



# FIBER UPGRADE PHASE 2.1



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# Recap

- City Council Meeting, 11/22/2022:
  - City Council received and accepted three year CityNet fiber upgrade plan
  - Planned spend of \$3 million in Year 1 and \$1 million each in years 2 and 3
  - Subject to approval of a detailed plan
- CityNet directed to present detailed fiber upgrade plan
- Upon approval, funds appropriation from Development Impact Fees

# Reasons for Upgrade

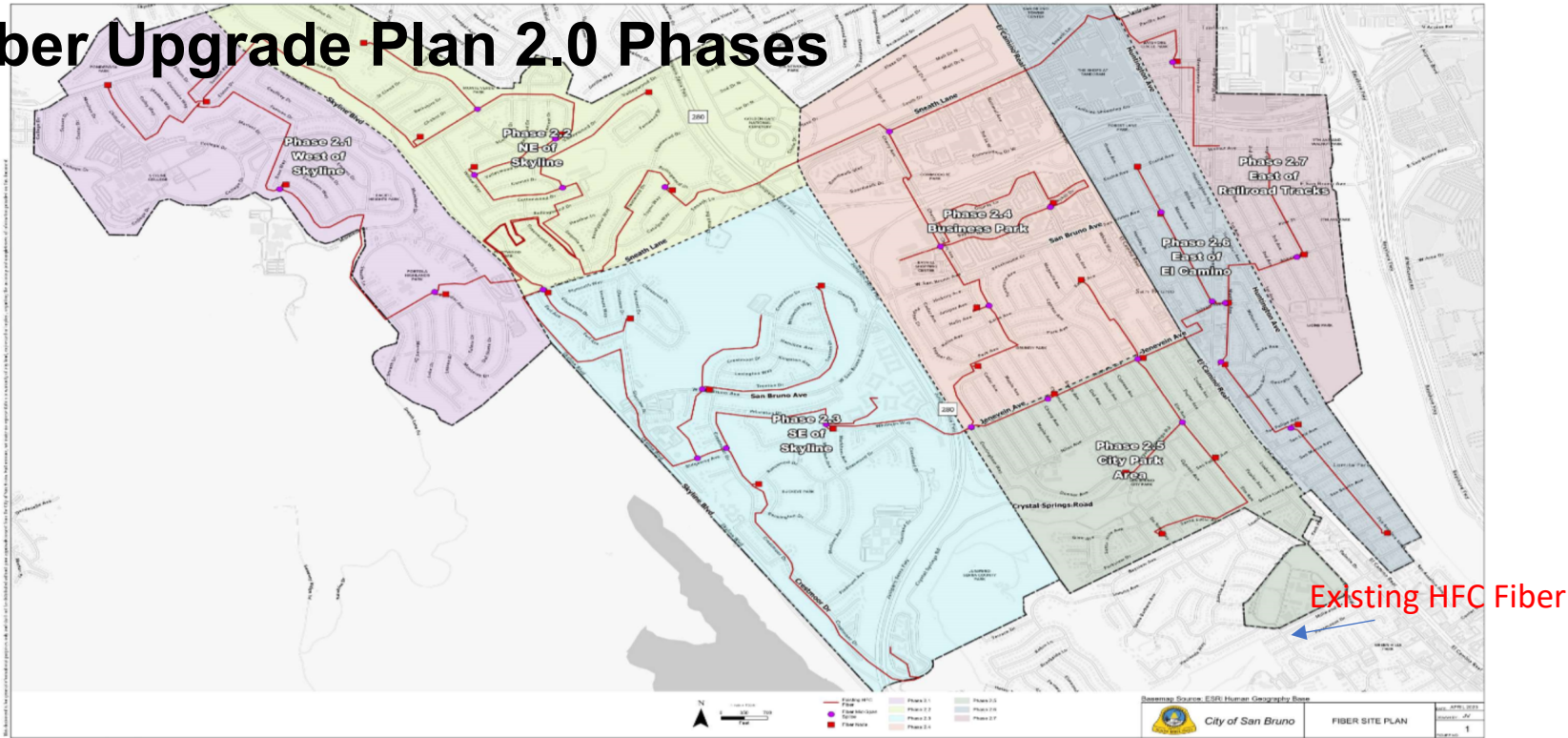
- Current Hybrid Fiber Coaxial Infrastructure - 1998
- Performance deterioration over time
- Fiber technology widely prevalent
- Software server powering CityNet's Active taps in danger of failure – no replacement!
- Internet infrastructures with minimal power requirements – Fiber wins!



# Fiber Upgrade Phase 1.0 and 2.0

- Fiber Upgrade 1.0 complete
  - Three Multiple Dwelling Complexes
  - Four Single Family neighborhoods
- Upgrades successful
- Upgrade methodology used:
  - Hybrid CityNet Staff (70%) Contractors (30%)
  - CityNet equipment procurement
- Fiber Upgrade 2.1 and 2.2 are the focus of this presentation

# Fiber Upgrade Plan 2.0 Phases



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# Initial Upgrade Criteria

- Frequency of power and CityNet service outages
- Hilly terrain
- Tree cover
- Need for backyard access
- Proximity to CityNet Data Centers

# San Bruno CityNet's Fiber Upgrade 2.0

## Coverage of Single Family Homes By Area

Phase	AREA	HOMES	POLES
Phase 2.1	West of Skyline	1,018	287
Phase 2.2	Northeast of Skyline	1,098	280
Phase 2.3	Southeast of Skyline	1,499	416
Phase 2.4	Business Park	1,490	386
Phase 2.5	City Park Area	1,745	529
Phase 2.6	East of El Camino	1,611	489
Phase 2.7	East of Railroad Tracks	1,385	305
	<b>TOTAL</b>	<b>9,846</b>	<b>2,692</b>

# San Bruno CityNet's Fiber 2.0 Upgrade

## Household Breakdown - San Bruno

CATEGORY	HOMES	COMMENTS
Single Family Homes in Upgrade 2.0 Plan	9,846	Includes upgraded 264 Single Family Homes Covers City's 2,692 poles
Multiple Dwelling Units already upgraded	2,575	Completed 2018-19
MDUs not covered by Upgrade Plan	2,280	Crossings, Cherry Village, etc.
TOTAL	14,701	Per 2020 U.S. Census





# Focus of Fiber 2.1 Upgrade - 2023-24

- Areas West of Skyline and Northeast of Skyline
- Includes the areas around these San Bruno landmarks:
  - Ponderosa Park
  - Pacific Heights Park
  - Portola Highlands Park
  - Monte Verde Park
  - Golden Gate National Cemetery

Upon approval, a list of specific streets will be published on the CityNet website and updated on status as the upgrade proceeds

## Detailed Fiber Upgrade Costs – West of Skyline

Equipment Cost	Cost/Unit	Units	Cost
Calix Chassis	\$6,700	1	\$6,700
Calix Gpon 8x Cards	\$7,380	4	\$29,520
Fiber Jumps	\$4	750	\$3,188
SFPs	\$480	32	\$15,360
Gpon Units 803	\$129	500	\$64,500
Gpon Units 844	\$149	180	\$26,820
Fiber 24 Count	\$1	43,000	\$37,410
Fiber Drops	\$56	700	\$39,200
Hardware / Lashing Wire	\$11,000	1	\$11,000
Fiber Connectors	\$9	1,500	\$12,750
8-way Splitters / Enclosure	\$380	260	\$98,800
Innotrans Equipment	\$65,000	1	\$65,000
Taxes & Shipping			\$40,355
<b>Total Equipment Cost</b>			<b>\$450,602</b>

Labor Cost	Cost/Unit	Units	Cost
Overhead/De-lash and Re-lash Fiber	\$7.29	43,000	\$313,470
Lower Span Loops and Re-lash	\$245	20	\$4,900
Redesign To Fiber For GIS System	\$0.75	43,000	\$32,250
Splicing In 8-way Tap and Enclosure	\$455.55	260	\$118,443
Pole Engineering and Permits	\$325	260	\$84,500
Run Drops / Remove Old Drop	\$375	680	\$255,000
Connected Units	\$175	680	\$119,000
Fusion Splices	\$43.50	1,500	\$65,250
Remove Old Coax Cables	\$1.48	39,000	\$57,720
<b>Total Labor Cost</b>			<b>\$1,050,533</b>

<b>Total Equipment &amp; Construction Cost</b>	<b>\$1,501,135</b>
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## Detailed Fiber Upgrade Costs – Northeast of S



Equipment Cost	Cost/Unit	Units	Cost
Calix Chassis	\$6,700	1	\$6,700
Calix Gpon 8x Cards	\$7,380	4	\$29,520
Fiber Jumps	\$4	750	\$3,188
SFPs	\$480	32	\$15,360
Gpon Units 803	\$129	450	\$58,050
Gpon Units 844	\$149	200	\$29,800
Fiber 24 Count	\$1	36,400	\$31,668
Fiber Drops	\$56	750	\$42,000
Hardware / Lashing Wire	\$11,000	1	\$11,000
Fiber Connectors	\$9	1,500	\$12,750
8-way Splitters / Enclosure	\$380	285	\$108,300
Innotrans Equipment	\$65,000	1	\$65,000
Taxes & Shipping			\$40,664
<b>Total Equipment Cost</b>			<b>\$453,999</b>

Labor Cost	Cost/Unit	Units	Cost
Overhead/De-lash and Re-lash Fiber	\$7.29	36,000	\$262,440
Lower Span Loops and Re-lash	\$245	20	\$4,900
Redesign To Fiber For GIS System	\$0.75	36,000	\$27,000
Splicing In 8-way Tap and Enclosure	\$455.55	270	\$122,999
Pole Engineering and Permits	\$325	270	\$87,750
Run Drops / Remove Old Drop	\$375	650	\$243,750
Connected Units	\$175	650	\$113,750
Fusion Splices	\$43.50	1,500	\$65,250
Remove Old Coax Cables	\$1.48	36,000	\$53,280
<b>Labor Cost</b>			<b>\$981,119</b>

<b>Total Equipment &amp; Construction Cost</b>	<b>\$ 1,435,118</b>
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## Specifics

# Fiber Upgrade Summary– Phase 2.1 and 2.2

## SUMMARY

Equipment	Units	Cost
Innotrans Equipment	Headend Equipment	\$130,000
Calix Equipment	Headend Equipment	\$78,815
Other Equipment	Field Equipment	\$614,768
Taxes & Shipping		\$81,018
<b>Total Equipment Cost</b>		<b>\$904,601</b>

Statistics	Units
Pole Count	567
Number of Homes	2,116
Miles of Overhead Plant	15

Labor	Cost
Pole Cost Permitting	\$172,250
Construction Cost for Poles	\$1,301,402
Drop and Home Connections	\$498,750
Redesign Fiber	\$59,250
<b>Total Labor Cost</b>	<b>\$2,031,652</b>

<b>TOTAL EQUIPMENT AND CONSTRUCTION COST</b>	<b>\$2,936,253</b>
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# Fiber Upgrade 2.1 Work Plan

- Equipment purchase - CityNet Staff / City Procurement
- Logistics planning - CityNet Staff / Temporary Project Manager
- Backyard Fiber Upgrades - Contractor and CityNet Project Team (70%)
- CityNet Staff on “as available basis” (30% of upgrade)
- Union pay scales - CityNet Temporary Project Team & Staff
- Contractor - ad hoc, mini-project basis



## Fiber Upgrade Plan 2.1 Work Plan Summary



Project Manager, 2 Technicians, Available Staff & Contractors to be deployed in a hybrid work format.



2 Upgrade Phases, 100% aerial, 567 Poles, 2,116 Homes Passed



Overlashing, an FCC permitted method, will be used to replace hybrid fiber coaxial (HFC) cable with fiber



Every home will be passed by our fiber. Each customer will have a fiber drop – true fiber to the home



Rollout cost vastly lower than comparable rollouts – existing business, experienced team, cost controls

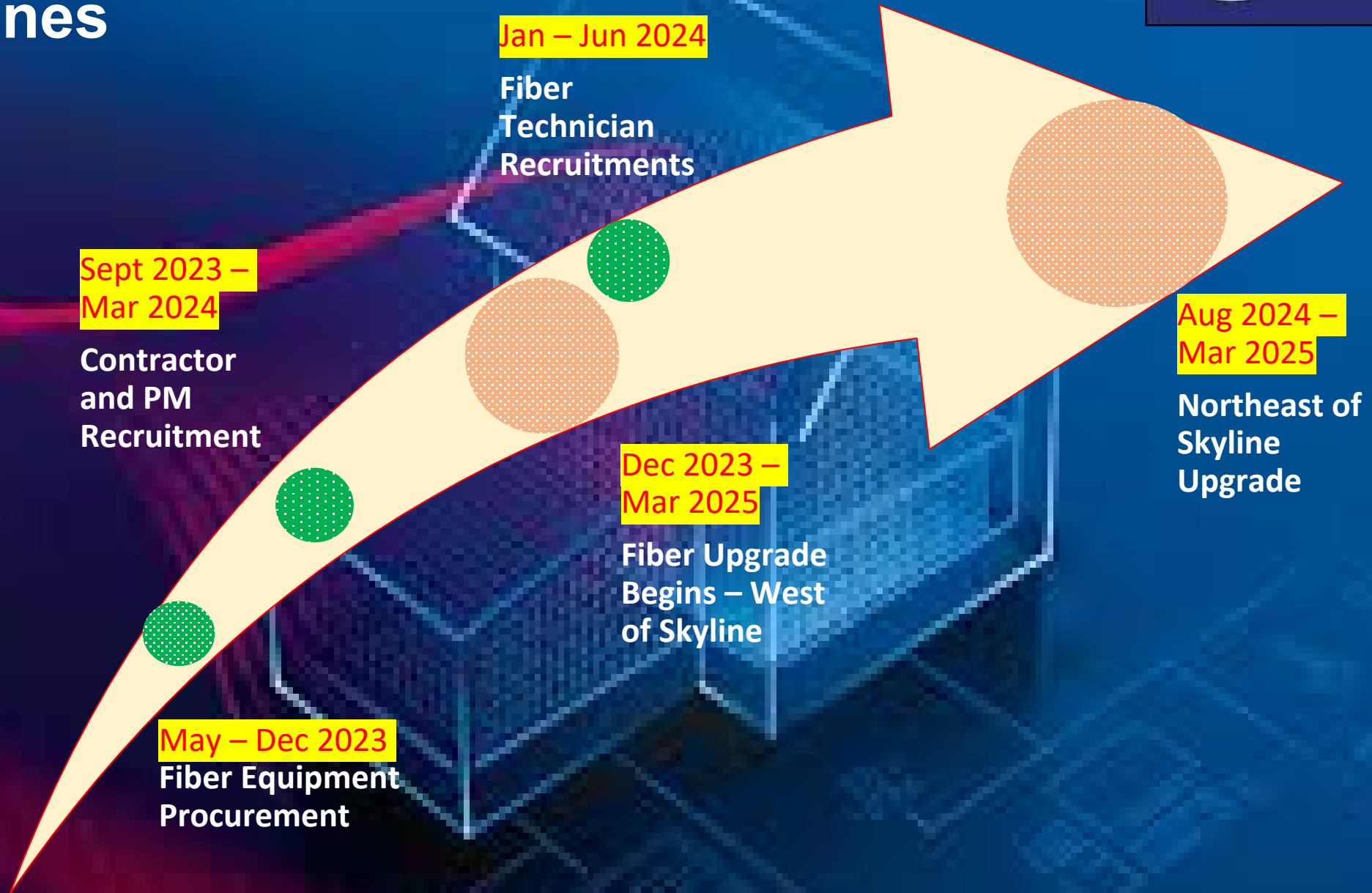
### Planned for Success

Fiber upgrade planned for timely, on budget execution

# Fiber Upgrade 2.1 Work Plan Timelines



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# Positive ROI from Fiber Investment in San Bruno

18.3% of San Bruno homes have San Bruno Cable’s fiber

Most fibered homes are in **MDUs (96%)**

Cost of fiber install: **\$2,300,000**

Subscribers generate **\$2,201,789** in annual subscription revenue with **\$990,805 (45%)** in post fiber revenue growth



PROPERTY	ACCESS RIGHTS	UNITS	SERVICABLE HOMES	SUBSCRIBERS (% SERVICE PENETRATION)
Peninsula Place MDU	Non-exclusive	860	819 (95%)	524 (64%)
Crystal Springs MDU	Non-exclusive	437	415 (95%)	216 (52%)
Shelter Creek MDU	Exclusive at start	1,296	1,241 (96%)	936 (75%)
Marisol Single Family (July 2022)	Non-exclusive	100	100 (100%)	43 (43%)
Total		2,693 (18.3%)	2,575 (96%)	1,719 (67%) <sup>16</sup>

# Revenue Upside from Upgrade

- CityNet Current Status - 18.3% fiber penetration; 27.5% revenues from fiber
- Projected **Average Revenue Per User** from fiber – \$73.25/mo. (current - \$103.00/mo. Streaming TV will bring down ARPU, improve margin)
- Increase in fiber footprint w/Upgrade – 82% (covers 32% of system)
- Fiber penetration increase – 15%
- Revenue Improvement – up to 35%/year

# Tap Replacement Program

- City's Active Taps dependent on software server w/o replacement
- 2,425 Active Taps to be replaced by Passive, non-powered Taps
- 700 Passive Taps in place – 29% replaced
- Tap Replacements to proceed in step with proposed upgrade
- Tap replacement focus – areas not covered by Fiber Upgrade 2.1
- Replacement method – Staff (75%), Contractors (25%)
- Benefit – Maintains operational continuity



# Request for Council Action

Consider Adoption of Resolution to authorize the City Manager to allocate \$3 million from the City of San Bruno's Development Impact Fees to fund the planned San Bruno CityNet Services upgrade to fiber technology in designated areas of San Bruno



**Comments or Questions?**

**Thank you!**



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