generator needs, power delivery, and site accessibility. If new towers are needed, the costs could range from $260,000 to $450,000 per tower, depending on the height and equipment requirements. Furthermore, each tower project would need to undergo various regulatory and environmental assessments, including compliance with FCC requirements and other studies, to ensure alignment with federal, state, and local regulations.

Additionally, while aerial deployment of fiber-optic cables could offer cost savings, underground placement was favored in the design due to its safety benefits. Underground cables are less susceptible to weather-related damage and accidents, such as those involving utility poles, thus providing a more resilient infrastructure solution.

# 4 BUSINESS MODEL OPTIONS

It is likely that the next steps after this study towards will involve partnership opportunities through a Request for Proposals (RFP) or Memorandum of Understanding (MOU) Process.

There are multiple, applicable business models to consider for Town broadband projects with middle mile, last mile, and/or wireless service. These models are determined and shaped based on available funding opportunities, potential partner capabilities and levels of investment, community and public utility stakeholder input, actual demand and anticipated take rates, forecasted economic output, and regulatory framework at the regional and national level. Fortunately, there are many diverse funding opportunities and a tiered range of options to build catered versions of these models since the needs of counties/municipalities and broadband infrastructure are not the same. The models listed below should be considered base ownership and operation models and would then be further developed and defined through subsequent phases.

## 4.1 Considerations For Business Model Selection & Partnership

Before evaluating and planning for the appropriate business model, some base considerations will conceptualize the necessity, values, and risks of Town broadband networks in any form. The first and most apparent consideration is the necessity of Town involvement further than the promotion of the issues and driving initiatives to improve broadband access and adoption. This study presents findings and data which can help inform this consideration.

In many cases, the study and initiative itself drive private sector action and spur modernization of incumbent networks and draw attention to the market. While there may be some private sector movement, there is no guarantee that it will be to the extent that the Town envisions and there are still additional incentives for the Town to play a role in broadband development.

Local governments can influence how broadband deployments are implemented through public policy, which can serve as both an incentive in a partnership and to manage the public ROW and protect community interests. Regardless of the selected model, or variant, those counties/municipalities and jurisdictions involved in the initiative must consider their standards when it comes to new broadband infrastructure.

Local governments can introduce further financial incentives in the form of subsidies, tax credits, or capital investment - incentivizing providers and adoption. Town infrastructure can be leveraged as broadband assets and reduce costs or provide revenue generation. This concept applies to existing assets such as water towers and properties for co-located ISP facilities in addition to any broadband-specific assets the Town may own as a part of a proposed network.

In exploring these models, the Town and partners must consider shared risks and incentives, areas of expertise and resourcing, and take measures to ensure a healthy competitive market.

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## 4.2 Ownership & Operations Models

There are three primary models based on the level of involvement of counties/municipalities and private partners, across three network service components: Infrastructure, Access, and Service. The infrastructure component consists of civic components such as conduits, poles, dark fiber, and handholes. The access component comprises electronics and services to "power" the network and connect it to transport networks. The service component covers providing the actual commercial and residential services to the end customers.

The three models reflect the inclusion of one or more of these components, starting with the least involvement in the infrastructure component, adding access, and then finally service. Respectively, these models are: Passive Infrastructure or Infrastructure Only, Wholesale or Operator Owned, and Fully Integrated or Full-Retail Service. Multiple common terminologies are provided as these vary across Town broadband model studies.

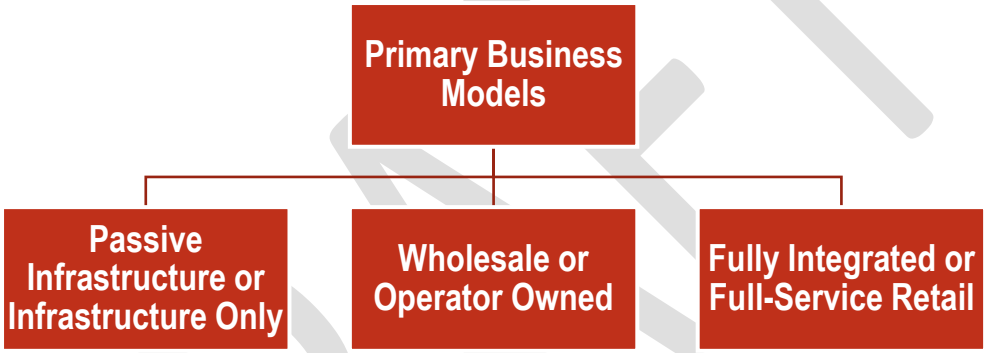



*Figure 37: Primary Business Models*

It is important to note that there are accessory models within these base models such as Open Access, Public Policy Focus, Public Services, Commercial Focus, and Residential Focus. These accessory models focus on specific needs within the base structure, for example, a Town may want to pursue a Wholesale model where they provide both infrastructure and access components, but only for target commercial customers (Commercial Focus) or local government facilities (Public Services). The Open Access model is inherent in both the Passive Infrastructure and Wholesale models where there is a neutral operator and can be used to promote healthy competition of providers at the access and service levels. Depending on the range of scope for the Town broadband initiative, there may be multiple models and accessory models to serve different purposes.

### 4.2.1 Passive Infrastructure | Infrastructure - Only

In this model, the Town's involvement is limited to facilitating some or all the passive infrastructure needed for the broadband network. Passive infrastructure only includes the labor and network materials at the physical layer, such as conduit, dark fiber (fiber not being actively used), utility poles, towers, buildings, and properties for Data Centers and POPs. This infrastructure is usually the most costly and essential to support the network but does not include the necessary transport equipment and connections for access or equipment and provisioning for internet services. A private sector provider or operator would manage the access and service components.

The Town has the option to own and lease or sell some or all its infrastructure to broadband service providers or operators. This model allows for fully open access at both the access and service levels given the Town enters an agreement with a neutral operator where the network infrastructure is available to both access providers and service providers.

Typically, the passive infrastructure does not include residential development as this is often costly and there are many implications in the access and service levels that need to be considered in the design and implementation. This model is effective to incentivize operators and providers to serve otherwise cost-prohibitive areas of need. If the Town retains ownership of the infrastructure and opts for the leasing option, there needs to be a clear delineation in the agreement with the operator or provider as to maintenance.

Ownership of the infrastructure may be beneficial to the Town given fixed costs, indefinite use, ability to influence the cost to consumers, ensure equal access across the communities, and can be leveraged for public services and applications. These benefits of ownership need to be weighed with the cost and resources required for maintenance, competitive rates for lease while ensuring return on investment (ROI), and the potential for the open access components to dissuade providers from entering the market.

#### 4.2.1.1 Lease and Selling Options

The following are options the Town would have in terms of the sale or lease of infrastructure assets:

- Purchase Agreement: Town would be paid upfront or through annual payments and transfer titles.
- Indefeasible Right of Use: Town would be paid upfront with annual maintenance payments for a certain capacity of their fiber for ~10-20 years.
- Lease: Town would be paid monthly for use of infrastructure assets for ~3-5 years
- Asset Swap: Town could exchange assets and would transfer titles accordingly.

These options also apply from the opposite perspective, should the Town look to purchase or lease infrastructure from operators or providers.

### 4.2.2 Wholesale | Operator Owned

The Wholesale model increases the involvement of the Passive Infrastructure Model to include the Town facilitating the access component, including all necessary equipment and transport services to activate the network. In this scenario, the Town could be the neutral operator, responsible for providing wholesale broadband access to private operators or providers. The Town may still opt to engage a private operator as they typically prefer to own the access component and sell it to providers.

This is often a large step toward a full-blown Fully Integrated model and requires increased staffing and

expertise. For this reason, Public Private Partnerships are often a more viable solution for counties/municipalities considering this option. From an open access perspective, there is still full competition from service providers as the access component is now the responsibility of the Town.

When a Town or city owns the access component and does not contract an operator, there is typically more hesitation from private providers to use the Town's network given the relative experience the Town has in managing wholesale services and the risks associated. Benefits include more control over the selection of quality service providers and wholesale broadband revenue options.

As with the previous model, maintenance, and operations costs will increase and consideration should be taken in that broadband technologies are constantly evolving and require more frequent investment than other utilities.

### 4.2.3 Fully Integrated | Full-Service Retail

With the addition of the service components, the Fully Integrated Model requires comprehensive involvement from the Town as the broadband service provider. Counties/municipalities can provide middle mile and last mile services to residential and commercial customer services from end to end. The Town owns the network and can often converge this with other public utilities for billing simplicity and other verticals.

The Town is responsible for operations, management, construction, maintenance, network monitoring, billing, marketing, retail offerings, troubleshooting, and customer service. While this model can create significant value, it also assumes the most risk and should only be considered when no willing and capable private sector providers are eager to enter the market or provide the level of services required to meet the needs of the communities. This Full-Service Retail model looks attractive and garners public attention when implemented as there have been remarkable success stories, such as the City of Mont Belvieu, TX's "MBLink," there have also been many failures that can put a Town in financial hardship and the burden falls to taxpayers.

Another consideration with this model is that it eliminates the open access concept as the new Town ISP would be considered a competitor with private sector providers at all levels. There is space within this model to still allow for healthy competition when the Town ISP only serves unserved or underserved markets that the private sector has not elected to serve. While a Town ISP does need to consider ROI and healthy financial operations, the goals of the Town for their ISP often focus on other factors such as promoting local competition to bolster the local economy and target areas that require subsidy or at-cost services to promote adoption.

Successful Town ISPs using this model often have advanced economies which can steady concerns over the financial risks in taking on such an initiative. Any Town considering this model should strongly evaluate its expertise, capabilities, resources, and the overall necessity of this make-or-break model.

## 4.3 Accessory Models

The base models above are not rigid and can be catered to the unique needs and capabilities of the Town to assume different levels of responsibility and investment. Accessory models accentuate or serve as sub-models to represent some of the more common options associated. As mentioned previously, different models can serve various project scopes as a part of the broadband initiative and so there is no need to resort to a one model-fits-all mentality.

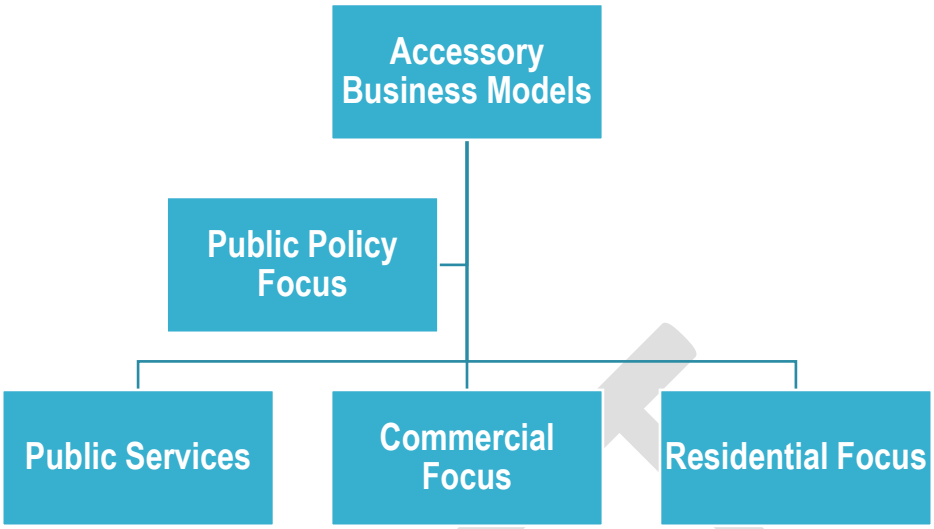



*Figure 38: Accessory Business Models*

### 4.3.1 Public Policy Focus

In a Public Policy Focus model, the Town can still play a role in promoting broadband expansion through the available policy tools at their disposal, and without having to invest in any of the infrastructure, access, and service components. Consider this model at the lowest end of the risk spectrum, where the Town and local government entities facilitate private sector investment through streamlining jurisdictional processes and red tape that might otherwise delay or deter broadband expansion efforts.

Through public policy, counties/municipalities can promote an "ISP Friendly" market and may influence the improvement of services or expansion into areas of need, but it is unlikely that this level of investment will incentivize private providers where they cannot profit.

### 4.3.2 Public Services

The Public Services model relies on Town and local public entity support to address broadband needs solely for public entity facilities and relative applications. Oftentimes, counties/municipalities look to improve their internal services in conjunction with broadband initiatives focused on residential and commercial services. Public sector IT groups typically look to reduce operational and service costs associated with leased lines and Multiprotocol Label Switching (MPLS) networks by building their dark fiber and providing data services to other public organizations.

This model can be considered in isolation, focused on building interconnects between ISDs, public utility buildings, governmental buildings, Emergency Operations Centers (EOCs), and public safety assets. There are many benefits to this which indirectly improve the quality of life for communities that rely on these public services and facilities. Counties/municipalities may also leverage private sector competition to provide these services to incentivize private investment in the residential and commercial areas of need. All three base models can be catered towards strictly public services, where the Town can determine its level of involvement.

### 4.3.3 Commercial Focus

Like Public Services, The Commercial Focus model can utilize one of the three base models to focus strictly on providing commercial services to businesses and commercial properties. The availability of capable commercial services is a huge economic growth driven by attracting businesses to the market and retaining those already currently in place. Most modern, large companies require multiple, redundant connections from tier one providers and so attracting multiple capable providers to the market in the middle mile space can be very impactful.

Counties/municipalities can directly offer these services through the Fully Integrated base model but should consider if their presence in the commercial service space would deter the necessary private sector saturation. As commercial customers are often in the middle mile space, open access is a possibility here where there is a known necessity for multiple providers to provide these multiple, redundant services. Commercial Focus can be implemented as a separate scope or as part of a larger initiative including public and residential services.

### 4.3.4 Residential Focus

Residential Focus is a sub-model to the three base models in which the Town would focus solely on involvement in providing residential services. As this is one of the more costly and complex targeted services, in most cases, private providers have the expertise to deploy and operate in residential markets. The risk and investment associated with providing residential services are higher than that of commercial and public services, and regarding digital equity, the greatest needs are often with residents in the unserved and underserved communities, and this is where the Town's influence can make a significant impact.

A Passive Infrastructure model, catered towards residential focus would be a logical, catered model for a Town looking to incentivize private provider saturation. However, open access potential would be limited as residential customers do not require redundant service connections and private providers will likely avoid using infrastructure owned by a Town in this space. Residential Focus can be implemented as a separate scope or as part of a larger initiative including public and residential services.

## 4.4 Business Model Funding

Another layer to the business model determination is the funding aspect, representing tangible investment and risk assumed by the parties involved. Funding a component of a broadband network does not necessarily translate to unique ownership of specific assets as there is a need to ensure that the right party focuses on their area of expertise. For example, while a Town may elect to cover the costs of the access components to spur the development of a network, they may have no intention of handling installation, operations, or maintenance without the resources nor expertise to manage.

As touched on in the business model outlined above, there are benefits to the Town in ownership such as being able to promote open access, lease, and generally have more control over the network. On the other hand, there is an increased risk of crowding out the private sector or discouraging their investment, the learning curve in obtaining the expertise and training to manage and operate, and costs of maintenance and frequent technology upgrades. Weighing all these considerations in mind, the Town must determine the feasibility and necessity of public funding or public-private partnership funding. As the private sector is constantly looking for where to expand and invest to grow their business, a public-private partnership leverages this pending investment and reduces risk for the Town.

## 4.5 Public Private Partnerships (PPPs)

Public-Private Partnerships take the best of both worlds where all parties focus on their areas of expertise and share the risks and benefits associated with the network development. PPPs can allow counties/municipalities to attract private capital when it would not be feasible otherwise[18]. Collectively, the partnership compartmentalizes and accommodates all aspects of the network, leveraging assets from both the private and public sectors for mutual benefit. The initial infrastructure investment, operational and maintenance costs, and revenue sharing are all considered in the following PPP contracts.

*Table 11: Various Forms of Broadband Public Private Partnerships*

| Contract | Network Funding | Network Operations | Subscription Fees Collected By | Revenue Share To |
|---|---|---|---|---|
| **Third-Party Run** | Town/County | Private Operator | Town/County | Private Operator |
| **Lease** | Town/County | Private Operator | Private Operator | Town/County |
| **Special Purpose Vehicle** | Both | Both | Both | Both |
| **Build Operate Transfer** | Private Operator | Private Operator | Town/County | Private Operator |
| **Concession** | Private Operator | Private Operator | Private Operator | Town/County |

### 4.5.1 Town-Funded PPP Networks

In a Third Party Run Service Contract, the network is funded and built by the Town, but the connectivity and end-user services are provided by a private operator. Subscription fees are collected by the Town, possibly through existing utility billing services. The Town then transfers a share of the revenue to a private operator to cover costs of operations, maintenance, and QOS expenditures. This allows for a return on capital.

In a Lease Contract, the network is funded and built by the Town and then leased by the private operator, who in turn provides connectivity and services. Subscription fees are collected by a private operator and a portion of the revenue is transferred to the Town to cover the network rental fees.

In a Special Purpose Vehicle Contract, the network is co-financed, built, and operated by the Town and private operator, who both share in the return on investment.

### 4.5.2 Private Sector-Funded PPP Networks

In a Build Operate Transfer (BOT) Contract, the Town facilitates private investment through a "tender," such as a Request for Information (RFI), Request for Qualifications (RFQ), or RFP to a private operator to

[18] Municipal Broadband Networks—Opportunities, Business Models, Challenge. Ifc.org. https://www.ifc.org/wps/wcm/connect/publications_ext_content/ifc_external_publication_site/publications_listing_page/municipal+broadband+networks. Published 2022. Accessed June 1, 2022.

fund, build, and operate the network. Subscription fees are collected by the Town, possibly through existing utility billing services. The Town then transfers a share of revenue to the private operator to cover operations, maintenance, and QOS expenditures which may allow for a return on capital.

In a Concession Contract, the network is funded, built, and operated by a private operator. The private operator collects subscription fees as well. This contract requires that the Town allows the private operator access to its resources or assets such as utility poles and ducts. Concession fees are paid to the Town for use of their assets.[19]

## 4.6 Managed Services

Partnerships are not limited to private operators or providers but can also include broadband services companies that do not necessarily own or provide direct internet services. These companies can support the Town and their partners in the service activation and service assurance aspects of the network. As previously mentioned, broadband networks are dynamic and complex in comparison to traditional utilities and require substantial expertise, in which the Town, and sometimes even the operator or internet service provider, needs external resources.

Managed services are typically catered, modular solutions which fill in the implementation and operational components of the network to include monitoring, troubleshooting, performance analysis, inventory management, cybersecurity, and much more. For a Town considering more extensive involvement and ownership, or in a partnership with smaller private operators, managed services companies can assist in standing up the network and making necessary connections to operations and business support systems (OSS/BSS), including billing and notification systems.

Managed services should be considered early in the broadband network development and not as an afterthought when operations suffer or there are delays due to unforeseen complications. Under a Full Retail Service Model, managed services can be essential to round out the Town team, providing necessary resources and even training leading towards a potential transfer to a Town-run or sponsored ISP.

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[19] Municipal Broadband Networks—Opportunities, Business Models, Challenge. Ifc.org. https://www.ifc.org/wps/wcm/connect/publications_ext_content/ifc_external_publication_site/publications_listing_page/municipal+broadband+networks. Published 2022. Accessed June 1, 2022.

# 5 APPENDIX 1 – MAPS

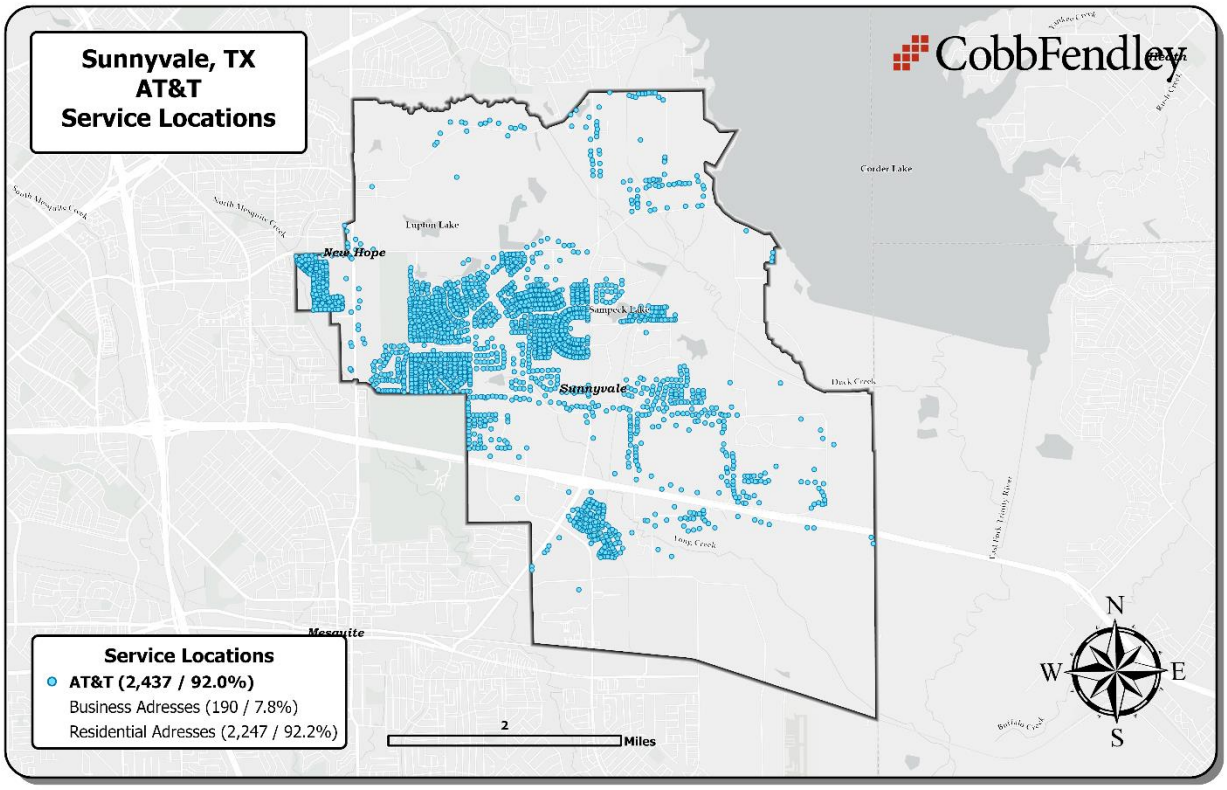



*Figure 39: Provider Service Locations*

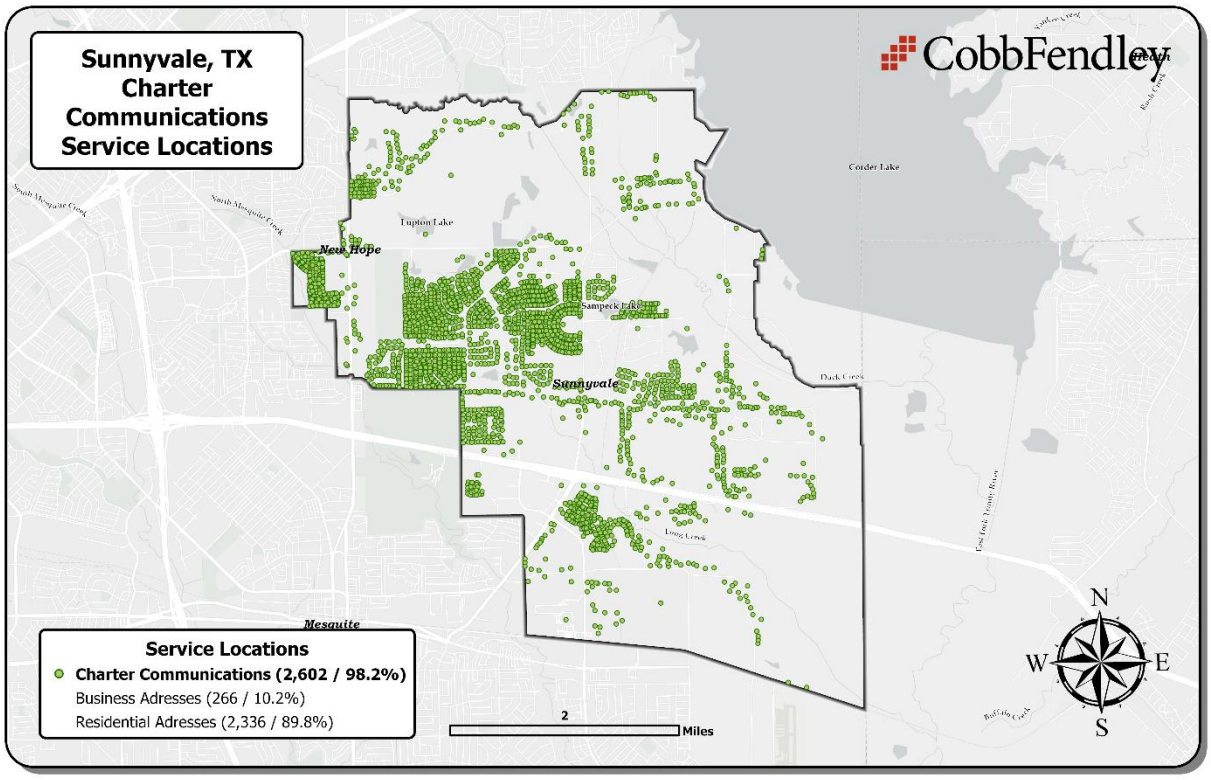



*Figure 40: Provider Service Locations*

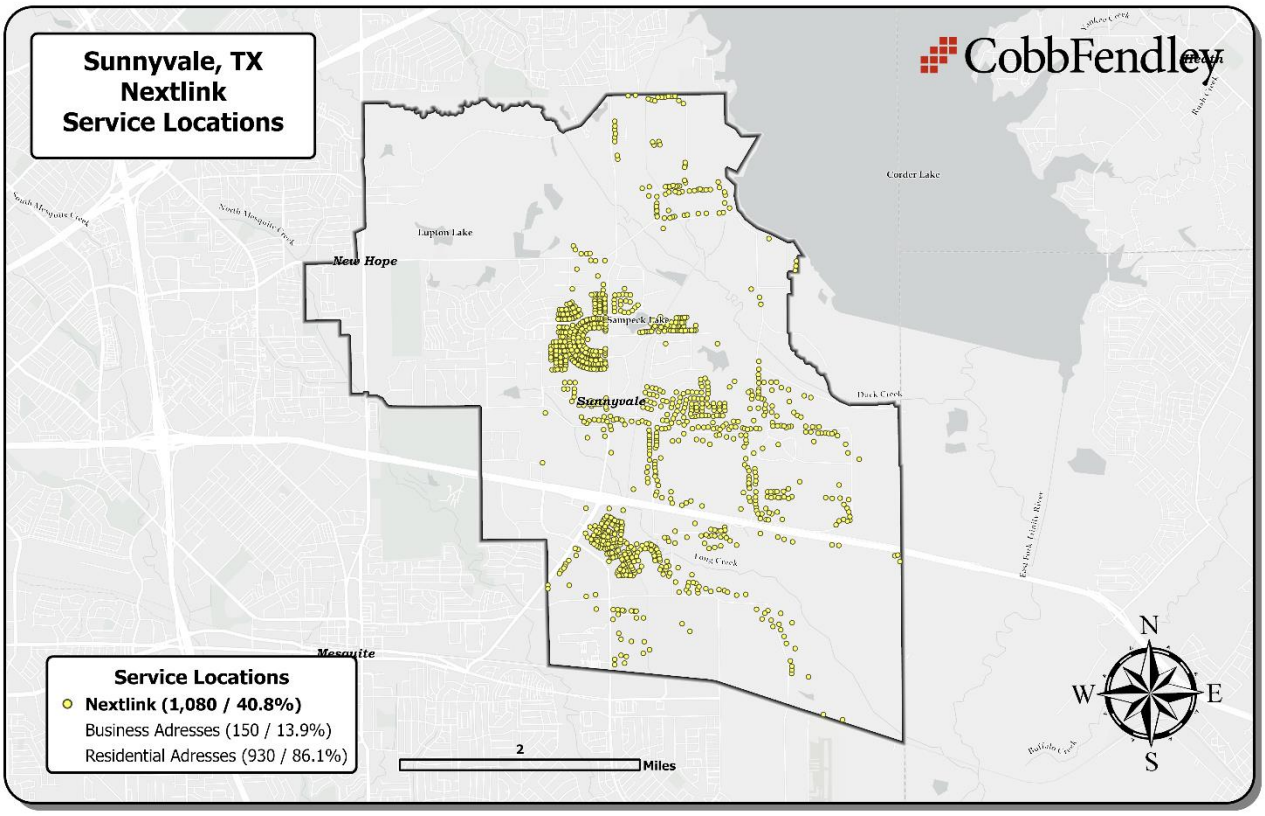



*Figure 41: Provider Service Locations*

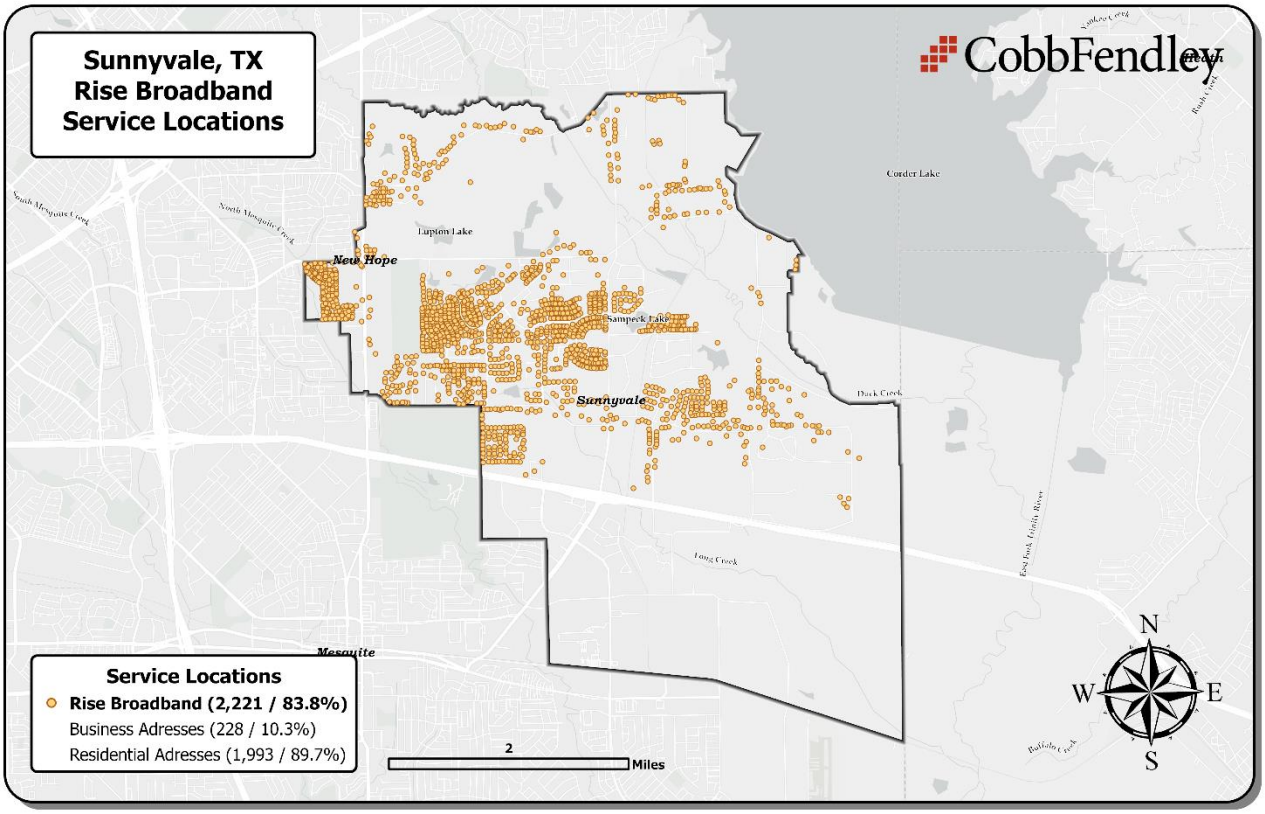



*Figure 42: Provider Service Locations*

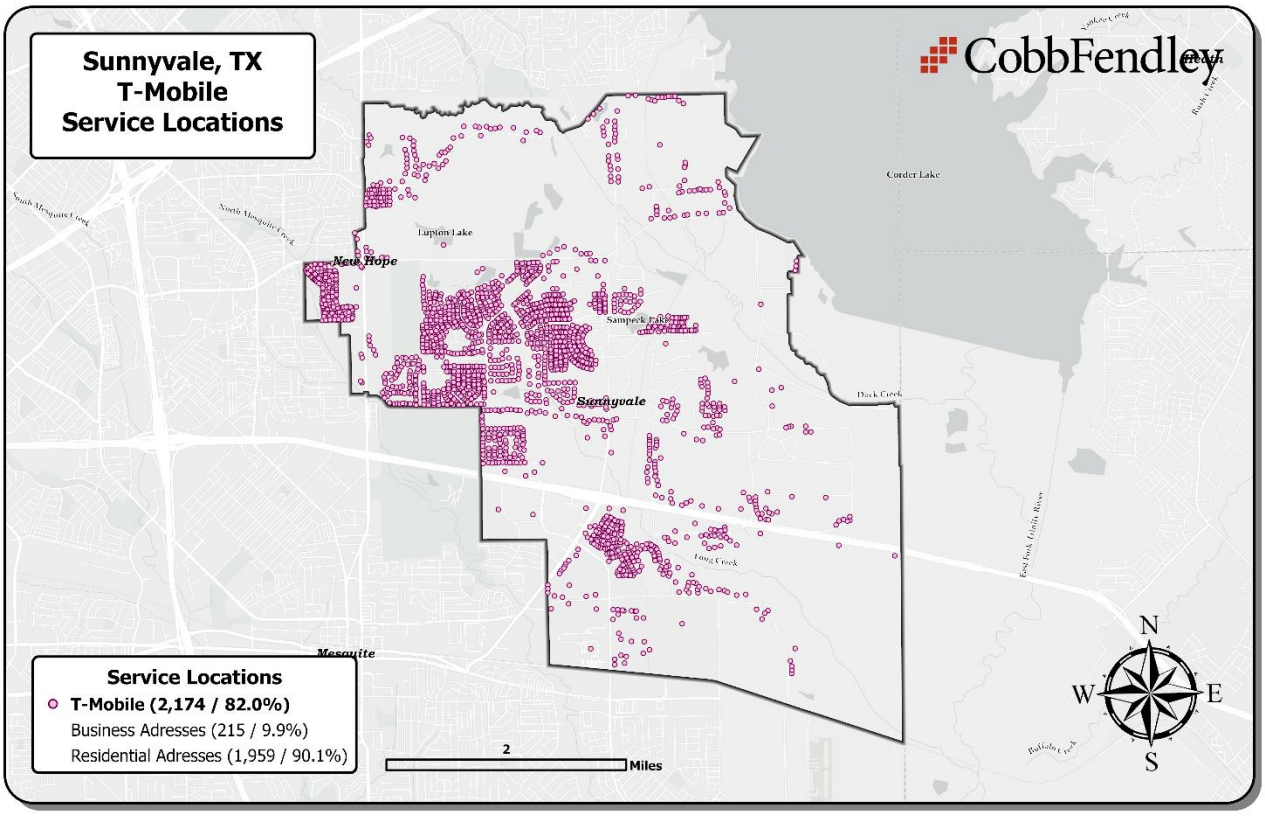



*Figure 43: Provider Service Locations*

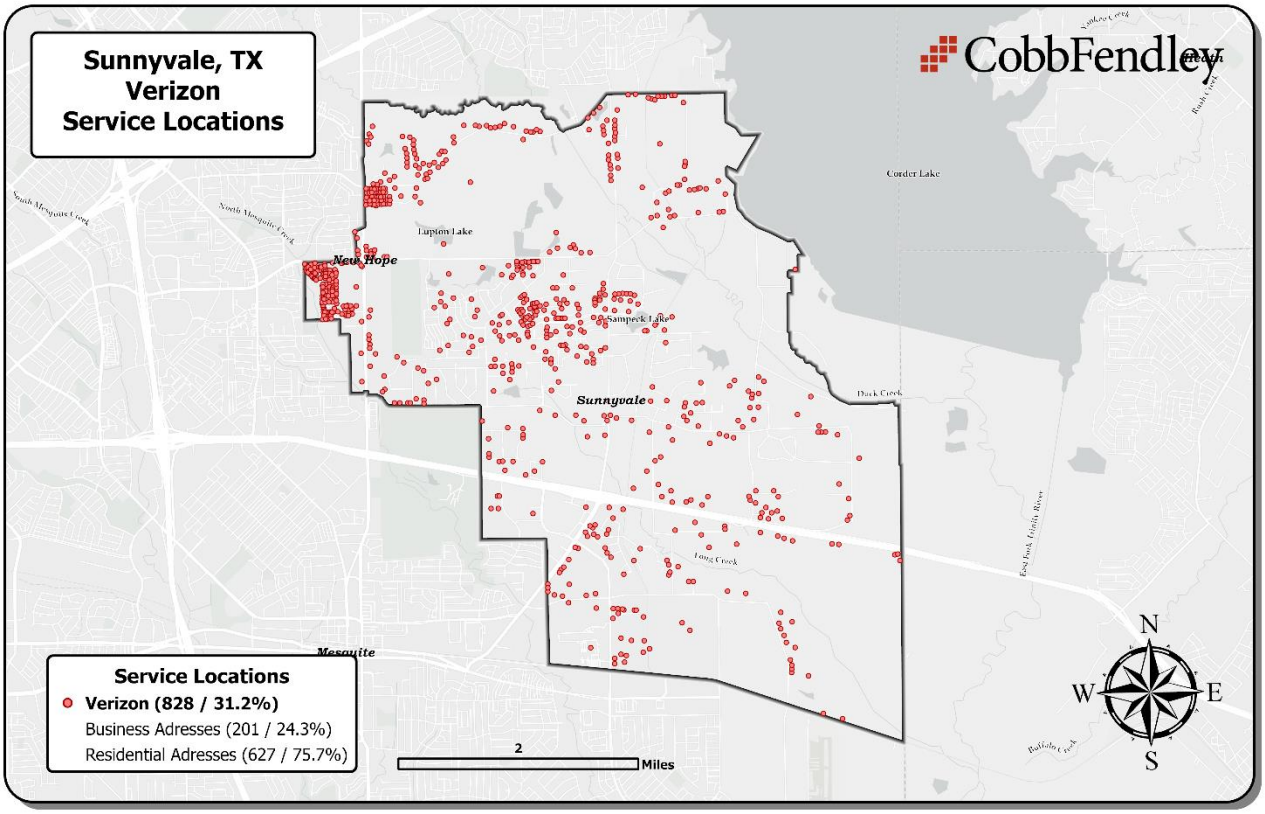



*Figure 44: Provider Service Locations*

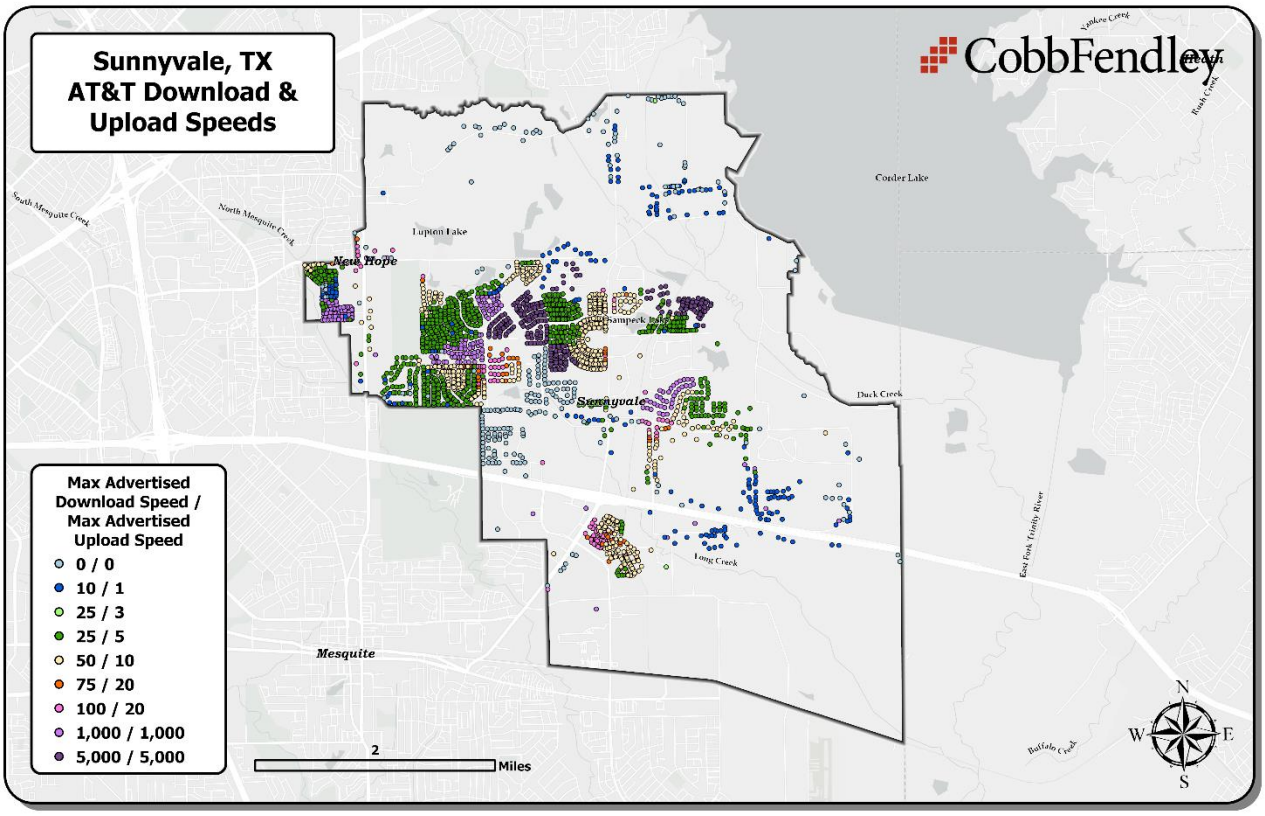



*Figure 45: Provider Download and Upload Speeds*

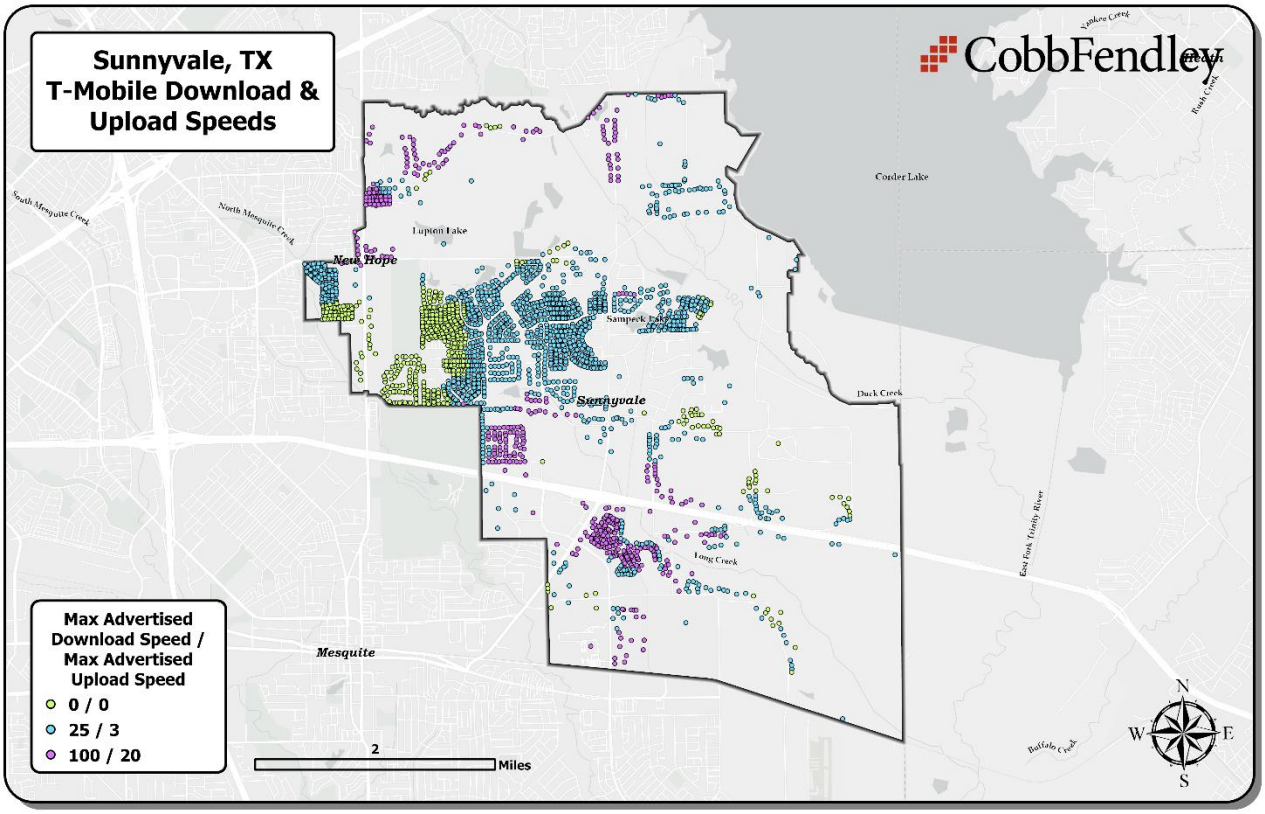



*Figure 46: Provider Download and Upload Speeds*

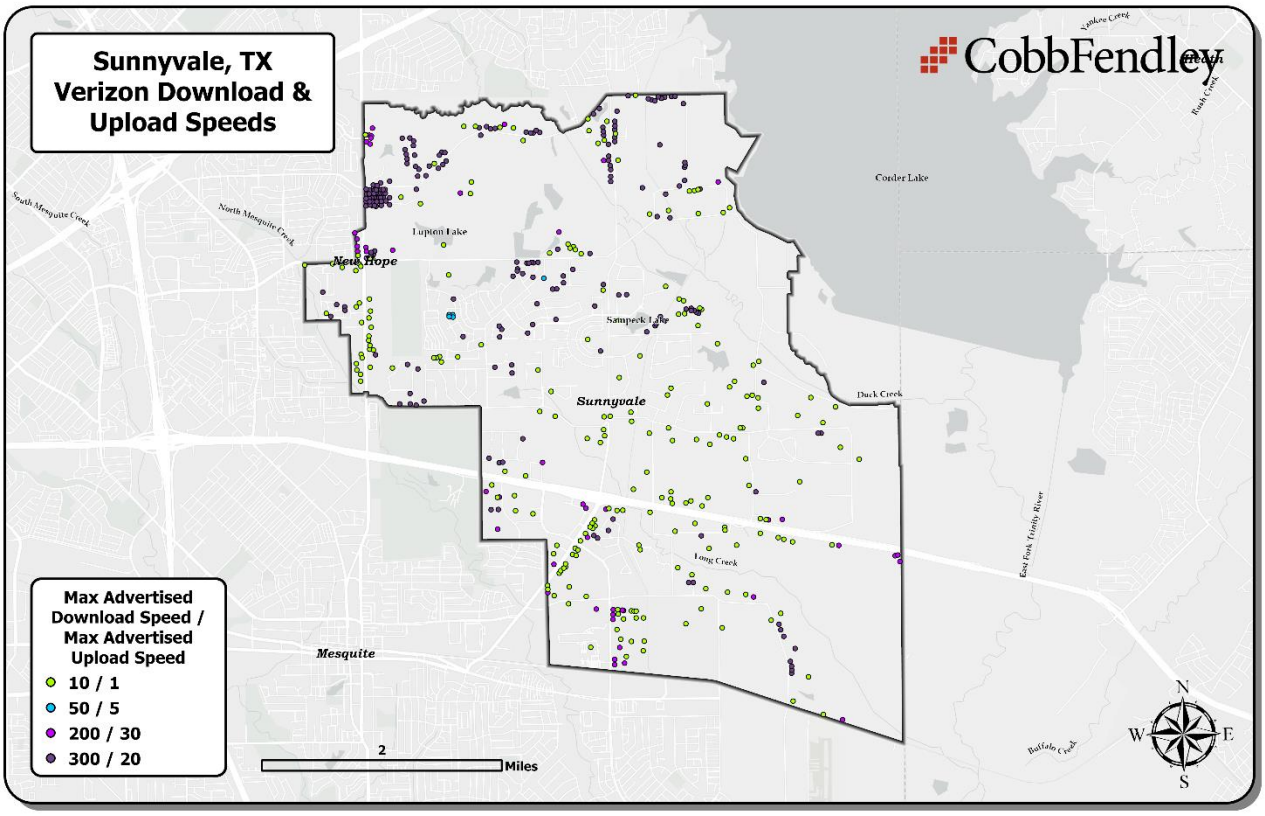



*Figure 47: Provider Download and Upload Speeds*

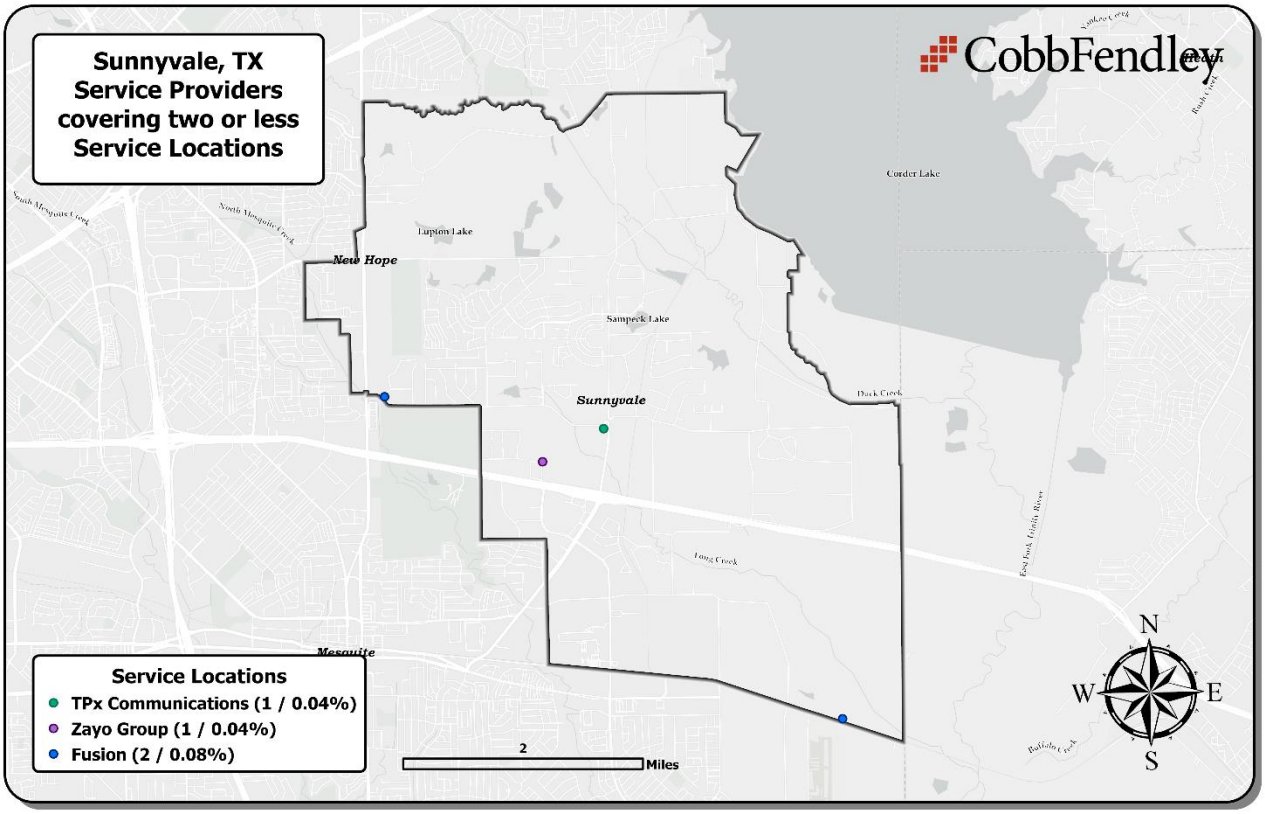



*Figure 48: Provider Service Locations*

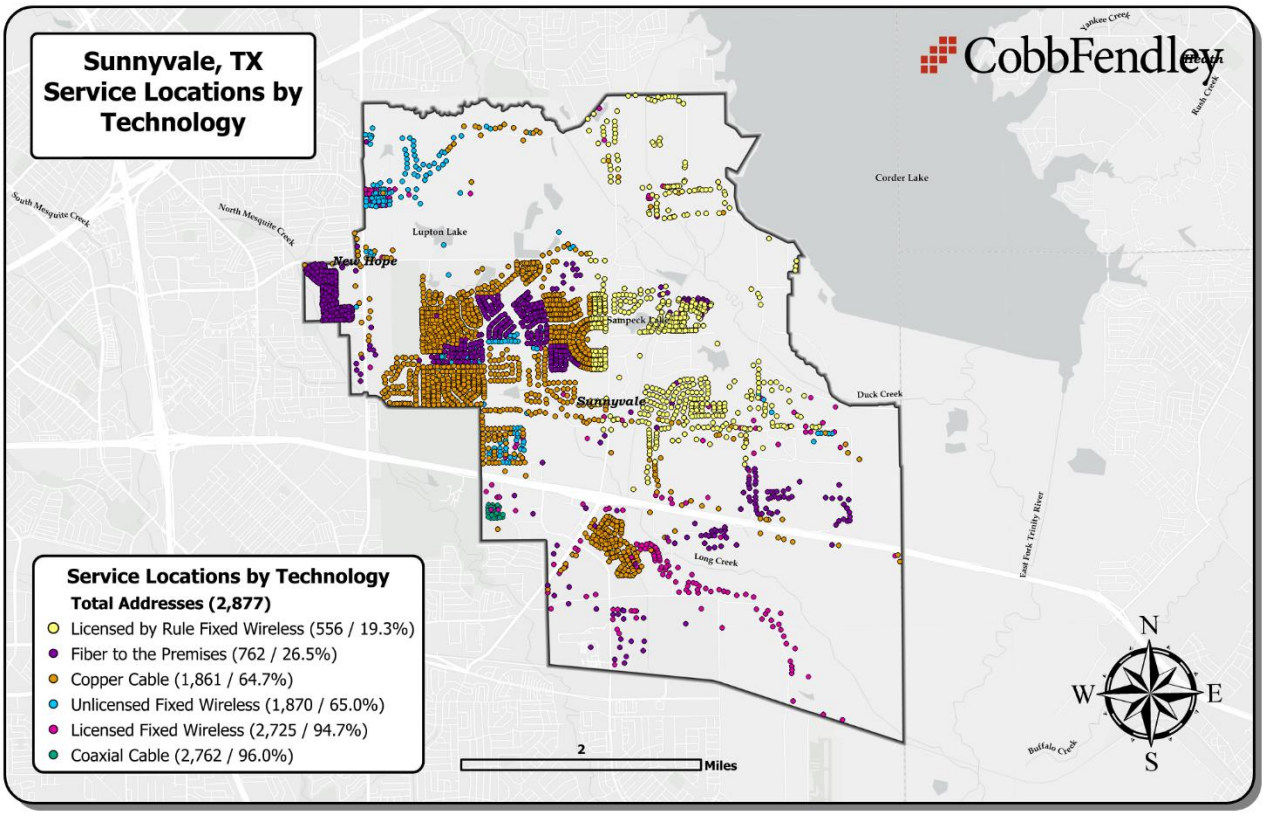



*Figure 49: Providers Service Locations by Technology Type*

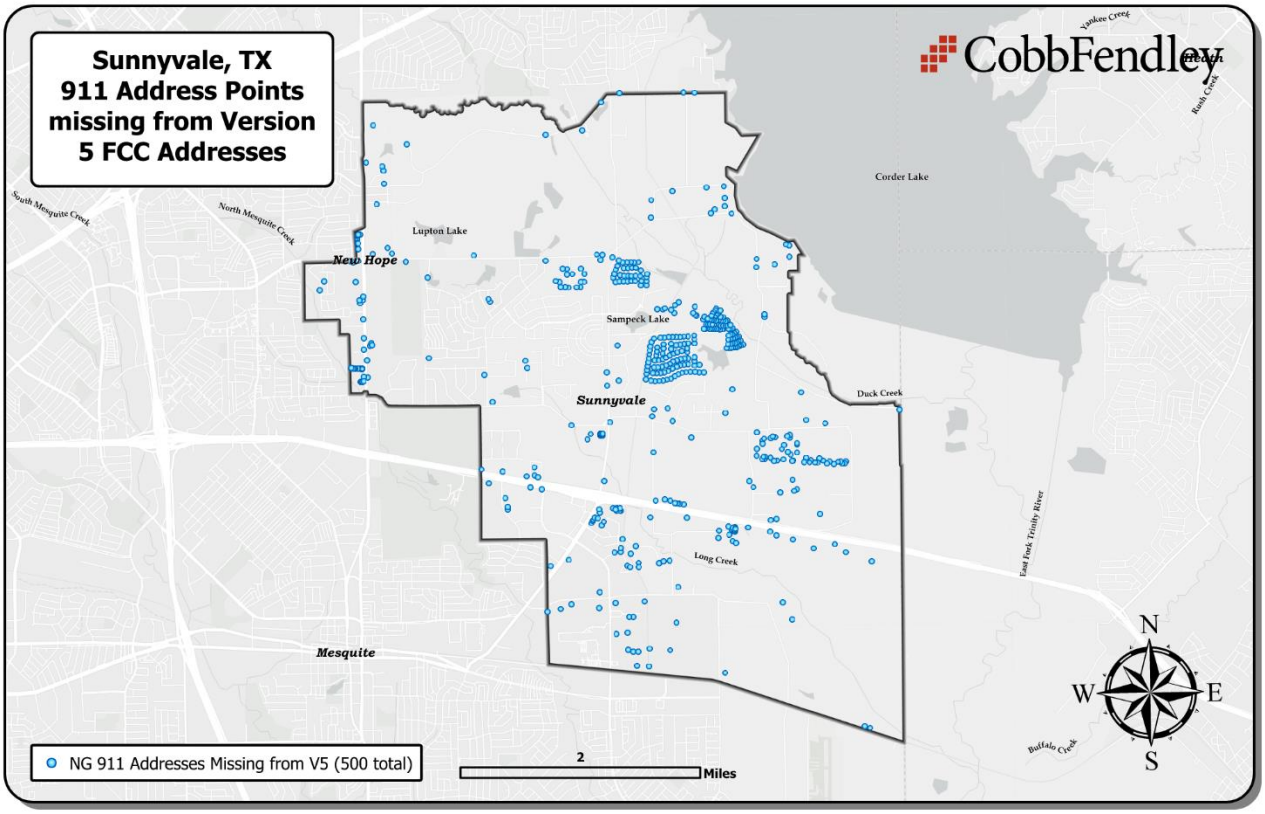



*Figure 50: NG 911 Address Points Missing From FCC Version 5 Fabric Data*

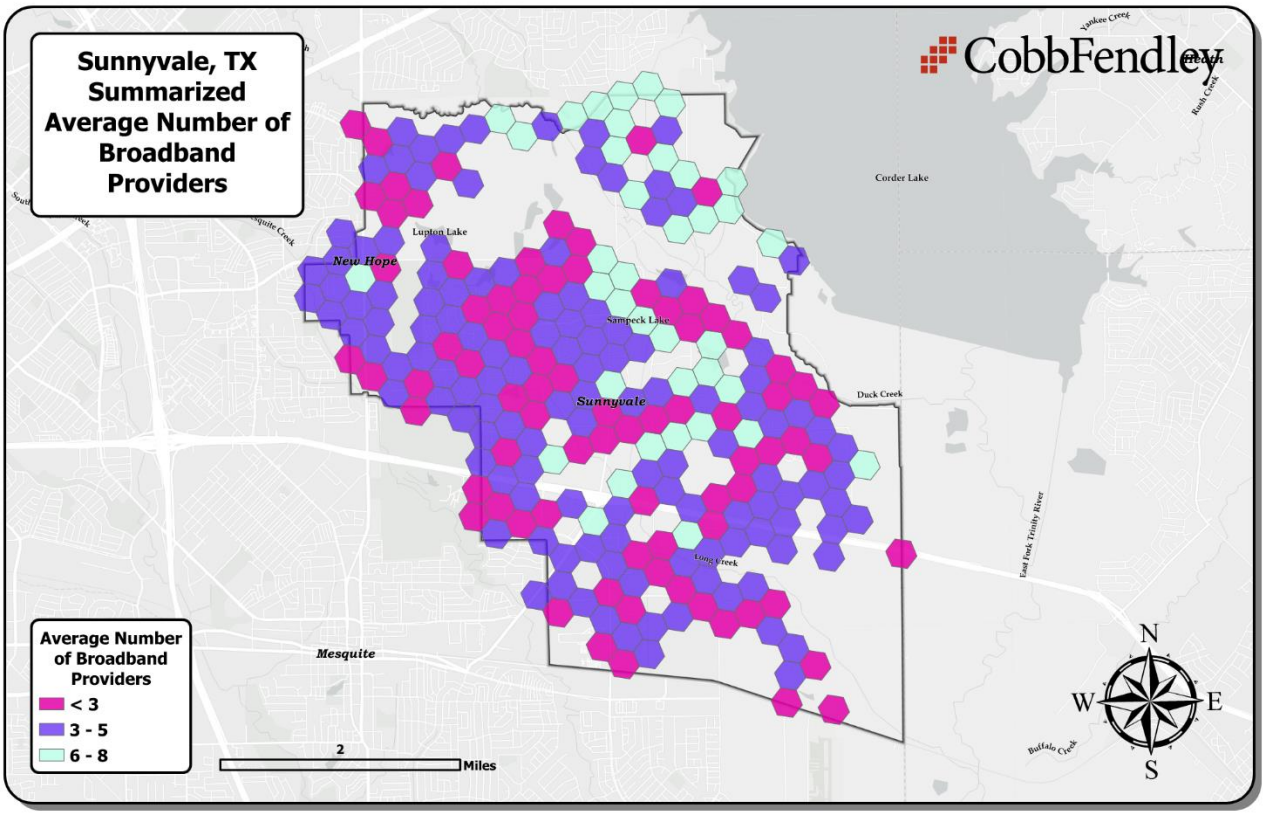



*Figure 51: Average Number of Broadband Providers*

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# 6 APPENDIX 2 - ACRONYMS

| ACRONYM | MEANING |
|---|---|
| ACP | Affordable Connectivity Program |
| ACS | American Community Survey |
| AGOL | ArcGIS Online |
| ARPA | American Rescue Plan Act |
| ADSL | Asymmetric Digital Subscriber Line |
| AMR | Automatic Meter Reading System |
| BOM | Bill Of Materials |
| BIPOC | Black, Indigenous and People of Color |
| BOOT | Bringing Online Opportunities To Texas |
| BDC | Broadband Data Collection |
| BDO | Broadband Deployment Office |
| BEAD | Broadband Equity, Access, And Deployment |
| BOT | Build Operate Transfer |
| CORI | Center On Rural Innovation |
| CBRS | Citizens Broadband Radio Service |
| CDCT | Cloud+ Data Center Transformation |
| CAIs | Community Anchor Institutions |
| CDE | Community Development Entity |
| CDFI | Community Development Financial Institution |
| CRA | Community Reinvestment Act |
| CAF | Connect America Funds |
| COG | Council Of Governments |
| CSF | Cybersecurity Framework |
| DEA | Digital Equity Act (2021) |
| DSL | Digital Subscriber Line |
| DDoS | Distributed Denial-Of-Service |
| OECD | Economic Co-Operation And Development |
| EDC | Economic Development Commissions |
| ESC | Education Service Center |
| EC | Electric Cooperatives |
| EBB | Emergency Broadband Benefit Program |
| EMS | Emergency Medical Services |
| EOC | Emergency Operations Centers |
| FCC | Federal Communications Commission |
| FPHA | Federal Public Housing Assistance |
| FTTH | Fiber To The Home |
| FTTP | Fiber To The Premise |
| FTTx | Fiber to the x |
| GAA | General Authorized Access |

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| | |
|---|---|
| GLO | General Land Office |
| GIS | Geographic Information Systems |
| Gb | Gigabit |
| GPON | Gigabit Passive Optical Networks |
| Gbps | Gigabits Per Second |
| GDP | Gross Domestic Product |
| GVEC | Guadalupe Valley Electric Coop |
| HDPE | High-Density Polyethylene |
| HLD | High-Level Design |
| ISD | Independent School District |
| IT | Information And Technology |
| IIJA | Infrastructure Investment And Jobs Act |
| ISP | Inside Plant Implementation |
| IDRA | Intercultural Development Research Association |
| ISP | Internet Service Providers |
| KMZ | Keyhole Markup Language Zipped |
| LAN | Local Area Network |
| LUPE | La Unión Del Pueblo Entero |
| LoS | Line Of Sight |
| LEA | Local Education Agency |
| LISC | Local Initiatives Support Corporation |
| LTE | Long-Term Evolution |
| LMI | Low- And Moderate-Income |
| LRGDVC | Lower Rio Grande Valley Development Council |
| LIHTC | Low-income Housing Tax Credit |
| MGI | McKinsey Global Institute |
| Mb | Megabit |
| Mbps | Megabits Per Second |
| MOU | Memorandum Of Understanding |
| MAN | Metropolitan Area Network |
| MSAs | Metropolitan Statistical Areas |
| MPLS | Multi-Protocol Label Switching |
| NCSC | National Cooperative Services Corporation |
| NEPA | National Environmental Policy Act |
| CFC | National Rural Utilities Cooperative Finance Corporation |
| NTIA | National Telecommunications And Information Administration |
| NMTC | New Markets Tax Credits |
| NG911 | Next Generation 911 |
| NOFO or NOFA | Notice of Funding Opportunity (or Availability) |
| OET | Office Of Educational Technology |
| OSS/BSS | Operations And Business Support Systems |
| OOM | Order Of Magnitude |

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| OSP | Outside Plant Implementation |
| PON | Passive Optical Networks |
| POP | Points Of Presence |
| PALs | Priority Access Licenses |
| P3 | Public Private Partnerships |
| PWI | Public Welfare Investments |
| PPP | Public-Private Partnerships |
| PSAP | Public-Safety Answering Point |
| QoS | Quality Of Service |
| RFI | Request For Information |
| RFP | Request For Proposals |
| RFQ | Request For Qualifications |
| ROI | Return On Investment |
| ROW | Right Of Way |
| SCADA | Supervisory Control and Data Acquisition |
| SHPO | State Historic Preservation Offices |
| TSP | Telecommunications Service Priority |
| USDA | United States Department of Agriculture |
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# 7 APPENDIX 3 - GLOSSARY OF TERMS

(Sourced from Broadband.Money[20] and NTIA[21])

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| 0-9 | |
| 3G | The term for the 3rd generation wireless telecommunications standards usually with network speeds of less than 1 Mbps |
| 4G | The term for 4th generation wireless telecommunications standards usually with network speeds greater than 1 Mbps. |
| 5G | The term for emerging 5th generation wireless telecommunications standards usually associated with network speeds of up to 1 Gbps or more |
| 63-20 Financing | In Revenue Ruling 63-20 the IRS ruled that, in certain circumstances, bonds issued by a nonprofit corporation (the "Nonprofit") will be considered issued on behalf of a Governmental Unit – thus allowing the interest on such bonds to be eligible for tax-exempt treatment. A 63-20 financing may help avoid certain political and legal hurdles that otherwise might be present if the Governmental Unit were to issue the bonds directly. |
| A | |
| Aerial Installation | A type of fiber optic cable that is usually used for outside installation on poles. Due to its installation environment, the design of aerial fiber optic cable must consider how to protect it from destruction by nature or man-made damage. |
| Affidavit | A written declaration or statement that is sworn or affirmed before a person who has authority to administer an oath. Affidavits verify the legitimacy of a claim and are used in conjunction with witness statements or other related evidence in a dispute or a criminal matter. The person who signs the affidavit must be personally aware of the facts contained within, and he or she must swear that the affidavit is 100% true. |
| Affordable Connectivity Program (ACP) | Under the Infrastructure Investment and Jobs Act, the previous Emergency Broadband Benefit Program has been renamed the Affordable Connectivity Program. Although the program's benefit has been lowered from $50/month to $30/month, the definitions and operative terms of the program remain intact. Under those definitions, an Affordable Connectivity offer is one that is affordable for four-person household that includes two dependents under age 18 and has an income 136% of poverty line. IIJA Section 60502, |

[20] Glossary of Broadband Grant Terms. Broadband.money. https://broadband.money/broadband-grant-terms. Published 2022. Accessed June 1, 2022.
[21] Broadband Glossary. Broadbandusa.ntia.doc.gov. https://broadbandusa.ntia.doc.gov/sites/default/files/publication-pdfs/bbusa_broadband_glossary.pdf. Published 2022. Accessed June 1, 2022.

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| | "Broadband Affordability". For white-labeled, turnkey ACP automation, please contact Ready. |
| Asymmetric | When the upload and download speeds do not match. A rate of 10 Mbps down/1 Mbps up would be asymmetric. |
| Asymmetrical Digital Subscriber Line (ADSL) | A form of Internet service communications technology that delivers constantly accessible data transmissions over copper telephone lines. ADSL is a common brand of DSL and has download speeds between 2 and 6 Mbps and upload speeds reaching 512 Kbps. |
| Asynchronous Transfer Mode (ATM) | A transmission method where information is re-structured into cells. It is asynchronous due to the fact that the recurrence of cells from an individual user is not necessarily periodic. |
| Attestation | The process for scrutinizing the authenticity of a document by corroborating every detail given on it and then manifesting it authentic with the sign and stamp of verifying personnel on it. |
| Average Revenue Per User (ARPU) | The term is used by companies that offer subscription services to clients. It is a measure of the revenue generated by one subscriber per unit time, typically per year or month. It is a particularly useful measurement for companies in the telecommunications industry, which relies on subscribers or users. |
| B | |
| BEAD Timelines | Eligible entities decide whether to participate in the BEAD program, which will provide ~$42B for infrastructure planning and implementation. If they choose to, they need to submit a letter of intent to NTIA by the deadline. To read in more details about the multitude of deadlines for the BEAD program, as well as any newly established deadlines from the National Telecommunications and Information Administration themselves, refer to our Timeline of Key Milestones and Grant Application Deadlines. |
| Backbone | The Internet is really a network of networks, and the large trunk lines that connect them are referred to as the “backbone.” It can also be thought of as being like the highway system: the interstate highways are the backbones that connect regions that have highway networks of their own. |
| Bandwidth | In the world of Internet service, bandwidth has come to mean the speed of Internet service, measured in bits per second. Not to be confused with bandwidth referring to a range of radio wave frequencies, which may be used in more technical discussions about how data is transferred. |

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| Bank Loan | An amount of money loaned at interest by a bank to a borrower, usually on collateral security, for a certain period of time. |
| Bit | A bit is the basic unit of information in computing. The name comes from “binary digit,” and each bit has one value, either 1 or 0, or on and off. It usually takes eight bits to represent one character of text; a group of eight bits makes a byte. Data file sizes are measured in bytes while data speed is measured in bits. |
| Broadband | Shorthand term for any high-speed Internet access that is faster than dial-up and, unlike dial-up, is always on. Over the years, as what it is used for the Internet that has demanded a larger capacity for moving data, different entities have set speed definitions for broadband, implying that an Internet-access service shouldn’t be called “broadband” or “high-speed” unless it meets a certain speed level. |
| Broadband Deployment Accuracy And Technological Availability (DATA) Act | Passed on March 10, 2020, just prior to the significant shutdown occasioned by the coronavirus pandemic, the Broadband Deployment Accuracy and Technological Availability (DATA) Act established new guidelines and rules for the Federal Communications Commission's production of broadband availability and deployment maps. The rules effectively require an address-by-address inventory of broadband. These requirements are codified at 47 U.S.C. Section 642. |
| Broadband Deployment Accuracy And Technological Availability (DATA) Act Maps | Under the Infrastructure Investment and Jobs Act, funding eligibility for areas that are "Unserved" and "Underserved" will be determined by reference to the Broadband DATA Maps created under the Broadband DATA Act. IIJA, Section 60103. |
| Broadband Equity, Access And Deployment Program (BEAD) Program | A $42.45B formula grant program directed towards states and territories with the objective of closing the availability gap, as Congress finds that "access to affordable, reliable, high-speed broadband is essential to full participation in modern life in the United States." |
| Broadband Initiatives Program (BIP) | The Broadband Infrastructure Program is a $288 million broadband deployment program directed to partnerships between a state, or one or more political subdivisions of a state, and providers of fixed broadband service to support broadband infrastructure deployment to areas lacking broadband, especially rural areas. |
| Broadband Technology Opportunities Program (BTOP) | The Broadband Technology Opportunities Program (BTOP) is an approximately $4 billion grant program administered by NTIA to help bridge the technological divide; create jobs; and improve education, health care, and public safety in communities across the country. Funded by the American Recovery and Reinvestment Act of 2009, BTOP projects are deploying broadband Internet infrastructure, enhancing and expanding public computer centers, and encouraging the sustainable adoption of broadband service. |

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| Buried Fiber Deployment | Buried fiber deployments are buried below the layer where the soil freezes so they are immune to wind and ice damage. This means that underground deployments are often more reliable than aerial routes, especially where poor weather is common. |
| Burstable | Authorizes a connection to exceed its specified speed, normally up to a set maximum capacity for a period of time. |
| Burst Speed | A method which momentarily allots additional bandwidth to consumer's services for short periods of time. |
| Byte | A unit of digital information that most commonly consists of eight bits. Historically, the byte was the number of bits used to encode a single character of text in a computer and for this reason it is the smallest addressable unit of memory in many computer architectures. |
| C | |
| Cable | A category of broadband Internet access that uses the infrastructure of cable TV network to provide Internet services. Cable Internet provides connectivity from the Internet service provider (ISP) to the end users in a similar manner as digital subscriber line (DSL) and fiber-to-the-home (FTTH). |
| Capital Expenditures (Capex) | A category of broadband Internet access that uses the infrastructure of cable TV network to provide Internet services. Cable Internet provides connectivity from the Internet service provider (ISP) to the end users in a similar manner as digital subscriber line (DSL) and fiber-to-the-home (FTTH). |
| Capital Structure | The structure of all capital that is invested into a company. At a high level, this means that the capital stack includes both the equity and the debt invested to date. More specifically, though, this means all types of both equity and debt. That means both common and preferred equity, and both junior and senior debt. These categories can be further split. You can have different types of preferred equity, for example. |
| Census Block | The smallest geographic area for which the Bureau of the Census collects and tabulates decennial census data. Generally small in area. In a city, a census block looks like a city block bounded on all sides by streets. Census blocks in suburban and rural areas may be large, irregular, and bounded by a variety of features, such as roads, streams, and transmission lines. In remote areas, census blocks may encompass hundreds of square miles. Census blocks are grouped into block groups, which are grouped into census tracts. |

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| Challenge Process | The process of grant applicants engaging communities they intend to serve, and the right of refusal held by communities for broadband grant applications.<br><br>Each Eligible Entity shall develop and describe in the Initial Proposal, a transparent, evidence-based, fair, and expeditious challenge process under which a unit of local government, nonprofit organization, or broadband service provider can challenge a determination made by the Eligible Entity in the Initial Proposal as to whether a particular location or community anchor institution within the jurisdiction of the Eligible Entity is eligible for grant funds. |
| Churn | Churn rate, sometimes known as attrition rate, is the rate at which customers stop doing business with a company over a given period of time. Churn may also apply to the number of subscribers who cancel or don't renew a subscription. The higher your churn rate, the more customers stop buying from your business. |
| Coax | A type of cable used to transmit data, the internet, video and voice communications. A coax cable is made up of an aluminum and copper shield with an outer plastic jacket with the dielectric insulator helping to minimize signal loss. |
| Common Equity | The amount that all common shareholders have invested in a company. Most importantly, this includes the value of the common shares themselves. However, it also includes retained earnings and additional paid-in capital. |
| Communications Act Of 1934 | Signed into law by Franklin D. Roosevelt, the Communications Act of 1934 created a unified regulatory system for communications. Among other things, it created the Federal Communications Commission, which replaced the Federal Radio Commission, and took over the regulation of interstate telephone services from the Interstate Commerce Commission. The central principle of the act was that a comprehensive nationwide communications system "with adequate facilities at reasonable charges" was good for the country. |
| Community Anchor Institution (CAI) | An entity such as a school, library, health clinic, health center, hospital or other medical provider, public safety entity, institution of higher education, public housing organization, or community support organization that facilitates greater use of broadband service by vulnerable populations, including, but not limited to, low-income individuals, unemployed individuals, children, the incarcerated, and aged individuals. |
| Conduit Financing | A means for private companies, nonprofit organizations (NPO), and public entities to raise capital via tax-exempt municipal bonds to fund large-scale projects that typically benefit the general public. Such projects can include |

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| | hospitals, airports, industrial and housing projects, public facilities, and schools. |
| Connect America Fund (CAF) | The Connect America Fund was unveiled in 2011 as part of the Universal Service Fund, redesigned to help fund Internet infrastructure in the nation's high-cost areas. CAF put a new emphasis on Internet service. |
| Connecting Minority Communities Pilot Program (CMC) Pilot Program | The Connecting Minority Communities Pilot Program is a $268 million NTIA grant program to Historically Black Colleges and Universities (HBCUs), Tribal Colleges and Universities (TCUs), and Minority-Serving Institutions (MSIs) for the purchase of broadband internet access service and eligible equipment or to hire and train information technology personnel. The CMC grant program was established by the Consolidated Appropriations Act of 2021 to support MSIs and their surrounding communities. |
| Consolidated Appropriations Act Of 2021 | The Consolidated Appropriations Act of 2021 created the $980 million program to provide grants to expand regular and remote broadband access and adoption by Tribal entities, the $268 million Connecting Minority Communities Pilot Program, and the Emergency Broadband Benefit. |
| Content Provider | A website or organization that handles the distribution of online content such as blogs, videos, music or files. |
| Co-Op | Also Known As: Co-Op - An autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly owned enterprise. Cooperatives are democratically owned by their members, with each member having one vote in electing the board of directors. |
| Customer Premises Equipment (CPE) | Refers to any piece of connected equipment that is used for accessing the Internet or generally accessing services on a provider network, whether directly or indirectly connected to that network. CPE can be provided by the telecommunications provider, such as a cable operator, telephone company or satellite provider. These companies either rent this equipment to the customer, provide it at no charge as part of the service, or allow a customer to purchase and provide their own equipment. |
| D | |
| Dark Fiber | Fiber that is in place but not being used for broadband services. ("non-lit" fiber, also see "Lit Fiber"). |
| Data Packet | Data is sent over the Internet as packets. One file is divided into many packets when it is sent, then reassembled into one file again at its destination. Using packets allows data to travel much faster since the individual packets are smaller than the original file and can travel separately over different routes before reassembling. |

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| Debt | Debt is an obligation that requires one party, the debtor, to pay money or other agreed-upon value to another party, the creditor. Debt is a deferred payment, or series of payments, which differentiates it from an immediate purchase. |
| Debt/EBITDA | A ratio measuring the amount of income generated and available to pay down debt before covering interest, taxes, depreciation, and amortization expenses. Debt/EBITDA measures a company's ability to pay off its incurred debt. |
| Demand Point Passed (DPP) | Total number of active and potential subscribers that an ISP's network could service. |
| Digital Divide | The Digital Divide, or Digital Canyon, is the gap between people who have access to affordable, reliable Internet service (and the skills and gadgets necessary to take advantage of that access) and those who lack it. |
| Digital Equity | Recognizes that digital access and skills are now required for full participation in many aspects of society and the economy. Digital Equity links Digital Inclusion to social justice and highlights that a lack of access and/or skills can further isolate individuals and communities from a broad range of opportunities. |
| Digital Inclusion | Implies that individuals and communities have access to robust broadband connections; Internet enabled devices that meet their needs; and the skills to explore, create and collaborate in the digital world. |
| Digital Literacy | The ability to leverage current technologies, such as smartphones and laptops, and Internet access to perform research, create content and interact with the world. |
| Digital Skills | Any skills related to operating digital devices or taking advantage of digital resources. |
| Digital Subscriber Line (DSL) | A group of technologies used to transmit data over telephone lines. DSL made high-speed Internet access possible for ordinary consumers without having to do a great deal of rewiring. "ADSL" stands for asymmetric digital subscriber line, meaning the data travels downstream and upstream at different rates. |
| Data Over Cable System Interface Specification (DOCSIS) | The international telecommunications standard for cable signaling data and spectrum sharing. |
| E | |
| Earnings Before Interest Taxes Depreciation And Amortization (EBITDA) | A company or project's earnings before interest, taxes, depreciation, and amortization is a measure of a company's profitability of the operating business only, thus before any effects of indebtedness, state-mandated payments, and costs required to maintain its asset base. |
| Economic Development Incentive | An array of benefits designed to promote new business activity or to encourage business or job retention. These benefits principally encompass tax and economic incentives provided by federal, state, or local governmental bodies. Other entities, such as utilities and non-profits, can also make |

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| | incentives available for these purposes. They accord the recipient, in some manner, a monetary benefit (i.e., tax incentives) or an in-kind benefit (e.g., state regulatory releases of environmental liability, municipal/Town infrastructure improvements). |
| Eligible Community Anchor Institution | A Community Anchor Institution that lacks access to gigabit-level broadband service. IIJA, Section 60102. |
| Eligible Entity | Under the Infrastructure, Investment and Jobs Act, an "eligible entity" is a state, a territory, the District of Columbia, or an eligible Tribal entity. IIJA, Section 60102. |
| Enterprise Value (EV) | A measure of a company's total value. It is a combination of the value of common stock, preferred stock, cash, and debt. Determining the value of public companies is much easier than private companies which don't make their financials available to the public. You can use the comparable company analysis approach, which involves looking for similar public companies. Using findings from a private company's closest public competitors, you can determine its value by using the EBITDA or enterprise value multiple. |
| Equity | The value that would be returned to a company's shareholders if all of the assets were liquidated and all of the company's debts were paid off. Equity financing involves selling a stake in your company or project in return for a cash investment. Unlike a loan, equity finance doesn't carry a repayment obligation. Instead, investors buy shares in the company in order to make money through dividends (a share of the profits) or by eventually selling their shares. |
| F | |
| FCC Registration Number (FRN) | The FCC Registration Number (FRN) is a 10-digit unique identifying number that is assigned to entities doing business with the Federal Communications Commission. The FRN is obtained through the Commission Registration System (CORES). |
| Feasibility Study | An analysis that considers all of a project's relevant factors—including economic, technical, legal, and scheduling considerations—to ascertain the likelihood of completing the project successfully. |
| Federal Communications Commission (FCC) | The FCC was created by the Communications Act of 1934 and today regulates "interstate communications by radio, television, wire, satellite, and cable in all 50 states, the District of Columbia and U.S. territories." |
| Fiber | A fiber optic cable is made up of bundles of hair-thin strands of very pure glass or plastic. Data passes over them in the form of light pulses created by lasers. Because of the purity of the glass or plastic, data can travel much farther and faster on fiber than on copper wires with much less loss of data. |

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| Fiber-To-The-Curb (FTTC) | The installation and use of optical fiber cable directly to curbs near homes or businesses. Coaxial cable or another medium carry signals the short distance from the curb to the home or business. As such, this system is inexpensive to employ. The basic idea of fiber to curb technology is that suitable wires can carry high-speed signals at short distances. The twisted wire pairs or coaxial cables have acceptable bandwidth loss while sending signals only a few hundred feet. Also known as integrated fiber in the loop (IFITL). |
| Fiber-To-The-Home (FTTH) | Equipment used in fiber access deployments where fibers extend all the way to the end-user premises and the equipment is designed and optimized for use in residential applications. |
| Fiber-To-The-Node (FTTN) | Equipment used in fiber access deployments where fibers extend to the network connection point/box/node in a neighborhood and no farther. |
| Fiber-To-The-Premises (FTTP) | The installation and use of optical fiber from a central point directly to individual buildings such as residences, apartment buildings and businesses to provide high-speed internet access. |
| Fixed Wireless Broadband Access | The use of wireless devices/systems in connecting two fixed locations, such as offices or homes. The connections occur through the air, rather than through fiber, resulting in a less expensive alternative to a fiber connection. |
| Formula Grant | A United States federal grant specifying a precise formula in the legislation creating the program. Formula grants include quantifiable elements, such as population, amount of tax effort, proportion of population unemployed or below poverty level, density of housing, or rate of infant mortality. |
| G | |
| General Obligation (GO) Bond | A municipal bond backed solely by the credit and taxing power of the issuing jurisdiction rather than the revenue from a given project. General obligation bonds are issued with the belief that a Town will be able to repay its debt obligation through taxation or revenue from projects. No assets are used as collateral. |
| Grant Adjusted Yield On Cost (YOC) | The percentage an unlevered broadband project pays out per year in EBITDA based on the initial cost of the project, but the grant is subtracted from total project cost. |
| Grant Anticipation Note (GAN) | Short-term municipal financing issued in anticipation of receiving a grant from the federal government or one of its agencies. |

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| Gross Profit Margin | The net sales less the cost of goods sold (COGS). In other words, it's the amount of money a company retains after incurring the direct costs associated with producing the goods it sells and the services it provides. The higher the gross margin, the more capital a company retains, which it can then use to pay other costs or satisfy debt obligations. Companies use gross margin, gross profit, and gross profit margin to measure how their production costs relate to their revenues. For example, if a company's gross margin is falling, it may strive to slash labor costs or source cheaper suppliers of materials.<br><br>Alternatively, it may decide to increase prices, as a revenue-increasing measure. Gross profit margins can also be used to measure company efficiency or to compare two companies of different market capitalizations. |
| Guaranteed Bank Loan | A guaranteed loan is backed by a third party, and if the borrower defaults, the third party repays the loan. |
| H | |
| High Cost Area | A "high-cost area" is an Unserved area in which the head of the National Telecommunications and Information Administration determines that the cost of deploying broadband service is higher than the average cost of deploying broadband service to other Unserved areas. The head of NTIA has flexibility in making the determination, also considering:<br><br>-the remote location of the area<br>-the population density of the area<br>-the unique topography of the area<br>-a high rate of poverty<br>-any other factor that contributes to the cost of deploying broadband service<br>IIJA, Section 60102. |
| I | |
| Incumbent And Competitive Local Exchange Carriers (ILEC) | Before the Telecommunications Act of 1996, telephone companies operated as legal monopolies in defined territories of service, called exchanges. After the 1996 act and its emphasis on competition, these carriers became incumbent local exchange carriers in their operating territories. At the same time competing local exchange carriers were allowed to enter any territory, build their own infrastructure, and offer services. |
| Indefeasible Right Of Use (IRU) | The effective long-term lease (temporary ownership) of a portion of the capacity of an international cable. IRUs are specified in terms of a certain number of channels of a given bandwidth. IRU is granted by the company or consortium of companies that built the (usually optical fiber) cable. Some |

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| | IRU legal agreements forbid resale of the capacity ownership. For at least one major international cable owner, an IRU ownership period is granted for 25 years. An IRU gives a large-scale Internet service provider (ISP) the ability to assure its own customers of international service on a long-term basis. |
| Industrial Development Bond (IRB) | Municipal debt securities issued by a government agency on behalf of a private sector company and intended to build or acquire factories or other heavy equipment and tools. |
| Infrastructure Investment & Jobs Act | Passed by the Senate on August 10, 2021, by the House of Representatives on November 5, 2021, and is expected to be signed into law by President Joe Biden on November 15, 2021, the Infrastructure Investment and Jobs Act (IIJA) is a landmark bipartisan bill providing $65 billion in funding for broadband infrastructure and deployment. |
| Inside Plant (ISP) | All cabling and equipment installed in a telecommunications facility. |
| Interconnection | The linking of numerous telecommunications networks to exchange user traffic. |
| Internet Protocol | The computer language that allows all the above-mentioned technologies to speak to each other. Before the invention of Internet protocol (IP), telephone networks could only transfer data on other telephone networks, cable networks on other cable networks and so on. IP makes the transfer of data technology-neutral, allowing networks everywhere to transfer data anywhere. |
| Internet Service Provider (ISP) | An organization that provides services for accessing, using, or participating in the Internet. Internet service providers can be organized in various forms, such as commercial, community-owned, non-profit, or otherwise privately owned. |
| L | |
| Last-Mile | The term that describes the last link connecting the provider's network to the customer's premises, either a house or a business. The last mile is the most expensive part of the network to build or upgrade because of the number of units involved. One fiber cable may be trenched down a street, but there may be twenty houses on the street that need to be connected. Upgrading the copper cable connection between each house and the fiber in the street would be the last mile. This last link can also be the reason customers often don't receive the level of Internet speed advertised by their provider. Since data travels more slowly on copper compared to fiber, when the data hits the copper, it slows down. |
| Latency/ Ping | The reaction time of your connection. How quickly your device gets a response after you've sent out a request. A low latency (fast ping) means a more responsive connection. Latency is measured in milliseconds (ms). |

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| Letter Of Credit (LOC) | A letter from a bank guaranteeing that a buyer's payment to a seller will be received on time and for the correct amount. In the event that the buyer is unable to make a payment on the purchase, the bank will be required to cover the full or remaining amount of the purchase. |
| Limited-Tax General Obligation Pledge | Asks the issuing local government to raise property taxes if necessary to meet existing debt service obligations. However, this increase is bound by a statutory limit. With limited-tax general obligation pledges, governments can still use a part of already-levied property taxes, use another stream of income, or raise property taxes to an amount equating to existing debt service payments to answer its debt obligations. |
| Lit Fiber | An active fiber optic cable capable of transmitting data. |
| Loan | A type of credit vehicle in which a sum of money is lent to another party in exchange for future repayment of the value or principal amount. In many cases, the lender also adds interest and/or finance charges to the principal value which the borrower must repay in addition to the principal balance. |
| Local Area Network (LAN) | A group of network devices that are on a high-speed connection and typically within the same building or location. |
| Local Coordination | The process of grant applicants engaging communities they intend to serve, and the right of refusal among communities held by communities for broadband. Language in the local coordination component is going to drive community |
| Local Multipoint Distribution Service (LMDS) | A wireless broadband service that uses microwave signals to render communications service – voice, data, Internet – to customers within the last mile. |
| Low-Cost Broadband Service Option | Under the Infrastructure, Investment and Jobs Act, each state will submit to NTIA its own definition of a "low-cost broadband service option." Each state's definition shall apply to the award recipients that receive funds from the state in question. "Nothing in this title may be construed to authorize the Assistant Secretary or the National Telecommunications and Information Administration to regulate the rates charged for broadband service." IIJA Section 60102, subsection (h)(5)(D). |
| Long Term Evolution (LTE) | A 4G wireless broadband technology that provides speeds up to 100 Mbps download and 30 Mbps upload. |
| M | |
| Make Ready Work | Before an Internet Service Provider (or any company) can add a new attachment or line to a utility pole, the existing attachments may need to be moved around so that the pole can be made ready to handle a new attachment or line. This is known as 'Make Ready Work.' The reason Make Ready Work is necessary is that, under Federal Law, to prevent the risk of outages or other issues, lines on utility poles must be |

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| | spaced a certain distance apart from each other based on how many lines are on the pole. Under federal guidelines, Make Ready Work must occur sequentially, meaning that attachments can only be moved in the order with which they were originally placed on the line. This process can create massive delays, as well as other large disruptions in high traffic areas, such as alongside major roadways. In addition, the make ready work can take months, or even years, to complete as every company involved must send out their own approved contractor to move only their respective attachment. Each contractor must also schedule their work to not conflict with other contractors performing Make Ready Work, as well as considering other local factors, such as weather, traffic, and maintenance work (such as road paving). These factors must be considered as the United States primarily uses aerial work platforms to perform Make Ready Work. |
| Match Funding | The portion of the project or program costs that are not paid by the funding agency. If the award is federal, only non-federal expenses qualify as cost sharing. Most broadband grant programs require between 25% to 50% matching capital. Common private match capital sources include equity, debt, and forward-receivables purchases. For more information about match capital including capital providers, see the Match Capital channel.<br>Notes - Sub-grantees are required to provide a contribution of at least 25% derived from non-Federal funds (or funds from a Federal regional commission or authority), except in high-cost areas. Waivers to match can be granted at the discretion of NTIA.<br>Eligible Sources - While most applicants will get their match capital from their own balance sheet, or through a combination of equity and / or debt investors, the match may also be provided by the State, a unit of local government, a utility company, a cooperative, a nonprofit organization, a for-profit company, regional planning or governmental organization, a Federal regional commission or authority, or an combination thereof. May include in-kind contributions and may include funds that were provided to an Eligible Entity or sub-grantee under:<br>-Families First Coronavirus Response Act<br>-The CARES Act<br>-Consolidated Appropriations Act 2021<br>-The American Rescue Plan Act of 2021<br>-Any amendment made by an Act described above<br>For definition, Federal regional commission or authority means:<br>-Appalachian Regional Commission<br>-Delta Regional Authority |

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| | -Denali Commission<br>-Northern Border Regional Commission |
| Mezzanine Debt | Any subordinated debt or preferred equity instrument that represents a claim on a company's assets which is senior only to that of the common shares. Mezzanine financings can be structured either as debt or preferred stock. Mezzanine debt bridges the gap between debt and equity financing and is one of the highest-risk forms of debt—being subordinate to pure debt but senior to pure equity. |
| Middle mile/ Backhaul | The section of the network that connects the last mile portion of the network to the service provider's core network, where the services such as broadband, TV, and phone service originate from. More specifically, any broadband infrastructure that does not connect directly to an end-user location, including an anchor institution; and includes leased dark fiber, interoffice transport, backhaul, carrier-neutral internet exchange facilities, carrier-neutral submarine cable landing stations, undersea cables, transport connectivity to data centers, special access transport, and other similar services; and wired or private wireless broadband infrastructure, including microwave capacity, radio tower access, and other services or infrastructure for a private wireless broadband network, such as towers, fiber, and microwave links. |

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| Millimeter Wave | Millimeter waves are also known as extremely high frequency (EHF). It's a radio frequency that would allow transmission frequencies between 30 GHz and 300 GHz, compared to 5 GHz frequencies used by previous mobile devices. It also has wavelengths between 1 mm and 10 mm, compared to the several-dozen centimeter wavelengths possessed by smartphones' current radio waves. At this point in time, millimeter waves are only used by radar systems like satellites. But mobile network providers have already started utilizing EHF in various ways, making it a new and promising approach. There are two ways to increase the speed of wireless data transmission. The first is increasing spectrum utilization. The second is increasing the spectrum bandwidth, often seen as a more simple and direct approach. That is the approach that millimeter waves would provide for 5G to increase transmission speeds. |
| Mobile | Mobile wireless Internet, accessed via smartphones. Data is transferred between cell phone towers, which are connected to the service provider by fiber. |
| Multiple Dwelling Unit | Residential duplexes, triplexes, fourplexes, apartment buildings, condominiums, mobile home parks, trailer courts, or similar types of multiple dwelling unit arrangements on one parcel of land. |
| Municipal Bond | A debt security issued by a state, municipality, or Town to finance its capital expenditures, including the construction of highways, bridges, or schools. They can be thought of as loans that investors make to local governments. Municipal bonds are often exempt from federal taxes and most state and local taxes (for residents), making them especially attractive to people in higher income tax brackets. |
| N | |
| National Telecommunications And Information Administration (NTIA) | The National Telecommunications and Information Administration is an agency of the U.S. Department of Commerce. The NTIA resides within the Executive Branch of the federal government and is the president's principal advisor of telecommunications matters. By contrast, the Federal Communications Commission - the other agency with significant telecommunications- and broadband-related responsibilities - is an independent agency outside of the official purview of the White House. NTIA has existed since 1978 and has numerous communications responsibilities. It is the principal federal agency responsible for administering grants and funding under the Infrastructure Investment and Jobs Act. |
| Network Node | A connection point in a communications network. Each node is an endpoint for data transmissions or redistribution. Nodes have either a programmed or engineered capability to |

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| | recognize, process and forward transmissions to other network nodes. |
| Nielsen's Law Of Internet Bandwidth | A high-end user's connection speed grows by 50% per year. |
| Notice Of Funding Opportunities (NOFO) | Notice of Funding Opportunities (NOFO) describe the requirements under which a federal agency will award grants for funding as instructed by a specific law. In this case, it's the Infrastructure, Investment, and Jobs Act, Public Law 117-58, November 15th. 2021.<br><br>The Infrastructure, Investment, and Jobs Act, provides new federal funding for the Assistant Secretary to make grants on a competitive basis for the deployment of broadband infrastructure. It also provides funding for middle mile projects, tribal broadband funding and digital inclusion and digital equity activities |
| O | |
| Open Access Network | Networks that offer wholesale access to network infrastructure or services provided on fair and reasonable terms with some degree of transparency and nondiscrimination. |
| Operating Margin (EBITDA Margin) | A measure of a company's operating profit as a percentage of its revenue. Knowing the EBITDA margin allows for a comparison of one company's real performance to others in its industry. EBITDA margin is calculated by dividing EBITDA by revenue. |
| Optical Line Terminal (OLT) | The device that serves as your ISPs endpoint of the passive optical network (PON). The OLT also provides the interface between a PON and your ISP's core network. Simply put, an OLT is ISP equipment. The OLT is the device that exists at your ISPs central hub. An OLT has a few purposes:<br>-Control the information flowing upstream and downstream.<br>-Convert the standard signals used by fiber optic service to the frequency and framing used by a PON system.<br>-Coordinate the multiple analog or digital signals that are combined into one signal (called multiplexing) that happens between the ONT conversion devices.<br>The upstream channel transmits different types of data and voice traffic from users to the ISP. The downstream channel is what receives data, voice and video traffic and sends it to all ONT devices on your network. |

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| Optical Network Terminal (ONT) | The device that serves as the telecommunication chain's endpoint of the PON on your end. Another abbreviation to know is an ONU, which stands for Optical Network Unit. ONU and ONT are often used interchangeably. More or less, they are the same. Simply put, an ONT/ONU refer to the user side equipment.<br><br>The ONT/ONU is the device that exists at your home or office. The ONT acts as an optical modem and communicates with your ISP through a fiber optical cable. The ONT sends user data upstream to the OLT and receives data on the downstream channel.<br><br>ONT and OLT are essential devices in a PON network system. |
| Outside Plant (OSP) | In civilian telecommunications, outside plant refers to all of the physical cabling and supporting infrastructure (such as conduit, cabinets, tower or poles), and any associated hardware (such as repeaters) located between a demarcation point in a switching facility and a demarcation point in another switching center or customer premises. |
| P | |
| Packet Loss | Occurs when a packet of data being sent over the internet is not received or is incomplete. This is described in percentage of packets lost compared to packets sent. Packet loss in most cases is a result of poor signal/line quality. |
| Peering And Transit Agreements | Agreements that govern moving one entity's data traffic over another entity's network. With peering agreements, network owners allow each other's traffic to move over their networks at no cost or in some kind of cost-sharing arrangement. With transit agreements, the entity that wants to move the data (it may be an ISP or a content provider like Netflix) must pay the network owner to use their network. If a provider moves its own customers' data on its own network (e.g., sending an email to someone served by the same provider), there are no fees. If two entities don't have an agreement, the data may have to travel farther around on networks they do have agreements with, which can also slow traffic down. |
| Point of Presence (POP) | The particular place or facility where local Internet service providers connect to other networks. Distance from the Point of Presence can affect service availability and pricing. |
| Point To Point | A Point to Point Connection is a private data connection securely connecting two or more locations for private data services. A point to point connection is a closed network data transport service which does not traverse the public Internet and is inherently secure with no data encryption needed. Point to Point connections are available in a range of bandwidth speeds including point to point T1, point to point Ethernet or point to point DS3. A point to point connection |

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| | provides unparalleled quality of service (QoS) as it is not a shared service (a private line) and follows the same direct network path every time. Point to Point links are used by businesses to provide reliable, secure point to point network data service for applications including credit card processing, file sharing, data backup, point to point VOIP, and video conferencing. A point to point network can also be configured to carry voice, video, Internet, and data services together over the same point to point connection. Point to Point circuits are also known as a Point to Point Link, Private Line, Leased Line, or Data Line. |
| Preferred Equity | A type of shareholder class. When a company files for bankruptcy, equity and debt holders are paid in a specific order that is dependent on the type of financing they are holding (also called the capital stack): 1. Bondholders (debt) 2. Preferred equity 3. Common stock |
| Project Finance | Project finance is the funding (financing) of long-term infrastructure using a non-recourse or limited recourse financial structure. The debt and equity used to finance the project are paid back from the cash flow generated by the project. |
| Public-Private Partnership (PPP) | Arrangements in which a governmental unit engages a private party to deliver an integrated solution for the design, construction, financing, operation and/or management of new or existing government-owned infrastructure projects. |
| Public Utility Company | An organization that maintains the infrastructure for a public service (often also providing a service using that infrastructure). Public utilities are subject to forms of public control and regulation ranging from local community-based groups to statewide government monopolies. Public utilities are meant to supply goods/services that are considered essential; water, gas, electricity, telephone, and other communication systems represent much of the public utility market. |
| R | |
| Revenue Bond | A category of municipal bond supported by the revenue from a specific project, such as a toll bridge, highway, or local stadium. Revenue bonds that finance income-producing projects are thus secured by a specified revenue source. Typically, revenue bonds can be issued by any government agency or fund that is managed in the manner of a business, such as entities having both operating revenues and expenses. |
| Revolving Credit Line | A type of financing that allows a borrower to maintain an open credit line up to a specified limit and make minimum monthly payments based on the balance and interest rate per the credit agreement. A revolving credit line typically comes |

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| | with a variable interest rate set by a bank, meaning it can fluctuate with market conditions. |
| Rights-of-Way (ROW) | ROW are legal rights to pass through property owned by another. ROW are frequently used to secure access to land for digging trenches, deploying fiber, constructing towers and deploying equipment on existing towers and utility poles. |
| Rural Digital Opportunity Fund (RDOF) | The RDOF is the latest iteration of the FCC's universal service fund (USF), more recently referred to as the Connect America Fund (CAF). This program was developed decades ago to fund the construction and operation of telecommunications networks, and later, broadband networks. The goal of the program was to ensure comparable telecommunications services at affordable costs to rural Americans, to be on par with their urban counterparts. The initial focus of the USF was telephone service, but it has shifted focus in recent years to broadband service through the CAF.<br><br>The RDOF is an extension of the CAF and will provide $20.4 billion in funding over a ten-year period to support broadband networks in rural communities across the country. The funding roots of RDOF come from traditional high-cost universal service funding previously earmarked for territories served by large "price cap" telecom carriers such as CenturyLink, Frontier, AT&T, and Verizon. Historically, the FCC provided this funding directly to these legacy telecom carriers to support broadband service in the rural communities served by them. But RDOF changed this process significantly. |
| Rural Electrical Cooperatives (RECs) | Electric cooperatives play a vital role in transforming communities. They are energy providers that act as engines of economic development in rural areas, responsible for 42% of U.S. electric distribution lines. These local energy and technology providers are shaped by the specific needs of the communities they serve, powering over 20 million businesses, homes, farms, and schools in 48 states.<br><br>RECs are eligible to apply for and win IIJA broadband funding. |
| Rural Utility Service | A division of the U.S. Department of Agriculture, Rural Utility Service grew out of the Depression-era Rural Electrification Administration. Its mission is to help provide public utilities—water and sewer, electrification, and telecommunications—to rural areas through public-private partnerships providing loans and grants. RUS is one of three agencies that make up USDA Rural Development (including Rural Business-Cooperative Service and Rural Housing Service). |
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| Satellite Internet | Internet service provided via satellite. Satellite can be the only option for remote residents, but it is generally considered slow, less reliable, and more expensive than other options if and when they are available. |
| Secured Debt | Debt that is backed by property, like a car or a house. Should you default on the repayment of the loan or debt, the creditor can take the collateral instead of opening a debt collection on your record or suing you for payments. |
| Security | A certificate or other financial instrument that has monetary value and can be traded. Securities are generally classified as either equity securities, such as stocks and debt securities, such as bonds and debentures. |
| Senior Debt | Borrowed money that a company must repay first if it goes out of business. |
| Simple Agreement For Future Equity (SAFE) | An agreement between an investor and a company that provides rights to the investor for future equity in the company similar to a warrant, except without determining a specific price per share at the time of the initial investment. |
| Spectrum | A conceptual tool used to organize and map the physical phenomena of electromagnetic waves. These waves propagate through space at different radio frequencies, and the set of all possible frequencies is called the electromagnetic spectrum. |
| Subgrantee | The government or other legal entity to which a subgrant is awarded and which is accountable to the grantee for the use of the funds provided. Under the Infrastructure, Investment and Jobs Act, the grantee must be an eligible entity. |
| Subordinated Debenture | An unsecured loan or bond that ranks below other, more senior loans or securities with respect to claims on assets or earnings. In the case of borrower default, creditors who own subordinated debt will not be paid out until after senior bondholders are paid in full. |
| Subsidiarity | Subsidiarity is a principle of social organization that holds that social and political issues should be dealt with at the most immediate (or local) level that is consistent with their resolution. |
| Symmetric | When the upload and download speeds match. A rate of 10 Mbps down/10 Mbps up would be symmetric. |
| T | |
| Take Rate | The percentage of potential subscribers who are offered the service that actually do subscribe. Within the context of information infrastructure investment, take rate has become a byword for network viability and success, making it a key economic driver of the investment. |
| Tax-Exempt Debt | An investment in which the income produced is free from federal, state, and/or local taxes. Most tax-exempt securities come in the form of municipal bonds, which represent obligations of a state, territory or Town. For some investors, |

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| | U.S. Savings Bond interest may also be free from federal income taxes. |
| Taxable Debt | A debt security whose return to the investor is subject to taxes at the local, state, or federal level, or some combination thereof. An investor trying to decide whether to invest in a taxable bond or tax-exempt bond should consider what they will have left in income after taxes are taken. |
| Telecommunications Act Of 1996 | The Telecommunications Act of 1996 was the first significant overhaul of United States telecommunications law in more than sixty years, amending the Communications Act of 1934. The Act, signed by President Bill Clinton, represented a major change in American telecommunication law, since it was the first time that the Internet was included in broadcasting and spectrum allotment. According to the Federal Communications Commission (FCC), the goal of the law was to "let anyone enter any communications business – to let any communications business compete in any market against any other." The legislation's primary goal was deregulation of the converging broadcasting and telecommunications markets. |
| Telemedicine | The use of high-speed, high-capacity Internet to support long-distance healthcare services, patient and provider education and enhanced healthcare administration. |
| Tier 1, 2, 3 | Classification indicating the size of a service provider. Tier 1 providers are the largest, such as AT&T, CenturyLink, Zayo, and Verizon, with network systems that span the globe. They can generally send data anywhere without having to pay transit fees, either because they own the network, or they have peering agreements with other networks. A Tier 2 network “peers” with many networks, but also has to pay some transit fees. A Tier 3 service provider must pay transit fees to access the Internet. |
| Tribal Broadband Connectivity Program | The Tribal Broadband Connectivity Program is a $980 million program directed to tribal governments to be used for broadband deployment on tribal lands, as well as for telehealth, distance learning, broadband affordability, and digital inclusion. NTIA is continuing to review the more than 280 applications received during the application window, which closed on Sept. 1, 2021. The Tribal Broadband Connectivity Program will announce additional awards on a rolling basis as they go through NTIA's review process. |
| U | |
| Underserved | A location that, as determined in accordance with the broadband DATA maps, is (1) Not an Unserved location, and (2) Lacks access to reliable broadband service with a speed of not less than 100 megabits per second for downloads, 20 megabits per second for uploads, and a latency sufficient to support real-time, interactive applications. |

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| Underserved Service Project | According to the BEAD Program, a project in which not less than 80% of broadband-serviceable locations served by the project are Unserved locations or Underserved locations. |
| Universal Service Fund | A central principle of the Communications Act of 1934 was that all Americans should have access to a basic level of telecommunications service—universal service—and many policies were enacted to carry out that goal. The Telecommunications Act of 1996 created the Universal Service Fund, a pool of money collected from telecommunications companies and used for building and maintaining telecommunications infrastructure and services in high-cost areas. Four programs are supported by the Fund: the High-Cost Program, Lifeline Program, Rural Health Care Program, and Schools and Libraries Program. Telecommunications companies may charge a Universal Service Fund fee back to customers to help recover some of their contribution to the program. |
| Unlevered Returns | The implied rate of return a company expects to earn without the effect of debt. |
| Unlimited-Tax General Obligation Pledge | Is similar to the limited-tax pledge. The only difference is that the local government is asked to increase property tax rates to necessary levels — up to a maximum of 100% — to cover delinquencies from taxpayers. Residents must first agree to increase property taxes to the necessary amounts required for the bonds. |
| Unsecured Debt | Debt that is not backed by an asset pledged as collateral. |
| Unserved | A broadband-serviceable location, as determined in accordance with the broadband DATA maps, that has no access to broadband service or lacks access to reliable broadband service with a speed of not less than 25 megabits per second for downloads, 3 megabits per second for uploads, and a latency sufficient to support real-time, interactive applications. |
| Unserved Service Project | According to the BEAD Program, a project in which not less than 80% of broadband-serviceable locations served by the project are Unserved locations. |
| Upload And Download | The direction of the data between the end user and the service provider. Something moving “upstream” or “uploading” is moving from the end user’s computer or device to the service provider, while data moving “downstream” or “downloading” is moving from the service provider to the end user. When referring to speed, “10 down” means data is moving downstream to the end user at a rate of 10 megabits per second or Mbps, while “1 up” means data is moving at a rate of 1 Mbps up from the end user. Downstream is important in applications like streaming video, while upstream is important for end users who need to |

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| | send large files somewhere, for instance, to a customer or to a hospital. |
| W | |
| Wi-Fi | A technology that produces a wireless local area network allowing a computer or other device to connect to the Internet wirelessly. Equipment in the device communicates with the Wi-Fi router, which is connected to the network with some type of physical cable or wire. Depending on the system's power, the area can be as small as a room or cover several square miles. Examples include the Wi-Fi router in a home, a hotspot at a coffee shop, or citywide Wi-Fi networks. Wi-Fi is a trademark of the Wi-Fi Alliance, an organization that certifies equipment for interoperability. A generic term is "wireless local area network." |
| Wireless | A short name for fixed wireless (as opposed to mobile wireless). Fixed wireless technology transmits data between two fixed antennas using radio waves, including microwaves. Unlike Wi-Fi, the radio beams are often kept narrow to keep up the strength of the signal. Antennas are preferably set up high on buildings since line of sight is necessary. |
| WISP | An ISP that provides service through a wireless network. |
| Working Capital/ Net Working Capital | The difference between a company's current assets—such as cash, accounts receivable/customers' unpaid bills, and inventories of raw materials and finished goods—and its current liabilities, such as accounts payable and debts. A measure of a company's liquidity and short-term financial health. |
| Y | |
| Yield On Cost (YOC) | The percentage an unlevered broadband project pays out per year in EBITDA based on the initial cost of the project. This metric is useful to compare the potential return to investors across multiple geographic regions when all project assumptions are held constant. |

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Town Council

# AGENDA ITEM REPORT

**K.1**

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| **To:** | Town Council |
| **Subject:** | Discuss, consider and act upon appointing one member to serve on the 4B Economic Development Board. |
| **Meeting:** | Town Council - August 25, 2025 |
| **Department:** | Town Secretary |
| **Staff Contact:** | Rachel Ramsey |

## SUGGESTED ACTION:

## BACKGROUND INFORMATION:

On Monday, July 7, 2025, Member Eldridge tendered his resignation from the 4B Economic Development Board effective immediately. This appointment would fill that seat and at this time Staff has only received one application for this position (application presented to the Council on the dais). Application received is from Veronica Martinez-Cantu.

Town Council

# AGENDA ITEM REPORT

**K.2**

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| **To:** | Town Council |
| **Subject:** | Discuss, consider and act upon Resolution 2025-18 approving a master equity lease agreement, maintenance management and fleet rental agreement with Enterprise Fleet Management, Inc. |
| **Meeting:** | Town Council - August 25, 2025 |
| **Department:** | Finance |
| **Staff Contact:** | Miykael Reeve |

## SUGGESTED ACTION:

Staff recommends approval.

## BACKGROUND INFORMATION:

The Town has an aging fleet, This agreement would allow the Town to replace 21 vehicles for the fraction of the cost. These vehicles will then be returned to Enterprise after the term of the agreement and any remaining equity would be returned to the Town. This agreement is in use by the City of Mesquite and several other cities that have seen a decrease to the overall repairs and maintenance budget as well as the cost of vehicle replacements.

## FINANCIAL IMPACT:

Approving this agreement would allow Council to reduce the amount transferred into the vehicle replacement fund.

## PUBLIC NOTICE:

## ATTACHMENTS:

RES 2025-19 Enterprise.docx
Assignment Agreement to Sell FM Customer Vehicles.pdf
Open-Ended Sample Lease Schedule.pdf
Enterprise Fleet Synopsis - Sunnyvale.pdf

**RESOLUTION 2025-19**

**A RESOLUTION APPROVING A MASTER EQUITY LEASE AGREEMENT, MAINTENANCE MANAGEMENTS AND FLEET RENTAL AGREEMENT WITH ENTERPRISE FLEET MANAGEMENT, INC. AND THE TOWN OF SUNNVALE**

**WHEREAS,** the Town of Sunnyvale, Texas ("Town"), a home-rule municipality, is authorized by state law and the Charter to adopt and implement necessary and reasonable resolutions in the best interests of its citizenry; and

**WHEREAS,** the Town agrees to lease vehicles from Enterprise Fleet Management; and

**WHEREAS,** the Town agrees to enter into a maintenance agreement for the Enterprise owned vehicles; and

**WHEREAS**, the Town agrees to allow Enterprise to sell vehicles on its behalf; and

**NOW, THEREFORE, BE IT RESOLVED** by the Town Council ("Town Council") of the Town of Sunnyvale, Texas as follows:

**Section 1.** That the above recitals are found to be true and correct and they are incorporated herein as findings of the Town Council for all purposes

**Section 2.** That this Agreement is hereby authorized and approved and the Town Manager of the Town of Sunnyvale is hereby authorized, empowered and directed to execute the Agreement for and on behalf of and in the name of the Town of Sunnyvale with such ministerial changes in the terms and provisions thereof as said Town Manager shall in her sole discretion deem necessary and in the best interest of the Town of Sunnyvale, her signature being conclusive evidence that she did so deem any such changes to be necessary or desirable and in the best interest of the Town of Sunnyvale.

**Section 3.** That Rachel Ramsey, Town Secretary of the Town of Sunnyvale, is hereby authorized, empowered and directed to certify and attest any documents which she may deem necessary or appropriate to consummate the transaction contemplated by the Agreement.

**Section 4.** Severability. It is hereby declared to be the intention of the Town Council that if any of the sections, paragraphs, sentences, clauses and phrases of this Resolution shall be declared unconstitutional or otherwise illegal by the valid judgment or decree of any court of competent jurisdiction, such event shall not affect any of the remaining phrases, clauses, sentences, paragraphs and sections of this Resolution, since the same would have been enacted by the Town Council without the incorporation in this

Resolution of any such unconstitutional or illegal phrase, clause, sentence, paragraph or section.

**Section 5.** Compliance. The Town Council finds that all notices required by law have been given. Notice of this Resolution was posted, and this Resolution was passed in accordance with the Open Meetings Act.

**Section 6.** This Resolution shall take effect immediately upon its passage and approval by the Town Council and it is SO RESOLVED.

PRESENTED AND PASSED on this the 25th day of August, 2025, by a vote of _____ ayes and

_____ nays at a regular meeting of the Town Council of the Town of Sunnyvale, Texas.

_____
Saji George
Mayor

ATTEST:

_____
Rachel Ramsey
Town Secretary

## AGREEMENT TO SELL CUSTOMER VEHICLES

THIS AGREEMENT is entered into by and among the entities set forth on the attached Schedule 1 (hereinafter each an "Enterprise Entity" and collectively the "Enterprise Entities") and Enterprise Fleet Management, Inc. (hereinafter referred to as "EFM") (the "Enterprise Entities" and "EFM" shall collectively be referred to as "Enterprise") on the one hand and _____ (hereinafter referred to as "CUSTOMER"), on the other hand on this _____ day of _____, _____ (hereinafter referred to as the "Execution Date").

RECITALS

A. Enterprise FM Trust and CUSTOMER have entered into an agreement whereby Customer has agreed to lease certain vehicles set forth in the agreement between Customer and Enterprise FM Trust;

B. EFM is the servicer of the lease agreement between Enterprise FM Trust and Customer;

C. Enterprise, from time to time, sells vehicles at wholesale auctions and other outlets; and

D. The CUSTOMER and Enterprise wish to enter into an agreement whereby Enterprise will sell at wholesale, CUSTOMER's vehicles set forth on Exhibit A, attached hereto and incorporated herein, as supplemented from time to time (collectively, the "Vehicles").

NOW, THEREFORE, for and in consideration of the mutual promises and covenants hereinafter set forth, the parties agree as follows:

TERMS AND CONDITIONS

1. Right to Sell: Enterprise shall have the non-exclusive right to sell any Vehicles assigned to Enterprise by CUSTOMER, or under consignment from Customer to Enterprise, as the case may be dependent upon applicable law in the jurisdiction in which the Vehicle is to be sold. For Vehicles to be sold under assignment, Customer shall assign the title to Enterprise and deliver the assigned title to Enterprise with the Vehicle. For Vehicles to be sold under consignment, Customer shall execute a consignment agreement granting Enterprise power in any and all matters pertaining to the transfer of Vehicle titles and any papers necessary thereto on behalf of CUSTOMER.

2. Additional Documentation: Where necessary, CUSTOMER shall execute any and all additional documentation, required to effectuate the sale of Vehicle(s).

3. Service Fee: For each Vehicle sold, the CUSTOMER shall pay Enterprise an administrative fee of the lesser of $_____ or the maximum permitted by law ("Service Fee").

4. Sales Process: Enterprise shall use reasonable efforts in its sole discretion to sell each Vehicle. CUSTOMER may, at its discretion, place a Minimum Bid or Bid to be Approved (BTBA) on any Vehicle by providing prior written notification to Enterprise. Enterprise shall have full discretion to accept any bid at or above the designated minimum bid or BTBA. Absent any such minimum bid or BTBA, Enterprise shall have full discretion to accept any bid on a Vehicle.

5. Time for Payment:

(a) No later than twenty-one (21) business days after the collection of funds by Enterprise for the sale of a Vehicle, Enterprise will remit to the CUSTOMER an amount equal to the Vehicle sale price minus any seller fees, auction fees, Service Fees, towing costs, title service fees, enhancement fees and any expenses incurred by Enterprise while selling Vehicle, regardless of whether the purchaser pays for the Vehicle.

(b) Enterprise's obligations pursuant to Section 5(a) shall not apply to Vehicle sales involving mistakes or inadvertences in the sales process where Enterprise reasonably believes in its sole discretion that fairness to the buyer or seller justifies the cancellation or reversal of the sale. If Enterprise has already remitted payment to CUSTOMER pursuant to Section 5(a) prior to the sale being reversed or cancelled, CUSTOMER agrees to reimburse Enterprise said payment in full. Enterprise will then re-list the Vehicle and pay CUSTOMER in accordance with this Section 5. Examples of mistakes or inadvertences include, but are not limited, to Vehicles sold using inaccurate or incomplete vehicle or title descriptions and bids entered erroneously.

6. Indemnification and Hold Harmless: Except as otherwise provided herein, CUSTOMER agrees to indemnify, defend and hold EFM and each Enterprise Entity and their parents and affiliated entities, employees and agents harmless to the extent any loss, damage, or liability arises from EFM or any Enterprise Entity's use or operation of a vehicle and for the negligence or willful misconduct of Customer, its agents or employees, and for its breach of any term of this Agreement. The parties' obligations under this section shall survive termination of this Agreement.

7. Risk of Loss: Notwithstanding anything to the contrary hereunder, CUSTOMER shall assume all risk of loss for damage to or loss of any Vehicle or any part or accessory regardless of fault or negligence of CUSTOMER, Enterprise, EFM or any other person or entity or act of God.

8. Liens, Judgments, Titles and Defects: CUSTOMER represents and warrants it holds full legal title to each such Vehicle, title to each such Vehicle is clean and not subject to being branded for any reason, or requires any form of additional disclosure to a purchaser and that there are no open recalls on each such Vehicle. CUSTOMER shall defend, indemnify and hold Enterprise, EFM, their parents, employees and agents harmless from and against any and all claims, expenses (including reasonable attorney's fees), suits and demands arising out of, based upon, or resulting from any judgments, liens or citations that were placed on the Vehicle, defects in the Vehicle's title, or mechanical or design defects in the Vehicle.

9. Odometer: Neither EFM nor Enterprise assume responsibility for the correctness of the odometer reading on any Vehicle and the CUSTOMER shall defend, indemnify and hold EFM, Enterprise, their parents, employees and agents harmless from and against any and all claims, expenses (including reasonable attorney's fees), suits and demands arising out of, based upon or resulting from inaccuracy of the odometer reading on any Vehicle or any odometer statement prepared in connection with the sale of any Vehicle, unless such inaccuracy is caused by EFM, Enterprise, their employees or officers.

10. Bankruptcy: Subject to applicable law, in the event of the filing by CUSTOMER of a petition in bankruptcy or an involuntary assignment of its assets for the benefit of creditors, EFM or Enterprise may accumulate sales proceeds from the sale of all Vehicles and deduct seller fees, auction fees, Service Fees, towing costs, title service fees, enhancement fees and any expenses incurred by EFM or Enterprise while selling Vehicle from said funds. EFM or Enterprise will thereafter remit to CUSTOMER the net proceeds of said accumulated sales proceeds, if any.

11. Compliance with Laws: EFM, Enterprise and CUSTOMER shall comply with all federal, state, and local laws, regulations, ordinances, and statutes, including those of any state motor vehicle departments, department of insurance, and the Federal Odometer Act.

12. Insurance: CUSTOMER shall maintain and provide proof of Automobile Liability Insurance until the later of title transfer to purchaser of Vehicle or transfer of sales proceeds to Customer covering liability arising out of maintenance, use or operation of any Vehicle (owned, hired and non-owned) under this Agreement, with limits of not less than one million dollars ($1,000,000) per occurrence for bodily injury and property damage. EFM, Enterprise, and their subsidiaries and affiliates are to be named as Additional Insureds. This insurance shall be written as a primary policy and not contributing with any insurance coverage or self-insurance or other means of owner's financial responsibility applicable to EFM or Enterprise. CUSTOMER must waive and must require that its insurer waive its right of subrogation against EFM and Enterprise and their affiliates, employees, successors and permitted assigns on account of any and all claims CUSTOMER may have against EFM or Enterprise with respect to insurance actually carried or required to be carried pursuant to this Agreement.

13. Term: This agreement is effective on the Execution Date and shall continue until such time as either party shall notify the other party with thirty (30) days prior written notice to terminate the Agreement with or without cause.

14. Modification: No modification, amendment or waiver of this Agreement or any of its provisions shall be binding unless in writing and duly signed by the parties hereto.

15. Entire Agreement: This Agreement constitutes the entire Agreement between the parties and supersedes all previous agreements, promises, representations, understandings, and negotiations, whether written or oral, with respect to the subject matter hereto.

16. Liability Limit: EXCEPT TO THE EXTENT A PARTY HERETO BECOMES LIABLE FOR ANY DAMAGES OF THE TYPES DESCRIBED BELOW TO A THIRD PARTY AS A RESULT OF A THIRD PARTY CLAIM AND SUCH PARTY IS ENTITLED TO INDEMNIFICATION WITH RESPECT THERETO UNDER THE PROVISIONS OF THIS AGREEMENT, IN NO EVENT SHALL EITHER PARTY HEREUNDER BE LIABLE TO OTHER PARTY FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL, PUNITIVE, EXEMPLARY, OR INDIRECT DAMAGES (INCLUDING WITHOUT LIMITATION, LOSS OF GOODWILL, LOSS OF PROFITS OR REVENUES, LOSS OF SAVINGS AND/OR INTERRUPTIONS OF BUSINESS), EVEN IF SUCH PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17. Attorney's Fees: In the event that a party hereto institutes any action or proceeding to enforce the provisions of this Agreement, the prevailing party shall be entitled to receive from the losing party reasonable attorney's fees and costs for legal services rendered to the prevailing party.

18. Authorization: Each party represents and warrants to the other party that the person signing this Agreement on behalf of such party is duly authorized to bind such party.

19. Independent Contractor: EFM and Enterprise shall perform the services hereunder as an independent contractor of Customer and no term of this Agreement shall be deemed or construed to render CUSTOMER and EFM or Enterprise as joint venturers or partners.

20. Unsold Vehicles: Should such Vehicle not sell, Customer shall pick up Vehicle within five (5) business days of being provided notice that the Vehicle has not been sold and, for Vehicles assigned to Enterprise by Customer, Enterprise shall assign title back to CUSTOMER.

| "ENTERPRISE" | "CUSTOMER" |
|---|---|
| Signature: _____ | Signature: _____ |
| Printed Name: _____ | Printed Name: _____ |
| Title: _____ | Title: _____ |
| Date Signed: _____, _____ | Date Signed: _____, _____ |

Schedule 1

Enterprise Leasing Company of STL, LLC
Enterprise Leasing Company of Georgia, LLC
Enterprise Leasing Company of Florida, LLC
Enterprise Leasing Company of KS LLC
EAN Holdings, LLC
Enterprise Leasing Company of Orlando, LLC
Enterprise Leasing Company of Indianapolis, LLC
Enterprise Rent-A-Car Company of Boston, LLC
Enterprise Leasing Company of Denver, LLC
Enterprise Leasing Company of Chicago, LLC
Enterprise RAC Company of Maryland, LLC
Enterprise Leasing Company of Philadelphia, LLC
Enterprise RAC Company of Baltimore, LLC
Enterprise Leasing Company of Minnesota, LLC
Enterprise Leasing Company of Detroit, LLC
Enterprise Leasing Co of Norfolk/ Richmond, LLC
Enterprise Rent-A-Car Co of San Francisco, LLC
ELRAC, LLC
SNORAC, LLC
Enterprise Rent-A-Car Company of Sacramento, LLC
Enterprise Rent-A-Car Company of Los Angeles, LLC
Enterprise RAC Company of Cincinnati, LLC
CLERAC, LLC
Enterprise Rent-A-Car Company of Pittsburgh, LLC
Enterprise Rent-A-Car Company of Wisconsin, LLC
Enterprise Rent-A-Car Company of UT, LLC
CAMRAC, LLC
Enterprise Rent-A-Car Company of Rhode Island, LLC
Enterprise Leasing Company of Phoenix, LLC
Enterprise Leasing Company- Southeast, LLC
Enterprise Leasing Company- West, LLC
Enterprise Leasing Company- South Central, LLC
PENRAC, LLC
Enterprise Rent-A-Car Company of KY, LLC
Enterprise Rent-A-Car Company - Midwest, LLC
Enterprise RAC Company of Montana/Wyoming, LLC

# Open - End (Equity) Lease Schedule

**Quote No:**

Supplemental to and part of Master Equity Lease Agreement date:

**1. Lessee Name** **Delivery Date**
**Address** **Customer No**
**City** **State** **Postal Code**
**ATTN**
**Driver**
**Address**
**City** **State** **Postal Code**

**2. Lease Term** Commencing on the delivery date of the vehicle and ending 36 months after the first full monthly rental payment date.

**3. Vehicle Description**
**Year** 2009 **Make** Dodge **Model** Journey
**Series**
**License #** **Unit #** **Replacement Unit #** **VIN #**

**4. Monthly Rental and Other Payments Due**

**4A. Calculation of Monthly Rental**

| | |
|---|---|
| $0.00 | Capitalized Price of Vehicle |
| $0.00 | Initial License Fee |
| $0.00 | License and Certain Other Charges |
| $0.00 | Other |
| $0.00 | Extended Mechanical Service Program |
| $0.00 | Less Gain Applied From Prior Unit |
| $0.00 | Less Capitalized Price Reduction |
| $0.00 | Total Capitalized Amount (Delivered Price) |
| $0.00 | Depreciation Reserve |
| $0.00 | Monthly Lease Charge |
| $0.00 | **Total Monthly Rental Excluding Additional Services** |

**Additional Services**

| | |
|---|---|
| $0.00 | Full Maintenance[1] **Contract Miles** **Overmileage Charge** Per Mile |
| | **Incl: # Brake Sets (1 Set = 1Axle)** 0 **# Tires** 0 **Loaner Vehicle Not Included** |
| | Master Policy Enrollment Fees |
| $0.00 | Physical Damage Management Comp/Collision Deductible |
| $0.00 | Commercial Automobile Liability Enrollment |
| | Liability Limit $0.00 |
| $0.00 | Monthly Rental Sub-Total |
| $0.00 | Use Tax 0.0000 State |
| $0.00 | **Total Monthly Rental Including Additional Services** |

**4B. Initial Charges**

| | |
|---|---|
| $0.00 | Pro-Rated Rental |
| $0.00 | First Month's Rental |
| $0.00 | Security Deposit |
| $0.00 | Capitalized Price Reduction |
| $0.00 | Motor Vehicle Sales Tax on Capitalized Price Reduction |
| $0.00 | License and Certain Other Charges |
| $0.00 | Extended Mechanical Service Program |
| $0.00 | Aftermarket Equipment |
| $0.00 | Other: (See Page 2) |
| $0.00 | **Total Initial Charges** |

**4C. Service Charge** **Service Charge Due at Lease Termination**

**4D. Reduced Book Value** **Reduced Book Value at Lease Termination**

Quote based on estimated annual mileage of

**Special Provisions**

CONFIDENTIAL SAMPLE

As set forth in the Master Open - End (Equity) Lease Agreement, the terms and provisions contained in this schedule shall be conclusive and binding on Lessee unless Lessee objects in writing to the same within ten (10) days after the date of delivery of the vehicle.

Enterprise FM Trust, a Delaware statutory trust, is the owner of the vehicle covered by this Schedule. Enterprise FM Trust (not Enterprise Fleet Management) is and shall be deemed to be the Lessor of such vehicle under the Master Open - End (Equity) Lease Agreement and shall have all rights and obligations of the Lessor under the Master Open - End (Equity) Lease Agreement with respect to such vehicle. All rental and other payments owed by the Lessee with respect to such vehicle under the Master Open - End (Equity) Lease Agreement shall be paid to Enterprise Fleet Management in its capacity as the servicer for Enterprise FM Trust. All references in Sections 11(a) and 12 of the Master Open - End (Equity) Lease Agreement to the "Lessor" shall include any servicer(s) and/or other agent(s) for or of Enterprise FM Trust.

[1]The inclusion herein of references to maintenance fees/services are solely for the administrative convenience of Lessee. Notwithstanding the inclusion of such references in this [Invoice/Schedule/Quote], all such maintenance services are to be performed by Enterprise Fleet Management, Inc., and all such maintenance fees are payable by Lessee solely for the account of Enterprise Fleet Management, Inc., pursuant to that certain separate [Maintenance Agreement] entered into by and between Lessee and Enterprise Fleet Management, Inc.; provided that such maintenance fees are being billed by Enterprise FM Trust, and are payable at the direction of Enterprise FM Trust, solely as an authorized agent for collection on behalf of Enterprise Fleet Management, Inc.

# Open - End (Equity) Lease Schedule

Quote No:

**Aftermarket Equipment Totals**

| Description | (B)illed or (C)apped | Price |
|---|---|---|
| Total Billed | | $0.00 |
| Total Capitalized | | $0.00 |
| Total | | $0.00 |

**Other Totals**

| Description | (B)illed or (C)apped | Price |
|---|---|---|
| Initial Administration Fee | | $0.00 |
| Total Billed | | $0.00 |
| Total Capitalized | | $0.00 |
| Total | | $0.00 |

*** Report is based on ***
*** Delivery/Activation Date ***

enterprise
FLEET MANAGEMENT

*Prepared For:*

# Town of Sunnyvale


**Jennifer Bertram**
**Senior Fleet Consultant**

**469-358-4304**
**Phone**

Jennifer.Bertram@efleets.com
**EMAIL**






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FLEET MANAGEMENT

# FLEET SYNOPSIS | Town of Sunnyvale

## THE SITUATION

**Current fleet age is negatively impacting the overall budget and fleet operations**

- 15% of the light and medium duty fleet is currenlty 10 years or older
- 46% of the light and medium duty fleet is currenlty 5 years or older
- 8.2 years is the current average age of the fleet

## THE OBJECTIVES

**Identify an effective vehicle life cycle that maximizes potential equity at time of resale creating a conservative savings of over $403000 over next 10 years**

- Shorten the current vehicle life cycle from 8 years to 5 years
- Provide a lower sustainable fleet cost that is predictable year over year
- Free up more than $206,136 in capital from the resale of existing fleet in the first year
- Leverage an open-ended equity lease that recognizes equity and enables the Town of Sunnyvale to maintain a healthly life cycle

**Increase employee safety with newer vehicles**

- Currently:
    - 3 predate Electronic Stability Control standardization (2012)
        - ESC is the most significant safety invention since the seatbelt
    - 1 vehicles predate Anti-Lock Brake Stndardization (2007)

**Piggyback the T.I.P.S awarded RFP 2072513 that addresses the following:**

- Access to all fleet management services as applicable to the needs of the Town of Sunnyvale
- Supports the Town of Sunnyvale's need for fleet evaluation on a quarterly basis assessing costs and reviewing best practices

## THE RESULTS

- Reduce fuel costs by 35%
- Maintenance & Repair Expense by 30%
- Open-End Equity Lease will enable the Town of Sunnyvale to retain the equity from resale & reduce the age of the fleet
- Town of Sunnyvale will leverage Enterprise Fleet Management's ability to sell vehicles at 110.2% of the Commercial Value Index
- This will enable Town of Sunnyvale to replace 19 of its oldest vehicles within a year
- Replacing 46% of the oldest vehicles will provide safer, newer and more efficient models for employees

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# Fleet Analysis for Town of Sunnyvale

| Current Fleet | 41 | Fleet Growth | 0.00% | Proposed Fleet | 41 |
|---|---|---|---|---|---|
| Current Avg. Cycle | 8.2 | Annual Miles | 8,779 | Proposed Cycle | 5.0 |
| Est. Current Maint. | $132 | Percentage of Idle Time | 37% | Est. New Vehicle Maint | $91 |
| Current Fuel Economy | 11 | Cost of Fuel | $2.90 | Est. New Vehicle Fuel Economy | 14 |

| | Fleet Mix | | | | Fleet Cost | | | | | | | Annual | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fiscal Year Start | Fleet Size | Annual Needs | Owned | Leased | Purchase | Lease/Finance* | Upfront Aftermarket Equipment | Est. Maintenance | Est. Fuel | Owned Equity Credit | Leased Equity Credit | Fleet Budget | Net Difference | Savings Balance |
| Current | 41 | 5 | 41 | 0 | 294,883 | | 57,317 | 64,800 | 146,374 | 50,000 | | 513,374 | 0 | 0 |
| 2026 | 41 | 19 | 22 | 19 | | 216,578 | 45,625 | 44,388 | 112,492 | 206,136 | 0 | 212,947 | 300,427 | 300,427 |
| 2027 | 41 | 2 | 20 | 21 | | 241,384 | 2,875 | 42,928 | 112,046 | 67,842 | 0 | 331,391 | 181,983 | 482,410 |
| 2028 | 41 | 8 | 12 | 29 | | 346,485 | 54,500 | 45,977 | 109,925 | 138,738 | 0 | 418,150 | 95,224 | 577,635 |
| 2029 | 41 | 2 | 10 | 31 | | 378,965 | 25,000 | 48,357 | 109,712 | 58,199 | 0 | 503,835 | 9,539 | 587,173 |
| 2030 | 41 | 10 | 0 | 41 | | 520,059 | 77,250 | 44,795 | 104,073 | 191,917 | 313,220 | 241,040 | 272,334 | 859,508 |
| 2031 | 41 | 19 | 0 | 41 | | 520,059 | 45,625 | 44,795 | 104,073 | 0 | 41,535 | 673,017 | (159,643) | 699,865 |
| 2032 | 41 | 2 | 0 | 41 | | 520,059 | 2,875 | 44,795 | 104,073 | 0 | 69,386 | 602,416 | (89,042) | 610,823 |
| 2033 | 41 | 8 | 0 | 41 | | 520,059 | 54,500 | 44,795 | 104,073 | 0 | 11,122 | 712,304 | (198,930) | 411,893 |
| 2034 | 41 | 2 | 0 | 41 | | 520,059 | 25,000 | 44,795 | 104,073 | 0 | 91,030 | 602,896 | (89,522) | 322,371 |
| 2035 | 41 | 10 | 0 | 41 | | 520,059 | 77,250 | 44,795 | 104,073 | 0 | 313,220 | 432,956 | 80,418 | 402,788 |

EST. TOTAL 10-YEAR SAVINGS $402,788

* Lease Rates are conservative estimates

**Estimated Current Fleet Equity is based on the current fleet "sight unseen" and can be adjusted after physical inspection

***Net Cash is the sum of the 10 year savings from the Fleet Planning Analysis and the Estimated Current Fleet Equity

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# CASE STUDY | Town of Sunnyvale

## CASE STUDY | CITY OF FREDERICKSBURG, TX

FLEET MANAGEMENT

# City lowers fleet maintenance costs by $127K with Fleet Program.



**BACKGROUND**

| | |
|---|---|
| Location: | Fredericksburg, TX |
| Industry: | Government |
| Total vehicles: | 75 vehicles |

**THE CHALLENGE**

Each year, the City of Fredericksburg was faced with high vehicle repair and maintenance costs for an aging fleet. The City's 75 vehicles had an average age of 12 years resulting in unexpected maintenance issues each year. The City was spending $153,300 per year on fleet maintenance, averaging over $2,000 per truck. Searching for solutions within their budget, the city needed to make managing their vehicles easier, from purchasing to maintenance and driver fueling options.

**THE SOLUTION**

Enterprise Fleet Management presented a proactive fleet replacement plan to the City of Fredericksburg that would reduce the average age of their fleet by 60% helping reduce operational and maintenance expenses. With integrating newer vehicles into the City's fleet, employees would drive safer, more reliable vehicles with minimal maintenance needs. Long-term, this plan has helped save an average of $29,284 per year in fleet related expenses.

**"We have truly enjoyed the partnership with Enterprise Fleet Management. Things are much easier to manage now, and we are saving money on vehicle maintenance."**

*– Brian Peters, Programs Manager*

Enterprise Fleet Management also recommended replacing all vehicles owned by the city within a 5-year time frame. This approach will help The City lower maintenance expense from $153,300 per year to $26,016 per year.

**THE RESULTS**

Since their partnership began 4 years ago, Enterprise Fleet Management has helped The City of Fredericksburg transition their fleet vehicles from an average age of 12 years to 4. The City has experienced a significant reduction in costs associated with their fleet program and a decrease in employee downtime. This is due to The City putting their trust in the local Enterprise Fleet Management team's expertise and the fleet planning analytics backing each recommendation. The partnership has given the City visibility into all vehicle costs and budget accordingly.

**To learn more, visit efleets.com or call 877-23-FLEET.**

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### Key Results

MAINTENANCE LOWERED BY **83%**

**SAVED $62,052** OVER THE LAST 2 REPLACEMENT YEARS

**5 YEAR** REPLACEMENT PLAN

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# PROGRAM RESOURCES | Town of Sunnyvale

## ACCOUNT MANAGEMENT

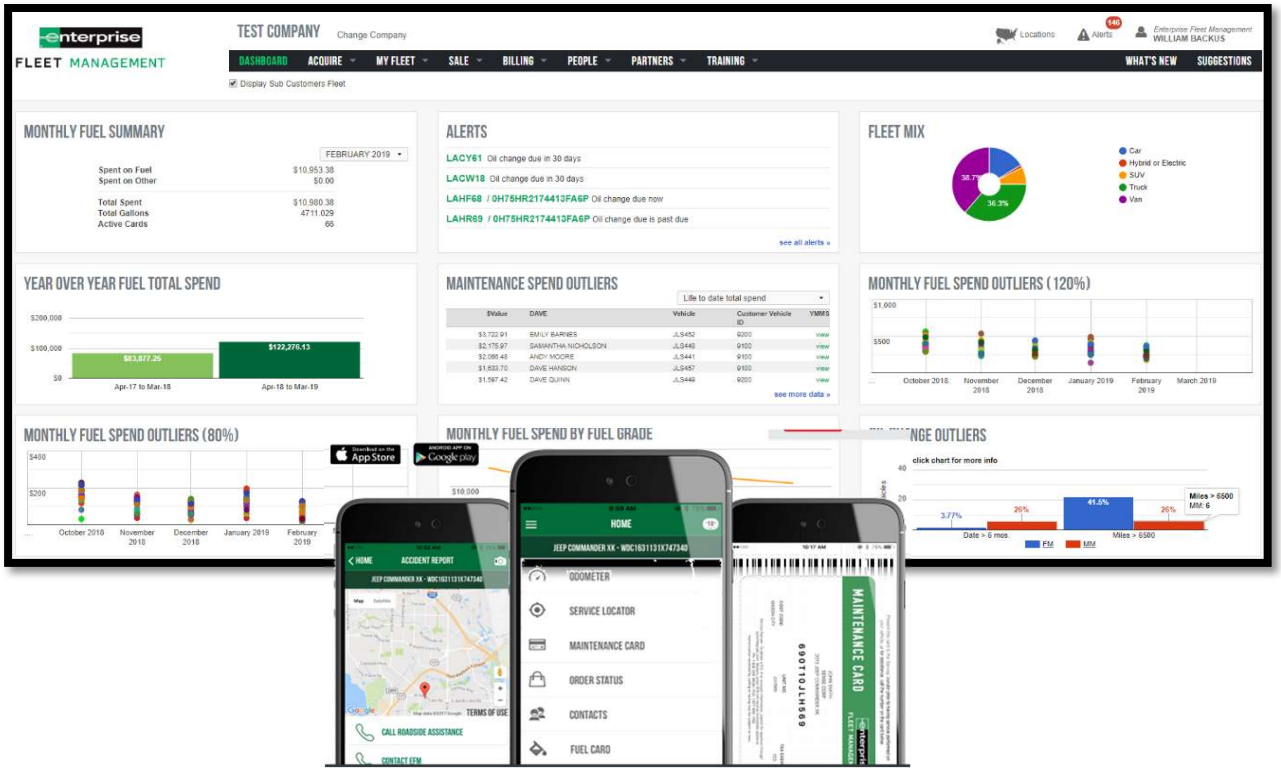
The Town of Sunnyvale will have a dedicated, local account team to proactively manage and develop your fleet while delivering the highest level of customer service to facilitate your day-to-day needs.

- Your dedicated Account Manager meets with you 3-4 times a year for both financial and strategic planning.
- Your Account Manager will provide on-going analysis – this will include:
    - Identify the most cost effective makes & models
    - Total Cost of Ownership and Cents-Per-Miles Analysis
    - Fleet Replacement and Equity Analysis
    - Safety Analysis to help identify vehicles with or without key safety features

## TECHNOLOGY

Enterprise Fleet Management's website provides vehicle tracking, reporting, and metrics. Our website can be customized to view a wide range of data so that you may have a comprehensive and detailed look at all aspects of your fleet and the services provided. Our Mobile App gives drivers all of the convenience and functionality they need.

- Consolidated Invoices - Includes lease, maintenance, and any additional ancillaries
- Maintenance Utilization - Review the life-to-date maintenance per vehicle
- Recall Information - See which units have open recalls
- License & Registration - See which plate renewals are being processed by Enterprise and view status
- Alerts - Set customizable alerts for oil changes, lease renewals, license renewals, and billing data
- Lifecycle Analysis - See data regarding all transactions for the lifecycle of the entire fleet, with drill-down capability to any specific lease or transaction




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Town Council

# AGENDA ITEM REPORT

**K.3**

| | |
|---|---|
| **To:** | Town Council |
| **Subject:** | Discuss, consider and act upon the purchase of additional traffic signal equipment for the Belt Line Intersection Project in an amount not to exceed $75,000. |
| **Meeting:** | Town Council - August 25, 2025 |
| **Department:** | Engineering |
| **Staff Contact:** | Elmer Benitez |

## SUGGESTED ACTION:

Staff recommends approval.

## BACKGROUND INFORMATION:

The Belt Line Intersection Improvement Project is designed to enhance traffic flow, improve safety, and accommodate future traffic demands at key intersections along Belt Line Road at two major intersections Town East Blvd and Creekside Dr.

The proposed purchase is consistent with the approved project budget and will allow timely continuation of construction to meet anticipated project milestones.

Town Council

# AGENDA ITEM REPORT

**K.4**

| | |
|---|---|
| **To:** | Town Council |
| **Subject:** | Discuss, consider and act upon approval of a contract with NewGen Strategies and Solutions, LLC to conduct a drainage utility and fee study. |
| **Meeting:** | Town Council - August 25, 2025 |
| **Department:** | Engineering |
| **Staff Contact:** | Elmer Benitez |

## SUGGESTED ACTION:

Staff recommends approval.

## BACKGROUND INFORMATION:

Drainage Utility Districts (DUDs) are established to manage, maintain, and improve stormwater drainage infrastructure within their service areas. Periodically, the Town contracts with qualified contractors to perform necessary drainage improvements, repairs, or maintenance to ensure proper stormwater management, reduce flooding risks, and maintain compliance with applicable regulations.

The approval of this contract will authorize the Town to proceed with the planned drainage work within the DUD, supporting the ongoing goal of protecting property, infrastructure, and public safety.

## FINANCIAL IMPACT:

$75,000 is included within the Engineering Budget.

## ATTACHMENTS:

2025-07-29 NewGen Contract.pdf

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NewGen Strategies & Solutions

275 W Campbell Rd
Suite 440
Richardson, TX 75080
Phone: (972) 680-2000

July 29, 2025

Mr. Stephen Jenkins
Interim Director of Public Works/Town Engineer
Town of Sunnyvale, TX
127 N. Collins Road
Sunnyvale, TX 75182

**Re: Establishing a Drainage Utility and Fee Study**

Dear Mr. Jenkins,

Based on our conversations, NewGen Strategies and Solutions, LLC (NewGen) is pleased to have this opportunity to assist the Town of Sunnyvale, Texas (Town) in establishing the Town's Drainage Utility and conducting the analysis required to properly set fees (Study). The remainder of this letter outlines our proposed scope of services and proposed pricing for the engagement. On review, we look forward to further discussions with you to determine what adjustments may be needed for the scope to fully align with the Town's goals and objectives. We appreciate our relationship with the Town and look forward to continuing to serve the Town through this engagement.

## Proposed Scope of Services

### Task 1 – Project Kickoff Meeting and Initial Data Collection Efforts

To begin the engagement, the Project Team will work with the Town to schedule a kickoff meeting. The primary reason for the kickoff meeting is to allow the key Project Team consultants and participants from the Town to be introduced and lay the general framework for how the Study will be conducted. This meeting will also allow for the finalization of the proposed work approach and for the identification of the overall goals and objectives for the project.

Also, as part of Task 1, and prior to the initial kickoff meeting, the Project Team will provide an initial data request to the Town for informational items which may assist in the establishment of the drainage cost of service, as well as define the customer billing database and basis for drainage billing.

### Task 2 – Impervious Area Detection

This service will be completed primarily through our Strategic Data Analytics Team. It is understood the City will provide the latest imagery possible in a minimum 6-inch resolution for impervious detection. With the collected data, our Project Team members will evaluate residential properties within the service area and develop the median impervious area for this sample set of properties. This median impervious area will then serve to set the equivalent residential unit (ERU) value for the Town.

Unlike some studies that set fees uniformly to all residential customers with residential sampling primarily completed through our artificial intelligence analysis, we understand the Town would like to consider setting residential fees based on impervious areas at three (3) different levels. This will also require additional time for our consultants to refine the impervious shape file. Similarly, NewGen will then review

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all non-residential properties and calculate the impervious area and associated ERUs for the non-residential properties. NewGen will take a close look at each non-residential parcel to clean up any misclassified impervious areas. The reclassification process can take considerable time but renders a much higher integrity calculation for the Town's specific, non-residential billing inputs.

Though no ariel imagery or impervious sampling effort is flawless, this extra effort will assist the Town with confidence sharing the impervious detection shapefile (if it chooses to do so) on its public facing geographic information system (GIS) site for customers to self-check and validate.

## Task 3 – Development of Utility Billing Dataset

To create the customer billing database for the assessment of drainage fees, the impervious area and ERU values previously developed must be merged and assigned to the Town's utility billing accounts. The information contained in the impervious dataset and the Town's utility billing database will likely vary, and a cleanup effort will be needed to properly merge the information. As necessary, the Project Team will work with the Central Appraisal District (CAD) and GIS professionals within the Town to understand the available data necessary for billing drainage customers and to determine the best means by which to correlate this data with existing accounts within the billing system.

For example, different street naming conventions may exist between the two databases such that an address-matching effort is required to link the two (2) sources of information. As a result, various complications may arise in resolving mismatches or no matches. Additionally, existing utility customers must be reviewed to see if they are also drainage customers. Further, some drainage customers who are not current Town customers may also be identified, and new accounts may need to be created.

It should be noted that the establishment of the customer billing database, as well as evaluation and resolution of data discrepancies, can be a time-consuming process depending on the quality of existing data and the desired basis for fee application. The Project Team will keep staff apprised of work efforts and will proactively discuss difficulties as they may arise. It is expected that 85-90% of the parcels will be matched by the Project Team, but the final 10-15% may need Town staff support with local account knowledge and final direction in assigning billing.

NewGen will review the Town's utility billing database to identify the following:

- Parcels with multiple billing accounts;
- Utility accounts that should be assigned multiple parcels for drainage utility rates;
- Parcels with impervious coverage and no existing billing account; and
- Other potential parcel to billing link issues.

## Task 4 – Cost of Service Analysis

In Task 3, the Project Team will review and, where appropriate, update the cost of service associated with drainage service. As defined in Section 552.044 of the Local Government Code, the cost of service will include the following, as applicable:

- Cost of land acquisition;
- Capital cost of drainage facilities;
- Professional services fees including, but not limited to, architectural, engineering, planning, financial, and/or legal services;

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- Operations and maintenance (O&M) and major repair and replacement expenses associated with drainage facilities;
- Cost of rolling stock and other machinery and equipment;
- Interest and issuance costs associated with financing;
- Amortization of non-recurring costs (e.g., start-up costs, etc.); and/or
- Direct and indirect administrative cost including, but not limited to, support services costs (e.g., utility billing, etc.).

In developing the cost of service, the Project Team will consider all of the data collected in Task 1, as well as any capital improvement planning applicable to drainage service provided by the Town.

At this time, it is our understanding that much of the cost assumptions are known or will soon be updated by the City. Our team will incorporate and amend, as necessary, as the Town Staff and Town Council refine the expected service levels throughout the process.

### Task 5 – Forecasted Cost of Service Analysis

After completion of the test year cost of service analysis, the Project Team will forecast the cost of service for a five (5) year period. This forecast will include, but is not limited to, the following variables:

- Variations in number of customers and/or billing units inclusive of upcoming annexation efforts (if applicable);
- Mandatory and discretionary customer exemptions;
- Population growth rates;
- Inflation and O&M cost escalation factors;
- Timing and sequencing of drainage capital improvements;
- CIP Program Funding (cash and/or debt financing);
- Debt issuance assumptions (e.g., term, rate, coverage requirements, etc.); and
- General and/or other fund transfer and/or contributions to reserves.

### Task 6 – Determination of Recommended Drainage Fee

After developing the forecasted cost of service, the Project Team will utilize the billing dataset from Task 2 to develop recommendations for setting the Town's drainage fees to meet the funding objectives spelled out in Task 5. Please note that the proposed pricing for this task includes the development of no more than three (3) different fee alternatives and/or the examination of alternative discretionary exemptions.

### Task 7 – Regional Comparison of Drainage Fees

Once the recommendations for drainage fee adjustments have been developed, the Project Team will prepare a comparison of the Town's current and proposed drainage fee to other municipalities in the geographical area. In doing so, the Project Team will work with the Town to identify specific entities, which the Town desires to be included in the analysis.

### Task 8 – Draft Report

The Project Team will develop a draft report summarizing findings, conclusions, and recommendations of the Study. The Project Team is committed to ensuring that the Town thoroughly understands the

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recommendations in the draft report and will ensure that Town staff have sufficient time to address their concerns and/or questions prior to finalizing the report.

### Task 9 – Final Report and Presentation

Upon receipt of Town staff's comments, the Project Team will make appropriate changes and provide the Town with the final report. After completion of the final report, the Project Team will present its recommendations at one Town Council meeting, if desired.

## Related Data File Deliverables

At the conclusion of this work, the Project Team will provide electronic copies of the following data for the Town's use in implementing an impervious area basis for its Drainage Utility Fees:

- One (1) Geodatabase File
  - Impervious Surface Feature Layer
  - Parcel Layer Used
- One (1) CSV or Excel File of Impervious Area Analysis
  - Total square footage of parcel
  - Impervious surface square footage per parcel
- One (1) Excel File of Billing Dataset Matching Efforts

## Proposed Budget

Based on the size of the Town and scope of services outlined above, NewGen proposes to complete the work under this agreement specific to the base scope of services for a fixed fee of $75,000, inclusive of out-of-pocket expenses incurred at cost and one (1) public meeting. NewGen under this agreement will not exceed $75,000 without prior written authorization of the Town.

Assistance provided to the Town will be performed at the direction of the Town Engineer or other designated Town Staff. As services are requested and performed, NewGen will invoice the Town on the percent of project completion, on a monthly basis. Payment is due within thirty (30) days upon receipt of invoice. Services requested but not included in the base or optional scope of services outlined above can be provided based on our hourly billing rates, effective through December 31, 2025, which are as follows:

**NewGen Strategies and Solutions**
**2025 Billing Rates**

| Position | Hourly Billing Rate |
|---|---|
| Partner | $280 – $440 |
| Principal | $275 – $440 |
| Senior Manager | $240 – $295 |
| Manager | $200 – $240 |
| Senior Consultant | $185 – $200 |
| Consultant | $175 – $185 |
| Administrative Services | $135 |

Note: Billing rates are subject to change based on annual reviews and salary increases.

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By executing this letter, you agree that the services rendered by NewGen will be performed in accordance with instructions or specifications received by the Town and will be provided with the degree of skill and judgment exercised by recognized professionals performing services of similar nature and consistent with the applicable industry's best practices. Additionally, the Town and NewGen mutually agree that during the term of this Agreement and for a period of one (1) year after any termination, the parties agree not to solicit the other entities' employees related to this Agreement. This clause does not apply where an employee seeks employment in response to an advertisement placed into the public domain for a specific position or other general recruitment activities.

All payments made under this engagement should be remitted to:

NewGen Strategies and Solutions, LLC
275 W Campbell Rd, Ste. 440
Richardson, Texas 75080

If this letter and its terms and conditions are acceptable, please execute one copy and return it to our Richardson, Texas office. If you should have any questions regarding this letter and/or require additional information, please contact Matthew Garrett at (972) 675-7699.

Very truly yours,
**NewGen Strategies and Solutions, LLC**

DocuSigned by:
Matthew B. Garrett
B23EEBEF79E64D1...
Matthew B. Garrett
Partner, Managing Director

**Town of Sunnyvale, Texas**
**Establishing a Drainage Utility and Fee Study ($75,000)**

Signed_____ Printed_____

Title_____ Date_____

Town Council

# AGENDA ITEM REPORT

**K.5**

| | |
|---|---|
| **To:** | Town Council |
| **Subject:** | Discuss, consider and act upon direction to Staff related to the design and planning for Jobson Park for cost-effective construction and future flexibility. |
| **Meeting:** | Town Council - August 25, 2025 |
| **Department:** | Engineering |
| **Staff Contact:** | Elmer Benitez |

## SUGGESTED ACTION:

Staff recommends that the Town Council provide direction to proceed with a cost-effective and phased design for Jobson Park that maintains core amenities and allows for future enhancements.

## BACKGROUND INFORMATION:

The Town Council previously approved a conceptual design for Jobson Park. Since that approval, two additional recreational facilities have begun construction and are expected to be completed by January 2026. These facilities will help address the community's need for fields and recreational space, potentially reducing the immediate demand for all of the amenities originally planned at Jobson Park.

In light of these developments, staff has evaluated options to achieve a cost-effective approach for Jobson Park while preserving its intended amenities and long-term community benefits. The recommended approach focuses on:

- Prioritizing essential park features to meet community needs.
- Utilizing a phased design that allows for future enhancements as funding becomes available.
- Maintaining flexibility in construction methods and materials to optimize costs without compromising quality.

This approach allows the Council to move forward efficiently with Jobson Park while retaining the option to expand or enhance the park in the future as community needs evolve.

## FINANCIAL IMPACT:

The recommended phased design approach reduces initial costs by prioritizing essential park features while allowing for future enhancements. This approach allows the Town to proceed with the project within the existing budget, minimizing any immediate impact on taxes while preserving flexibility for future improvements.

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NewGen Strategies & Solutions

275 W Campbell Rd
Suite 440
Richardson, TX 75080
Phone: (972) 680-2000

July 29, 2025

Mr. Stephen Jenkins
Interim Director of Public Works/Town Engineer
Town of Sunnyvale, TX
127 N. Collins Road
Sunnyvale, TX 75182

**Re: Establishing a Drainage Utility and Fee Study**

Dear Mr. Jenkins,

Based on our conversations, NewGen Strategies and Solutions, LLC (NewGen) is pleased to have this opportunity to assist the Town of Sunnyvale, Texas (Town) in establishing the Town's Drainage Utility and conducting the analysis required to properly set fees (Study). The remainder of this letter outlines our proposed scope of services and proposed pricing for the engagement. On review, we look forward to further discussions with you to determine what adjustments may be needed for the scope to fully align with the Town's goals and objectives. We appreciate our relationship with the Town and look forward to continuing to serve the Town through this engagement.

## Proposed Scope of Services

### Task 1 – Project Kickoff Meeting and Initial Data Collection Efforts

To begin the engagement, the Project Team will work with the Town to schedule a kickoff meeting. The primary reason for the kickoff meeting is to allow the key Project Team consultants and participants from the Town to be introduced and lay the general framework for how the Study will be conducted. This meeting will also allow for the finalization of the proposed work approach and for the identification of the overall goals and objectives for the project.

Also, as part of Task 1, and prior to the initial kickoff meeting, the Project Team will provide an initial data request to the Town for informational items which may assist in the establishment of the drainage cost of service, as well as define the customer billing database and basis for drainage billing.

### Task 2 – Impervious Area Detection

This service will be completed primarily through our Strategic Data Analytics Team. It is understood the City will provide the latest imagery possible in a minimum 6-inch resolution for impervious detection. With the collected data, our Project Team members will evaluate residential properties within the service area and develop the median impervious area for this sample set of properties. This median impervious area will then serve to set the equivalent residential unit (ERU) value for the Town.

Unlike some studies that set fees uniformly to all residential customers with residential sampling primarily completed through our artificial intelligence analysis, we understand the Town would like to consider setting residential fees based on impervious areas at three (3) different levels. This will also require additional time for our consultants to refine the impervious shape file. Similarly, NewGen will then review

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all non-residential properties and calculate the impervious area and associated ERUs for the non-residential properties. NewGen will take a close look at each non-residential parcel to clean up any misclassified impervious areas. The reclassification process can take considerable time but renders a much higher integrity calculation for the Town's specific, non-residential billing inputs.

Though no ariel imagery or impervious sampling effort is flawless, this extra effort will assist the Town with confidence sharing the impervious detection shapefile (if it chooses to do so) on its public facing geographic information system (GIS) site for customers to self-check and validate.

## Task 3 – Development of Utility Billing Dataset

To create the customer billing database for the assessment of drainage fees, the impervious area and ERU values previously developed must be merged and assigned to the Town's utility billing accounts. The information contained in the impervious dataset and the Town's utility billing database will likely vary, and a cleanup effort will be needed to properly merge the information. As necessary, the Project Team will work with the Central Appraisal District (CAD) and GIS professionals within the Town to understand the available data necessary for billing drainage customers and to determine the best means by which to correlate this data with existing accounts within the billing system.

For example, different street naming conventions may exist between the two databases such that an address-matching effort is required to link the two (2) sources of information. As a result, various complications may arise in resolving mismatches or no matches. Additionally, existing utility customers must be reviewed to see if they are also drainage customers. Further, some drainage customers who are not current Town customers may also be identified, and new accounts may need to be created.

It should be noted that the establishment of the customer billing database, as well as evaluation and resolution of data discrepancies, can be a time-consuming process depending on the quality of existing data and the desired basis for fee application. The Project Team will keep staff apprised of work efforts and will proactively discuss difficulties as they may arise. It is expected that 85-90% of the parcels will be matched by the Project Team, but the final 10-15% may need Town staff support with local account knowledge and final direction in assigning billing.

NewGen will review the Town's utility billing database to identify the following:

- Parcels with multiple billing accounts;
- Utility accounts that should be assigned multiple parcels for drainage utility rates;
- Parcels with impervious coverage and no existing billing account; and
- Other potential parcel to billing link issues.

## Task 4 – Cost of Service Analysis

In Task 3, the Project Team will review and, where appropriate, update the cost of service associated with drainage service. As defined in Section 552.044 of the Local Government Code, the cost of service will include the following, as applicable:

- Cost of land acquisition;
- Capital cost of drainage facilities;
- Professional services fees including, but not limited to, architectural, engineering, planning, financial, and/or legal services;

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- Operations and maintenance (O&M) and major repair and replacement expenses associated with drainage facilities;
- Cost of rolling stock and other machinery and equipment;
- Interest and issuance costs associated with financing;
- Amortization of non-recurring costs (e.g., start-up costs, etc.); and/or
- Direct and indirect administrative cost including, but not limited to, support services costs (e.g., utility billing, etc.).

In developing the cost of service, the Project Team will consider all of the data collected in Task 1, as well as any capital improvement planning applicable to drainage service provided by the Town.

At this time, it is our understanding that much of the cost assumptions are known or will soon be updated by the City. Our team will incorporate and amend, as necessary, as the Town Staff and Town Council refine the expected service levels throughout the process.

### Task 5 – Forecasted Cost of Service Analysis

After completion of the test year cost of service analysis, the Project Team will forecast the cost of service for a five (5) year period. This forecast will include, but is not limited to, the following variables:

- Variations in number of customers and/or billing units inclusive of upcoming annexation efforts (if applicable);
- Mandatory and discretionary customer exemptions;
- Population growth rates;
- Inflation and O&M cost escalation factors;
- Timing and sequencing of drainage capital improvements;
- CIP Program Funding (cash and/or debt financing);
- Debt issuance assumptions (e.g., term, rate, coverage requirements, etc.); and
- General and/or other fund transfer and/or contributions to reserves.

### Task 6 – Determination of Recommended Drainage Fee

After developing the forecasted cost of service, the Project Team will utilize the billing dataset from Task 2 to develop recommendations for setting the Town's drainage fees to meet the funding objectives spelled out in Task 5. Please note that the proposed pricing for this task includes the development of no more than three (3) different fee alternatives and/or the examination of alternative discretionary exemptions.

### Task 7 – Regional Comparison of Drainage Fees

Once the recommendations for drainage fee adjustments have been developed, the Project Team will prepare a comparison of the Town's current and proposed drainage fee to other municipalities in the geographical area. In doing so, the Project Team will work with the Town to identify specific entities, which the Town desires to be included in the analysis.

### Task 8 – Draft Report

The Project Team will develop a draft report summarizing findings, conclusions, and recommendations of the Study. The Project Team is committed to ensuring that the Town thoroughly understands the

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recommendations in the draft report and will ensure that Town staff have sufficient time to address their concerns and/or questions prior to finalizing the report.

### Task 9 – Final Report and Presentation

Upon receipt of Town staff's comments, the Project Team will make appropriate changes and provide the Town with the final report. After completion of the final report, the Project Team will present its recommendations at one Town Council meeting, if desired.

## Related Data File Deliverables

At the conclusion of this work, the Project Team will provide electronic copies of the following data for the Town's use in implementing an impervious area basis for its Drainage Utility Fees:

- One (1) Geodatabase File
  - Impervious Surface Feature Layer
  - Parcel Layer Used
- One (1) CSV or Excel File of Impervious Area Analysis
  - Total square footage of parcel
  - Impervious surface square footage per parcel
- One (1) Excel File of Billing Dataset Matching Efforts

## Proposed Budget

Based on the size of the Town and scope of services outlined above, NewGen proposes to complete the work under this agreement specific to the base scope of services for a fixed fee of $75,000, inclusive of out-of-pocket expenses incurred at cost and one (1) public meeting. NewGen under this agreement will not exceed $75,000 without prior written authorization of the Town.

Assistance provided to the Town will be performed at the direction of the Town Engineer or other designated Town Staff. As services are requested and performed, NewGen will invoice the Town on the percent of project completion, on a monthly basis. Payment is due within thirty (30) days upon receipt of invoice. Services requested but not included in the base or optional scope of services outlined above can be provided based on our hourly billing rates, effective through December 31, 2025, which are as follows:

**NewGen Strategies and Solutions**
**2025 Billing Rates**

| Position | Hourly Billing Rate |
|---|---|
| Partner | $280 – $440 |
| Principal | $275 – $440 |
| Senior Manager | $240 – $295 |
| Manager | $200 – $240 |
| Senior Consultant | $185 – $200 |
| Consultant | $175 – $185 |
| Administrative Services | $135 |

Note: Billing rates are subject to change based on annual reviews and salary increases.

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Matthew B. Garrett
Partner, Managing Director

**Town of Sunnyvale, Texas**
**Establishing a Drainage Utility and Fee Study ($75,000)**

Signed_____ Printed_____

Title_____ Date_____