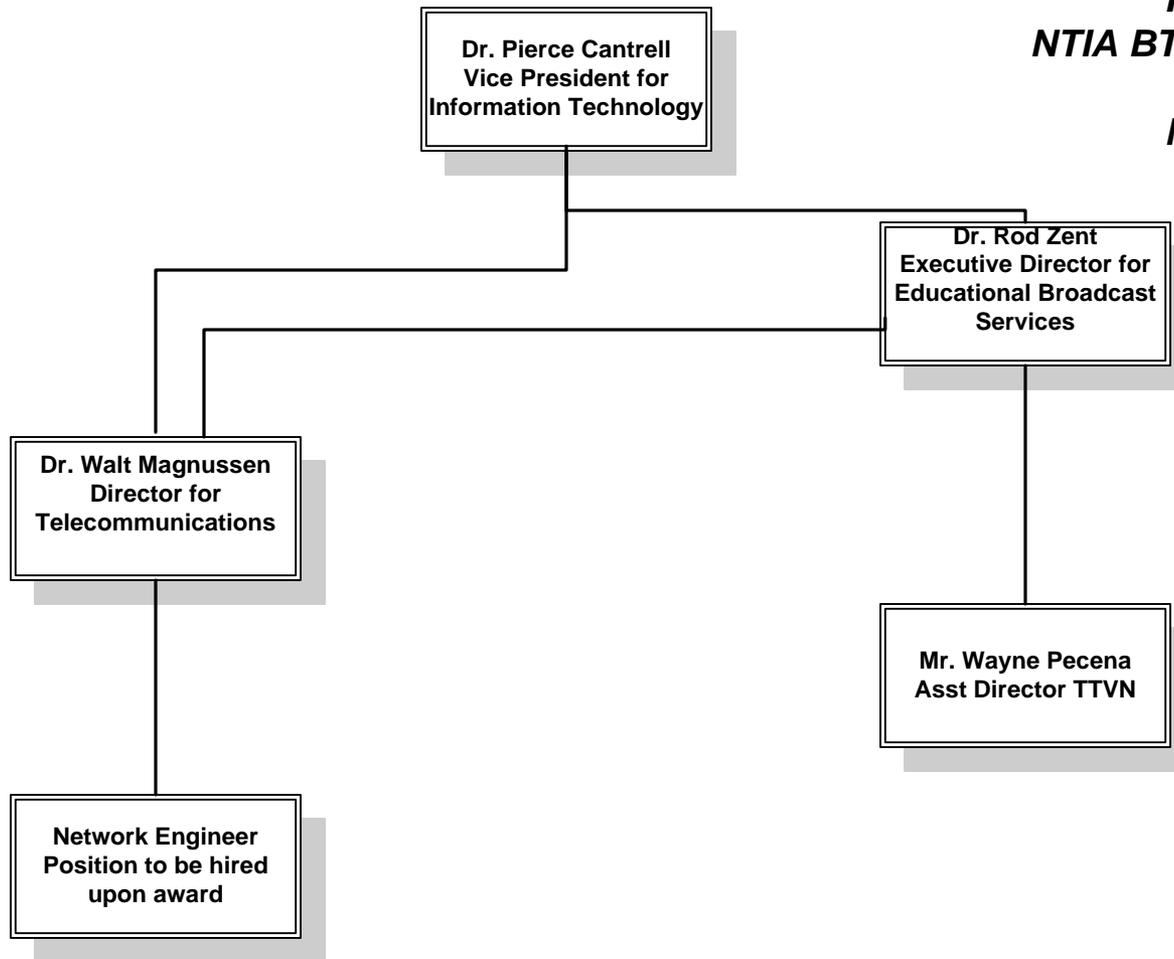


**TAMU TTVN  
NTIA BTOP Organizational  
Chart  
March 2010**



## **BTOP Comprehensive Community Infrastructure Service Offerings and Competitor Data Template**

Please complete the complete the following worksheets--either of the Last Mile or Middle Mile Service Offerings worksheets may be omitted if the applicant is not proposing to provide that type.

For both the Last Mile and Middle Mile Service Offerings worksheets, the service offerings should include all relevant tiers and markets (*e.g.* residential, business, wholesale). Applicants should ensure to include details on any services that would be offered at discounted rates to specific classes of customers (*e.g.* community anchor institutions or third party service providers).

In the Last Mile Service Offerings worksheet, applicants are required to provide estimated end user speeds. Average speeds should be the average sustained actual, non-burst end user speed that would be received during a peak hour. For purposes of calculating these speeds, applicants should utilize their subscriber projections for year eight of the project, and develop utilization projections that are consistent with any additional services the applicant proposes. For wireless broadband services, this speed should be an average of the speeds available across the entire cell. Beyond these general guidelines, due to the multiplicity of technical solutions that may be proposed, the applicants may use discretion to determine the most reasonable method to estimate actual speeds on their network. Applicants should explain the underlying methodology used to calculate the average speeds in the space provided.

In the Competitor Data worksheet, applicants are required to provide data on both last mile and middle mile service providers, regardless of whether the applicant proposes to offer last mile and middle mile services. In the column titled Service Areas Where Service Offered, applicants should list all of the Last Mile and Middle Mile Service Areas within their Proposed Project Area in which the listed services are available. Please ensure that the Service Areas are consistent with those provided within the application and the Service Areas upload. If the availability of the listed services is limited (*e.g.* the service is only available within a portion of a Last Mile or Middle Mile Service Area), note this in the Other Comments column.

In contrast to several other upload templates in this application, the data provided in these worksheets will NOT be subject to automated processing. These template worksheets are provided to demonstrate the level of data required and to provide a suggested format. Applicants may modify the template layouts in order to provide the most effective presentation of their specific project. Applicants should, however, ensure that they provide at least as much data as these templates require. To the extent that you modify these templates please ensure that the print layouts are adjusted so that rows do not break across pages in a manner that is difficult to understand. A PDF of this file will be automatically generated upon upload to Easy Print and the print settings will be used to format the PDF file.



Middle Mile  
provide services of

offerings should  
licants should be  
particular  
riders).

estimated average  
estimated speeds that an  
licants, applicants  
plans to offer.  
available across an  
alternatives that may  
manner in which  
making assumptions

last mile and  
for both last mile  
licants, applicants  
Funded Service  
names are  
. If the actual  
part of the Last

via this template  
provided to  
licants are free to  
the data for  
as much detail  
ensure that the  
will be difficult to  
grants, and the

### Proposed Last Mile Service Offerings

Name of Service Tier	Advertised Speeds		Estimated Average Speeds		Average Latency	Pricing Plan (\$ per month)	Other Comments/Description/Features or Limitations
	Downstream Mbps	Upstream Mbps	Downstream Mbps	Upstream Mbps	@ End User CPE milliseconds		

**Explanation of Average Speed Calculations:**

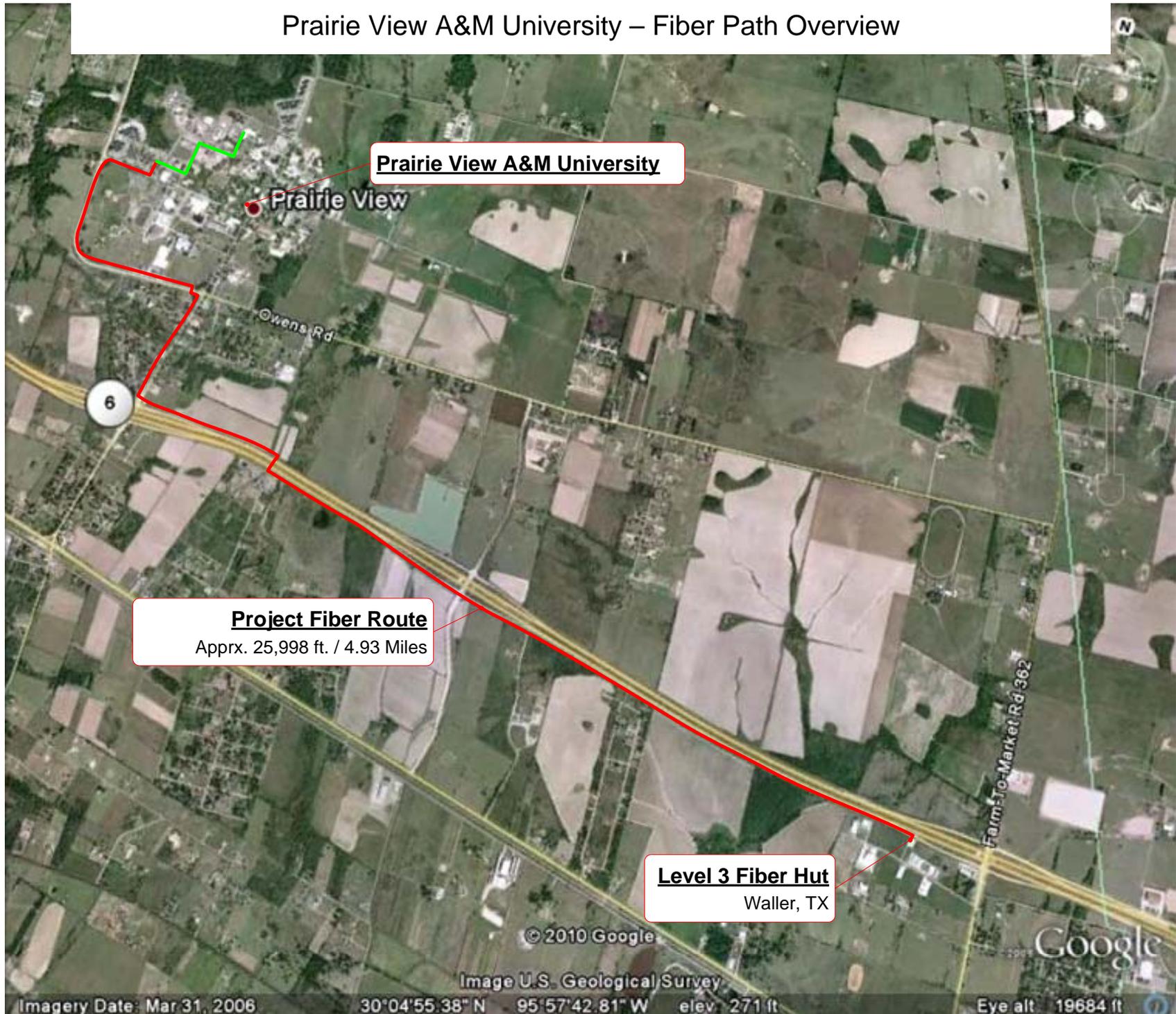
## Proposed Middle Mile Service Offerings

Name of Service Offering	Distance Band or Point to Point	Minimum Peak Load Network Bandwidth Capacity (Mbps)	Monthly/Yearly Pricing (\$)	Other Comments/Description/Features or Limitations
TTVN network access	Not applicable	1 Gigabit per second	Not applicable	The TTVN cost model is a membership based model that includes all services. There are no applicable middle mile cost comparisons



# Prairie View A&M University – Fiber Path Overview

N



**Prairie View A&M University**

Prairie View

Owens Rd

6

**Project Fiber Route**

Apprx. 25,998 ft. / 4.93 Miles

**Level 3 Fiber Hut**

Waller, TX

Farm-to-Market Rd 362

© 2010 Google

Google

Image U.S. Geological Survey

Imagery Date: Mar 31, 2006

30°04'55.38" N 95°57'42.81" W elev. 271 ft

Eye alt 19684 ft

# Prairie View A&M University – Campus Fiber Path Detail



# Prairie View A&M University – Waller, TX Level 3 Fiber Path Detail

## Trench /Bore

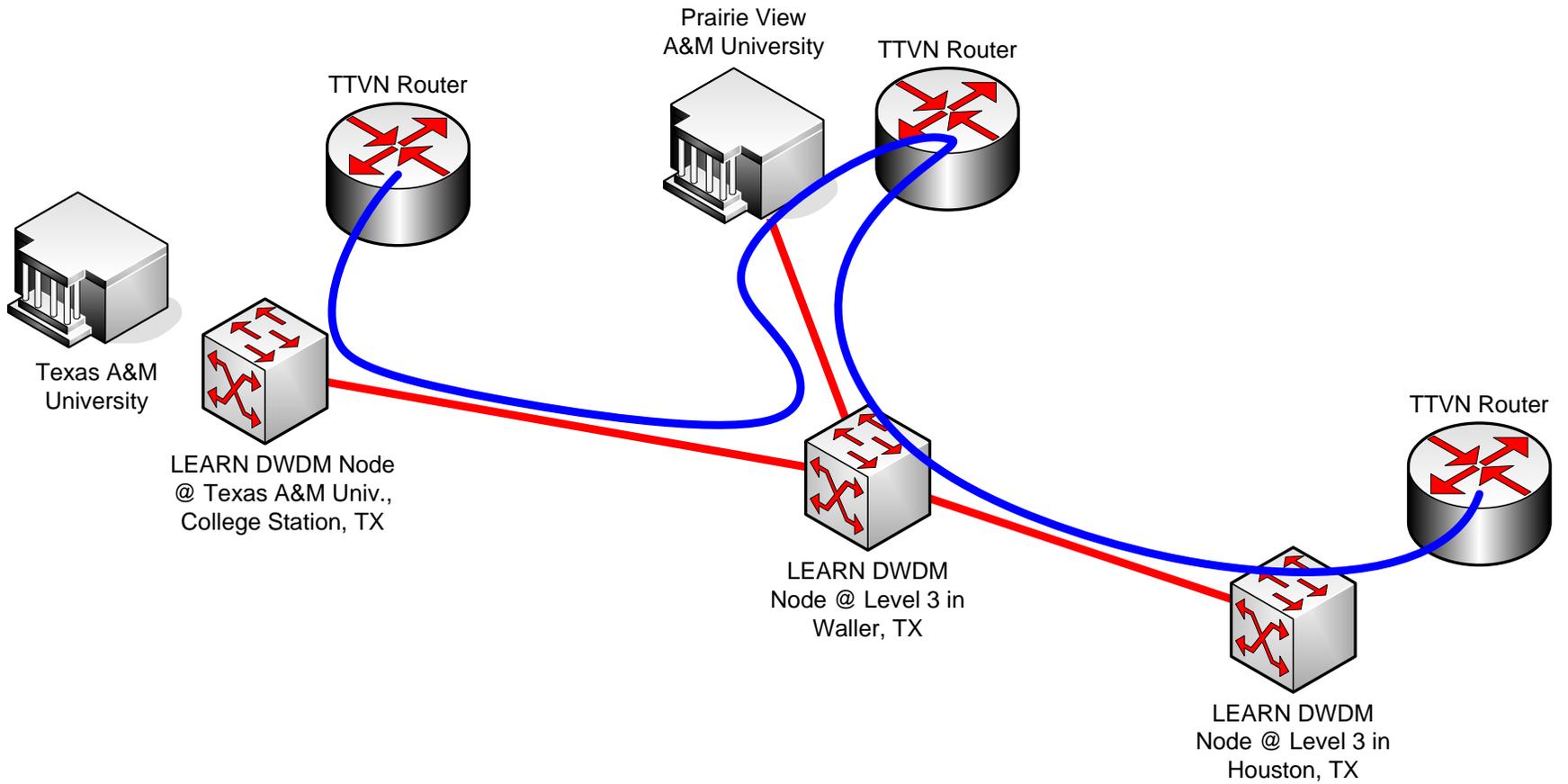
Tx Hwy. 290  
(University Dr. – Level 3 Hut)  
Apprx. 17,510 ft. / 3.32 Miles

## Level 3 Fiber Hut

Waller, TX



# Prairie View A&M University – Logical Network Diagram



— Logical Network Path  
— Physical Network Path

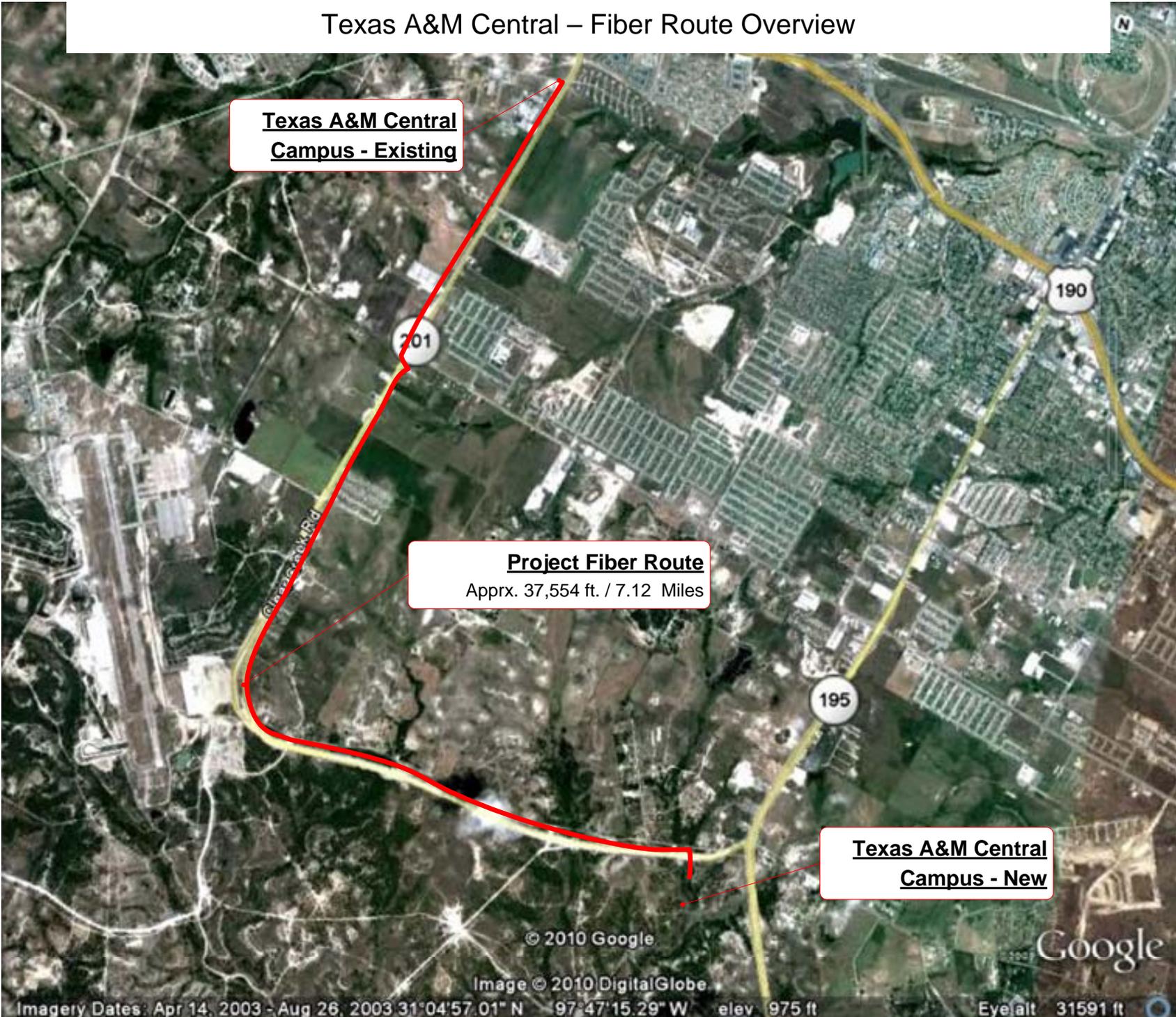
# Texas A&M Central – Fiber Route Overview



**Texas A&M Central  
Campus - Existing**

**Project Fiber Route**  
Apprx. 37,554 ft. / 7.12 Miles

**Texas A&M Central  
Campus - New**



# Texas A&M Central – Existing Campus Detail



**Existing Campus Ducts**  
Campus NOC to Existing Handhole  
Apprx. 125 ft. / 0.02 Miles

**Aerial**  
Clear Creek Road – Loop 201  
(Existing HH to New Campus)  
Apprx. 35,145 ft. / 6.67 Miles

Image © 2010 DigitalGlobe

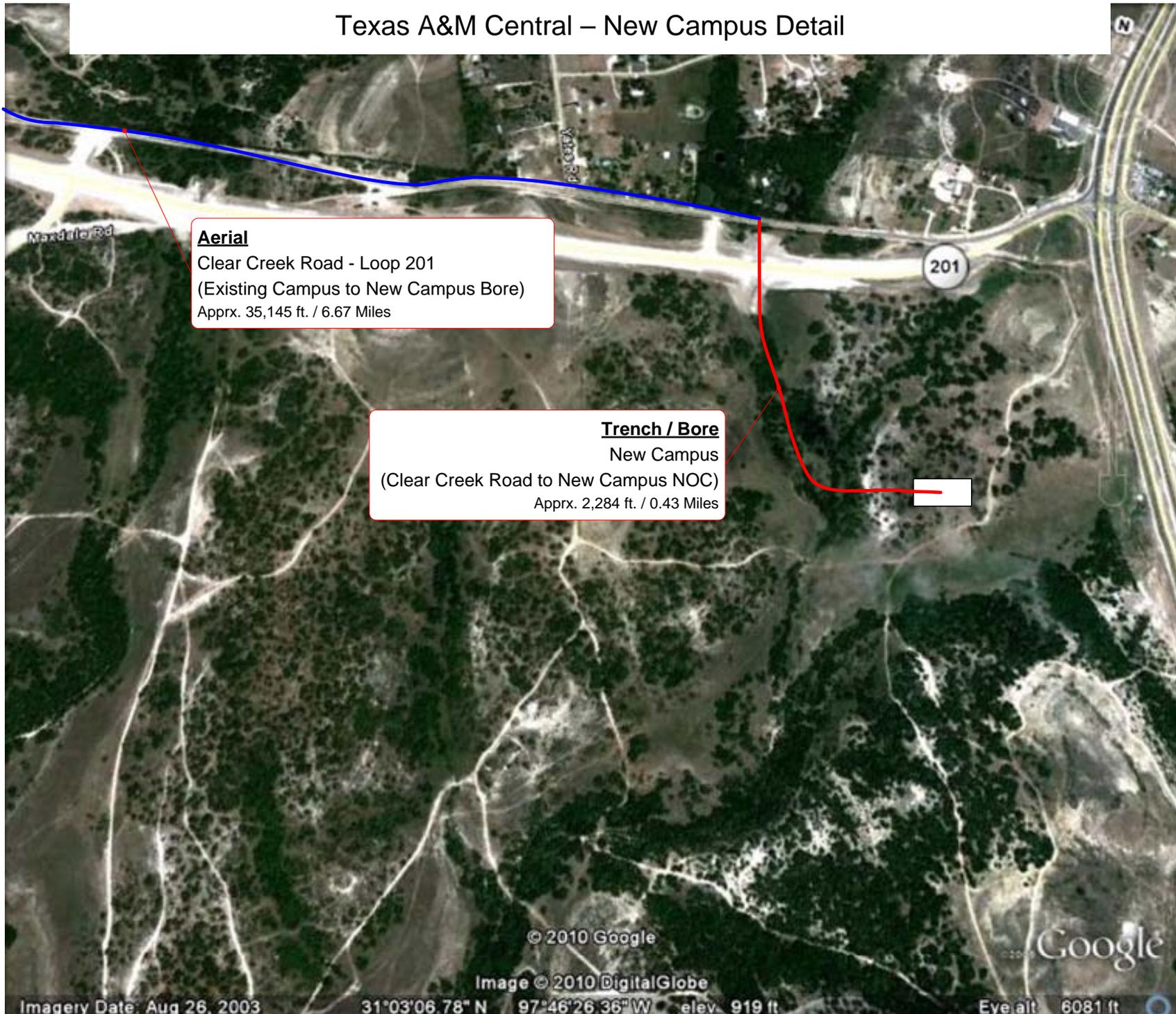
© 2009 Google

Imagery Date: Aug 26, 2003

31°06'57.98" N 97°47'56.82" W elev 974 ft

Eye alt 2991 ft

# Texas A&M Central – New Campus Detail

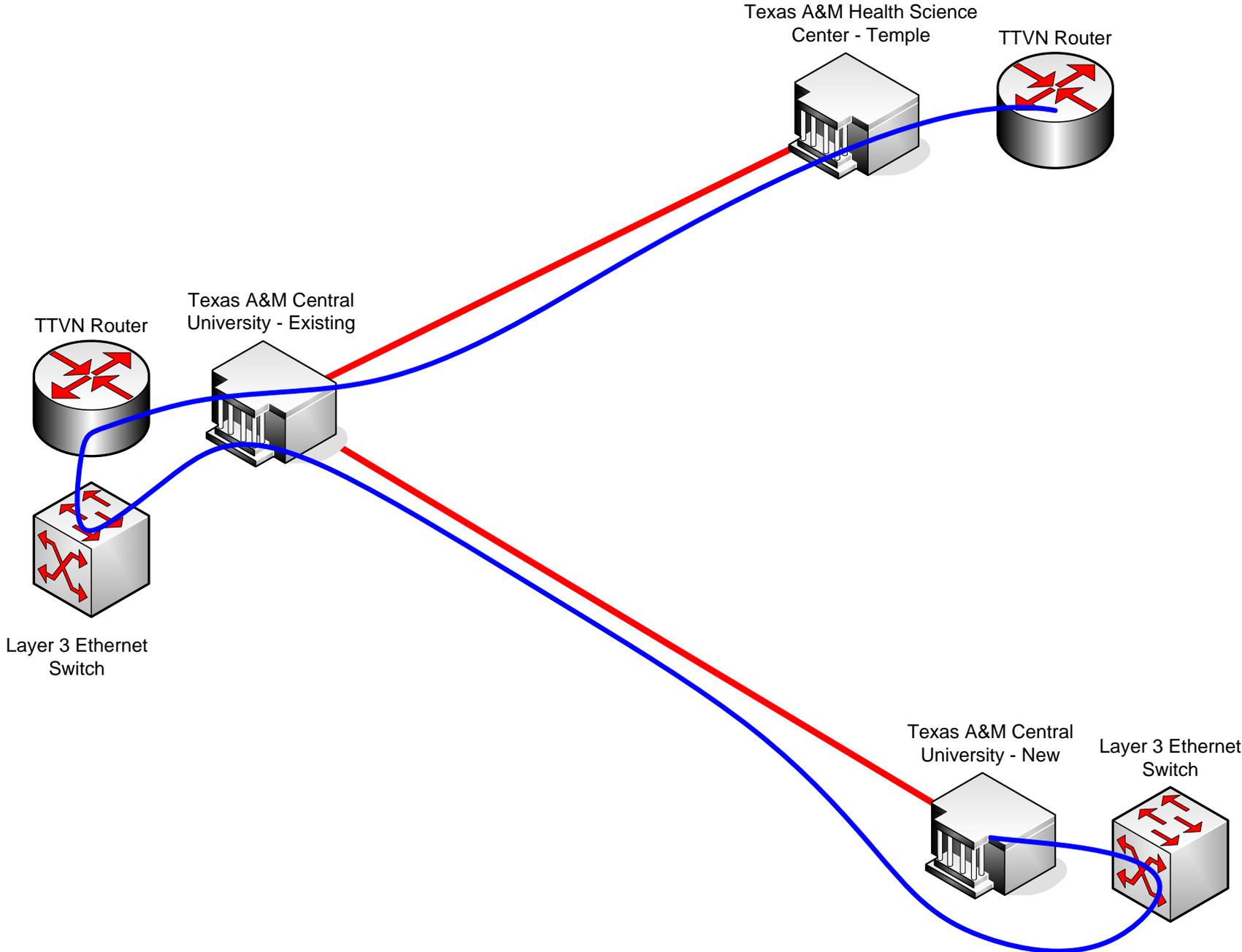


**Aerial**  
Clear Creek Road - Loop 201  
(Existing Campus to New Campus Bore)  
Apprx. 35,145 ft. / 6.67 Miles

**Trench / Bore**  
New Campus  
(Clear Creek Road to New Campus NOC)  
Apprx. 2,284 ft. / 0.43 Miles



# Texas A&M Central – Logical Network Diagram



# Texas A&M Corpus Christi – City of Corpus to TLSN Fiber CO







# Texas A&M Corpus Christi – Momentum Campus Connectivity Detail



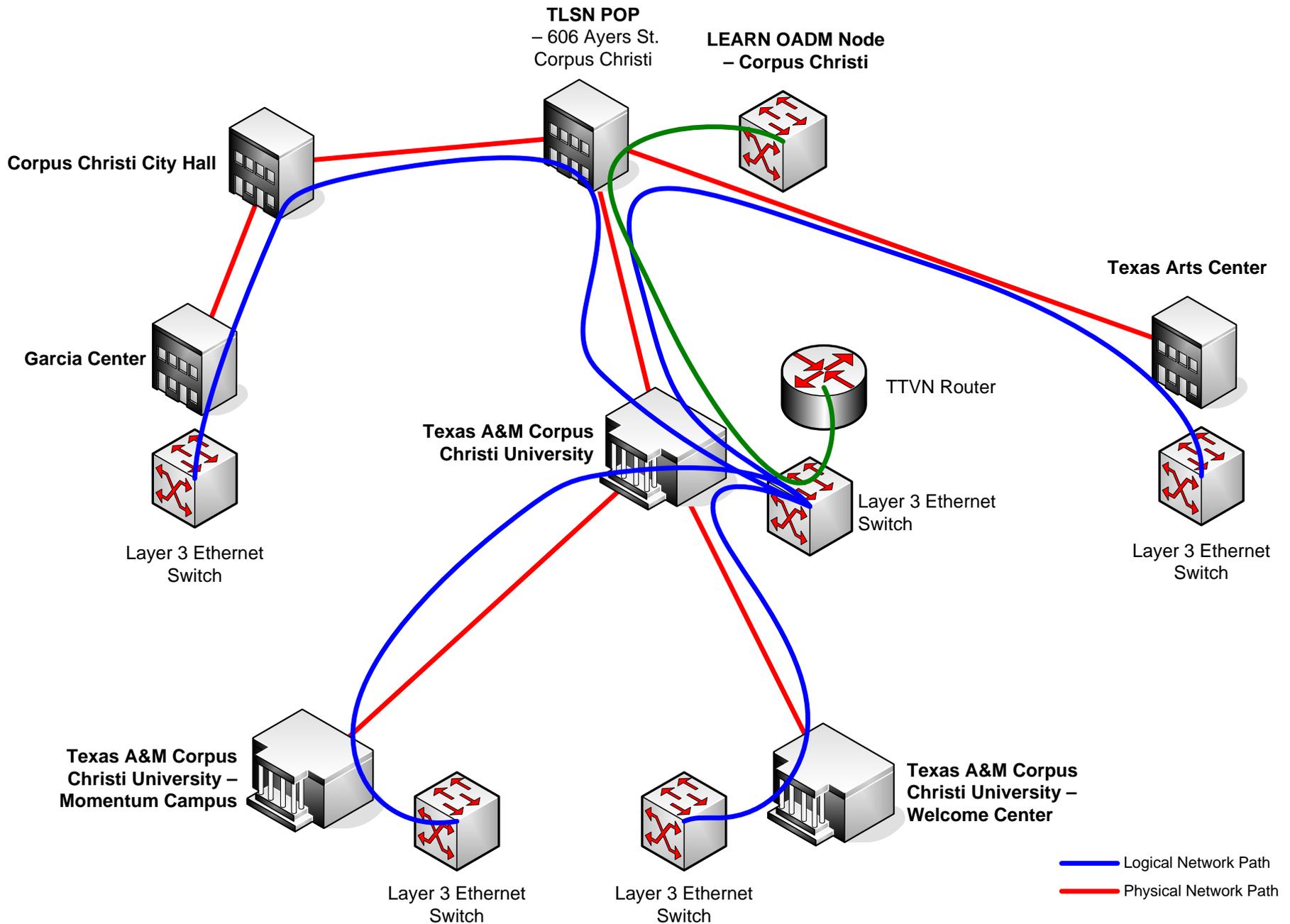
# Texas A&M Corpus Christi – Texas Art Museum Connectivity Detail



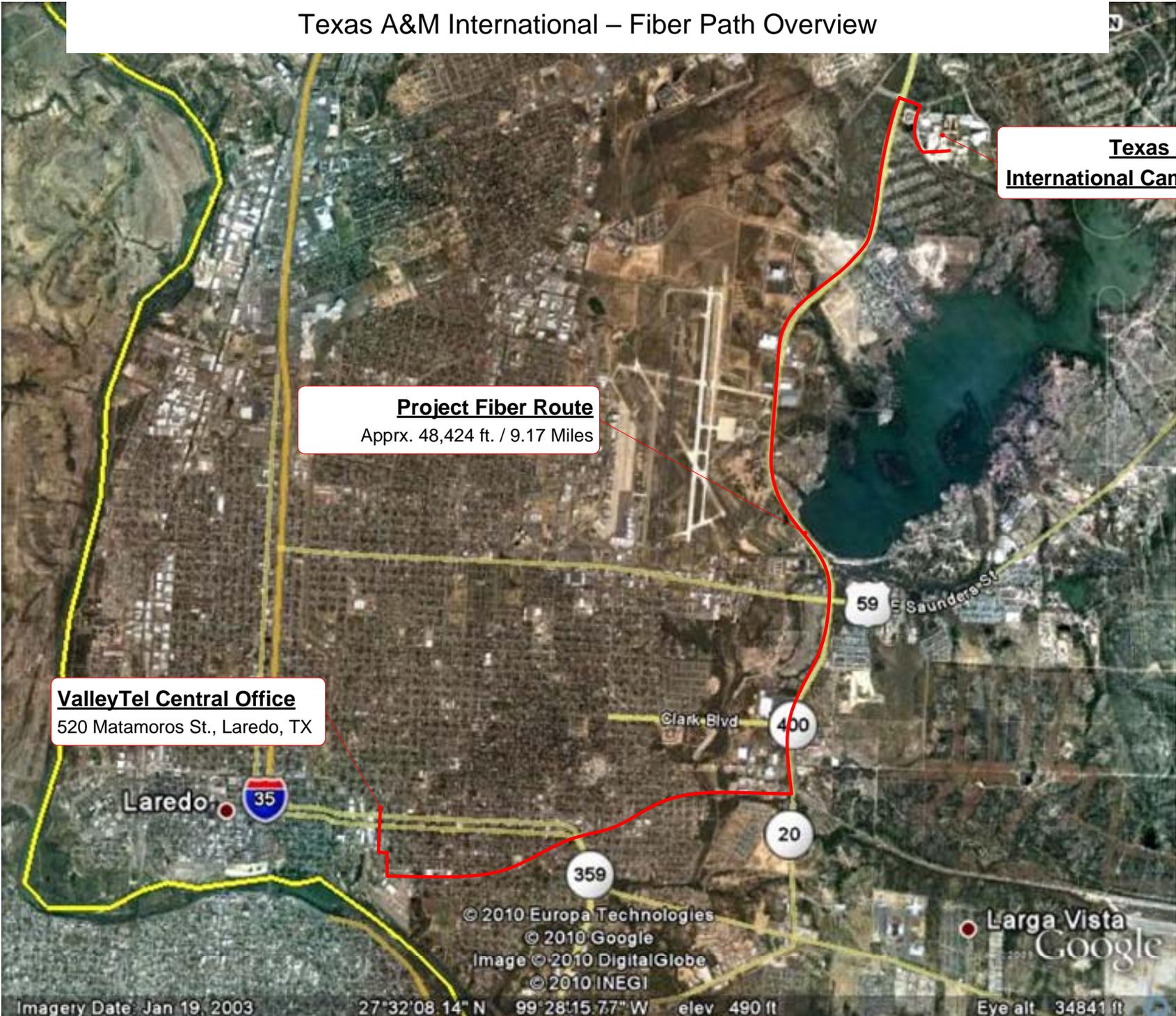
# Texas A&M Corpus Christi – Welcome Center to Campus Detail



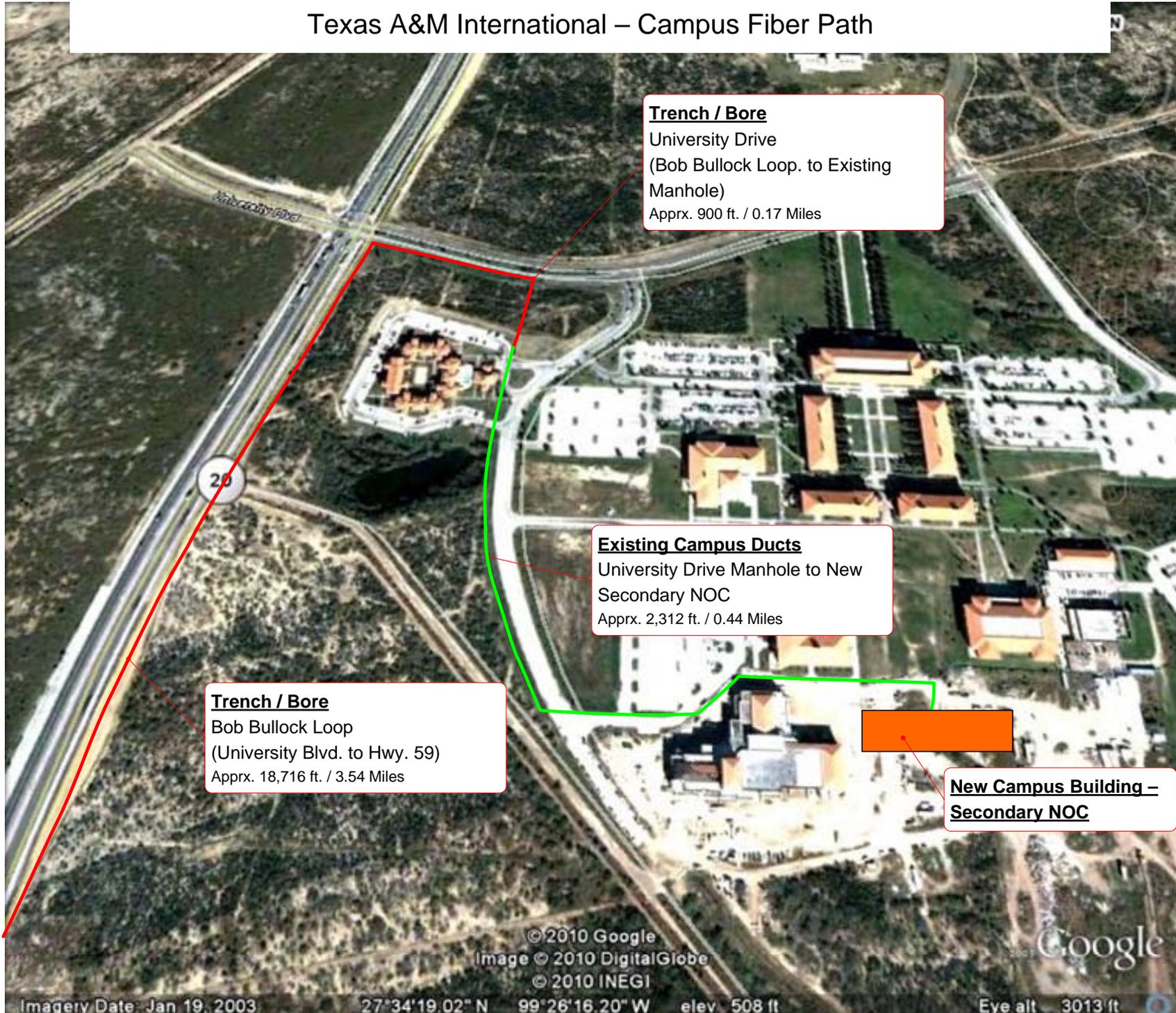
# Texas A&M Corpus Christi – Logical Network Diagram



# Texas A&M International – Fiber Path Overview



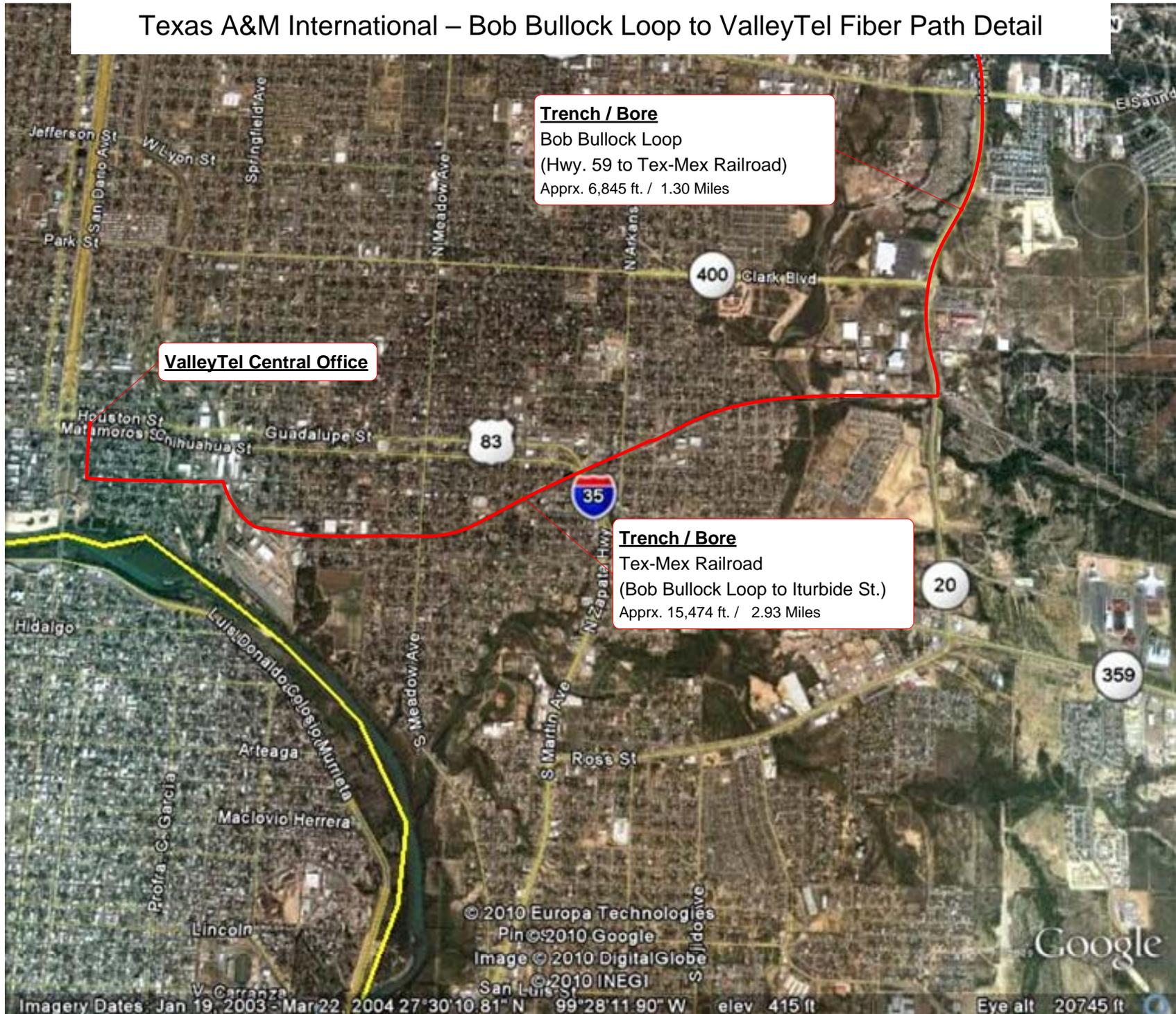
# Texas A&M International – Campus Fiber Path



# Texas A&M International – Campus to Hwy. 59 Fiber Path Detail



# Texas A&M International – Bob Bullock Loop to ValleyTel Fiber Path Detail



# Texas A&M International – ValleyTel Office Fiber Path Detail

**ValleyTel Central Office**  
520 Matamoros St., Laredo, TX

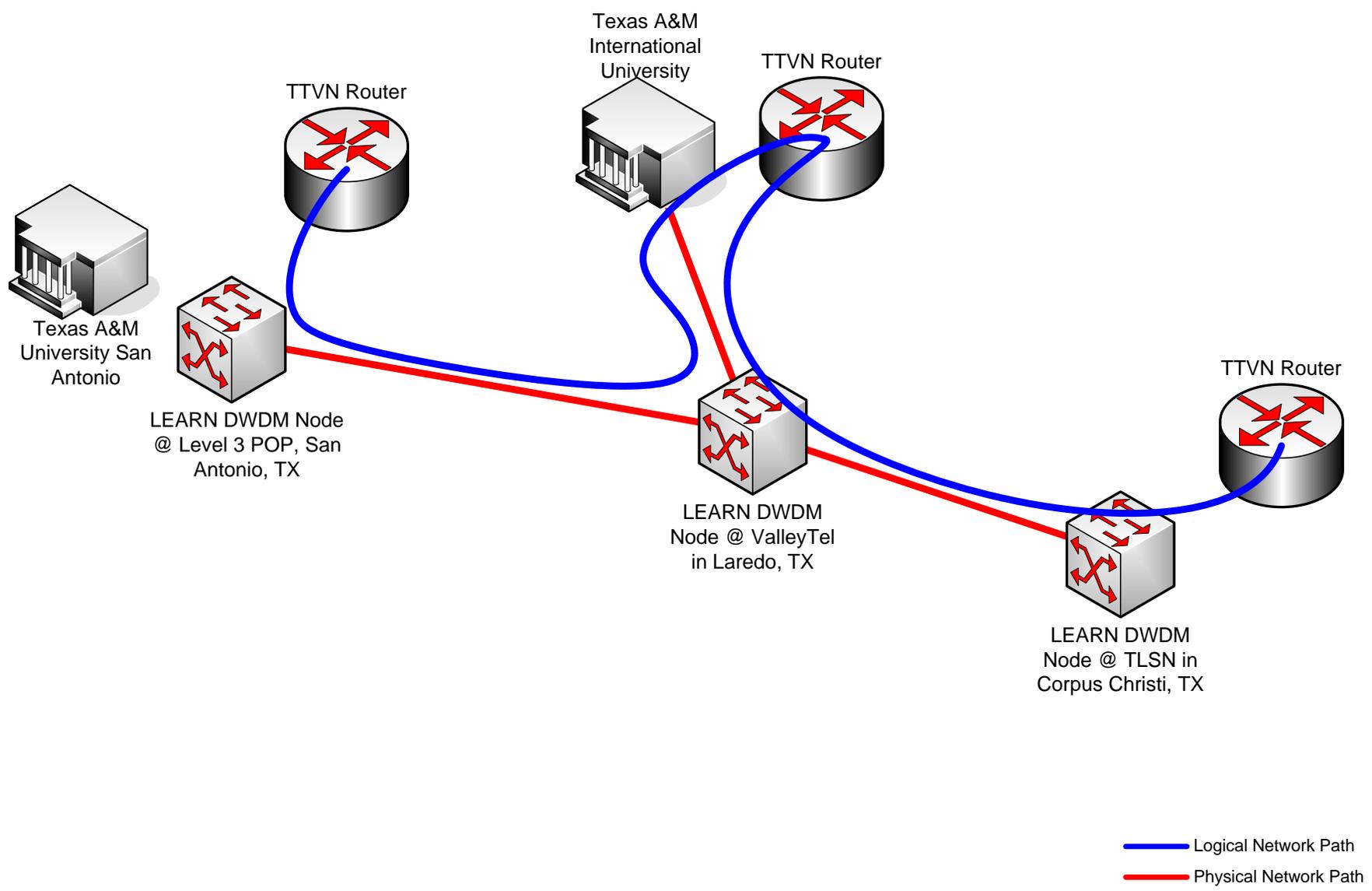
**Trench / Bore**  
San Eduardo Ave.  
(Lincoln St. to ValleyTel HandHole)  
Apprx. 884 ft. / 0.17 Miles

**Trench / Bore**  
San Francisco Ave.  
(Iturbide St. to Lincoln St.)  
Apprx. 267 ft. / 0.05 Miles

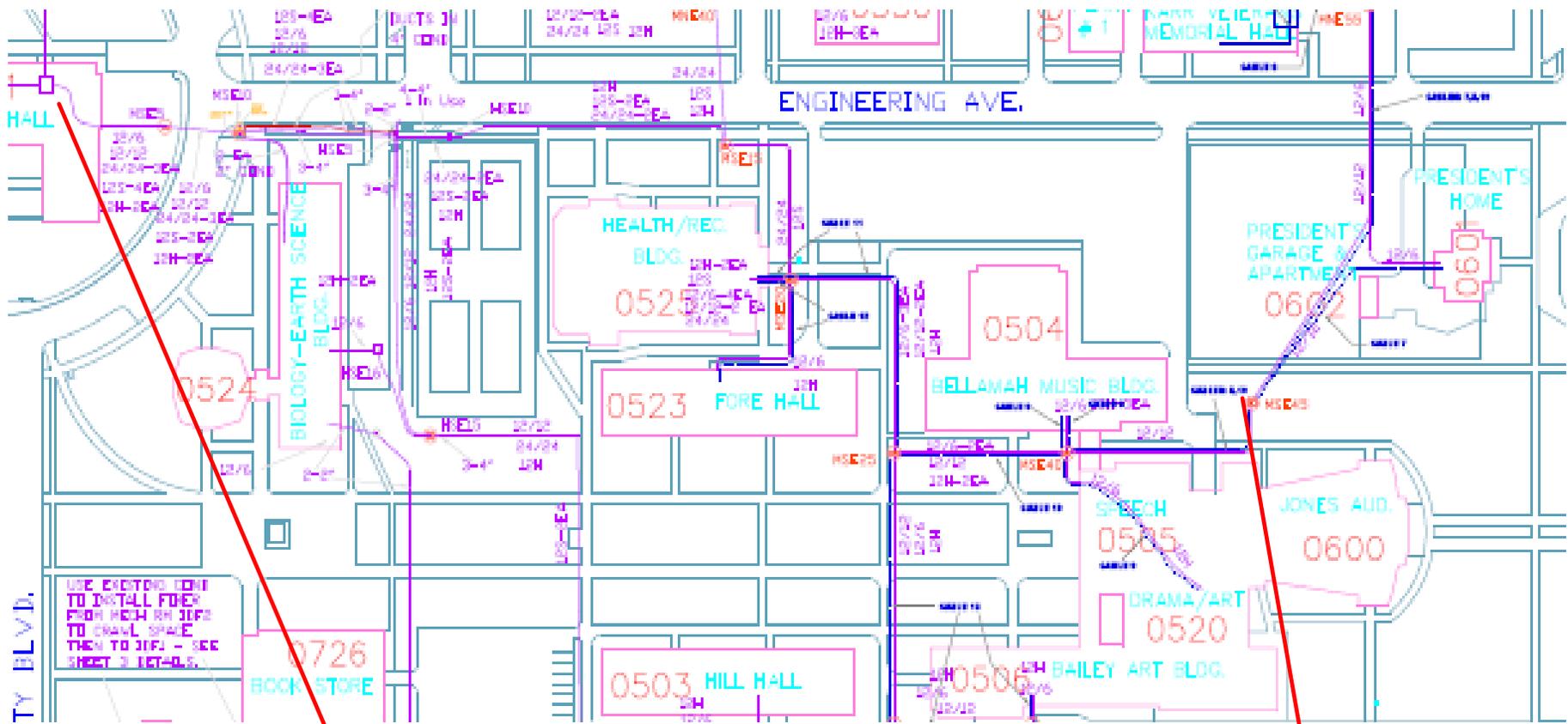
**Trench / Bore**  
Lincoln St..  
(San Francisco Ave. to San Eduardo Ave.)  
Apprx. 312 ft. / 0.06 Miles

**Trench / Bore**  
Iturbide Street  
(Tex-Mex Railroad to San Francisco Ave.)  
Apprx. 2,714 ft. / 0.51 Miles

# Texas A&M International – Logical Network Diagram



# Texas A&M Kingsville – Campus Fiber Path



Bldg 501 end fiber here appx 1300' from First HH

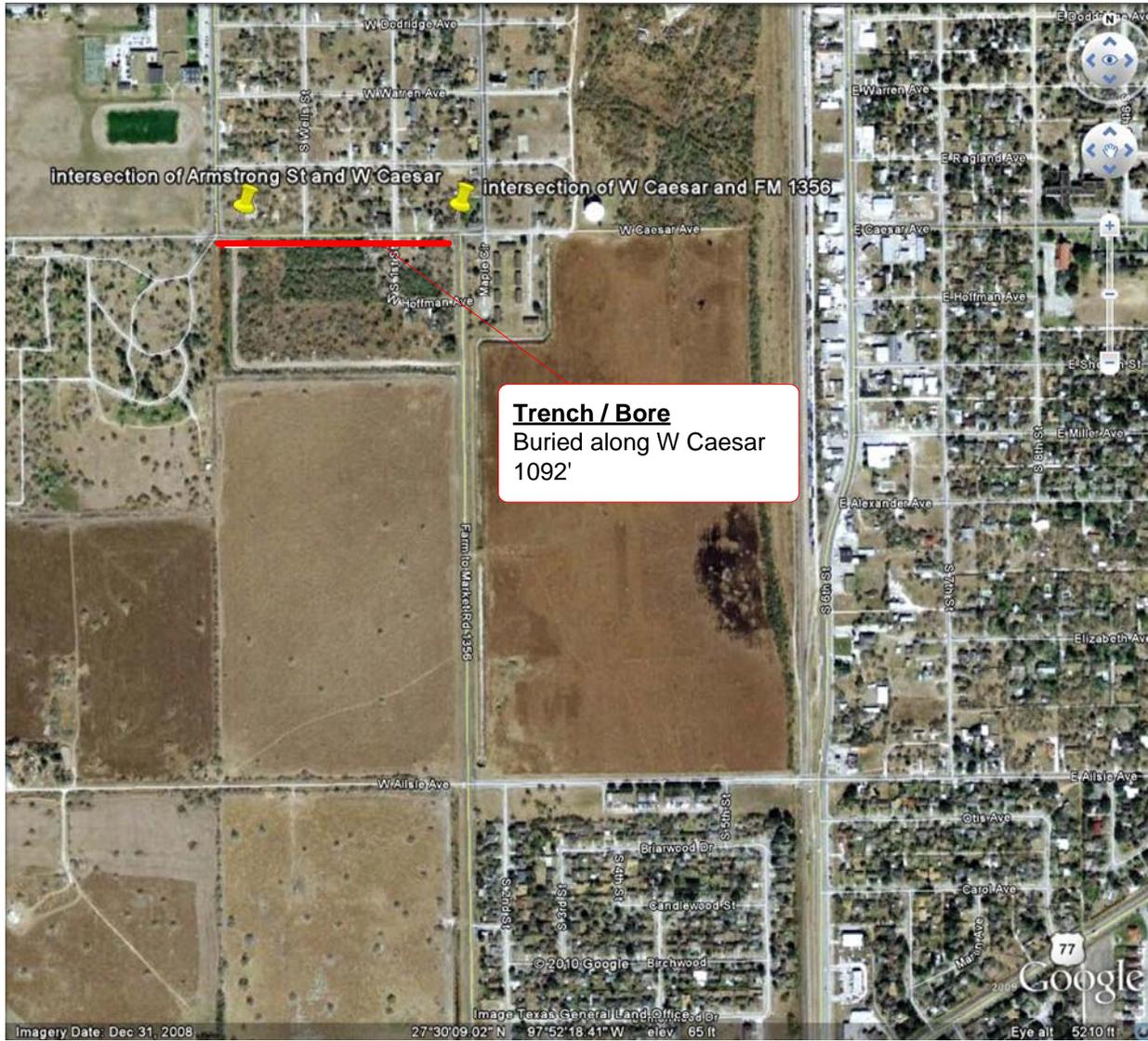
First HH for TAMU – Kingsville (bore across Armstrong)

# Texas A&M Kingsville – Exit off of Campus Fiber Path

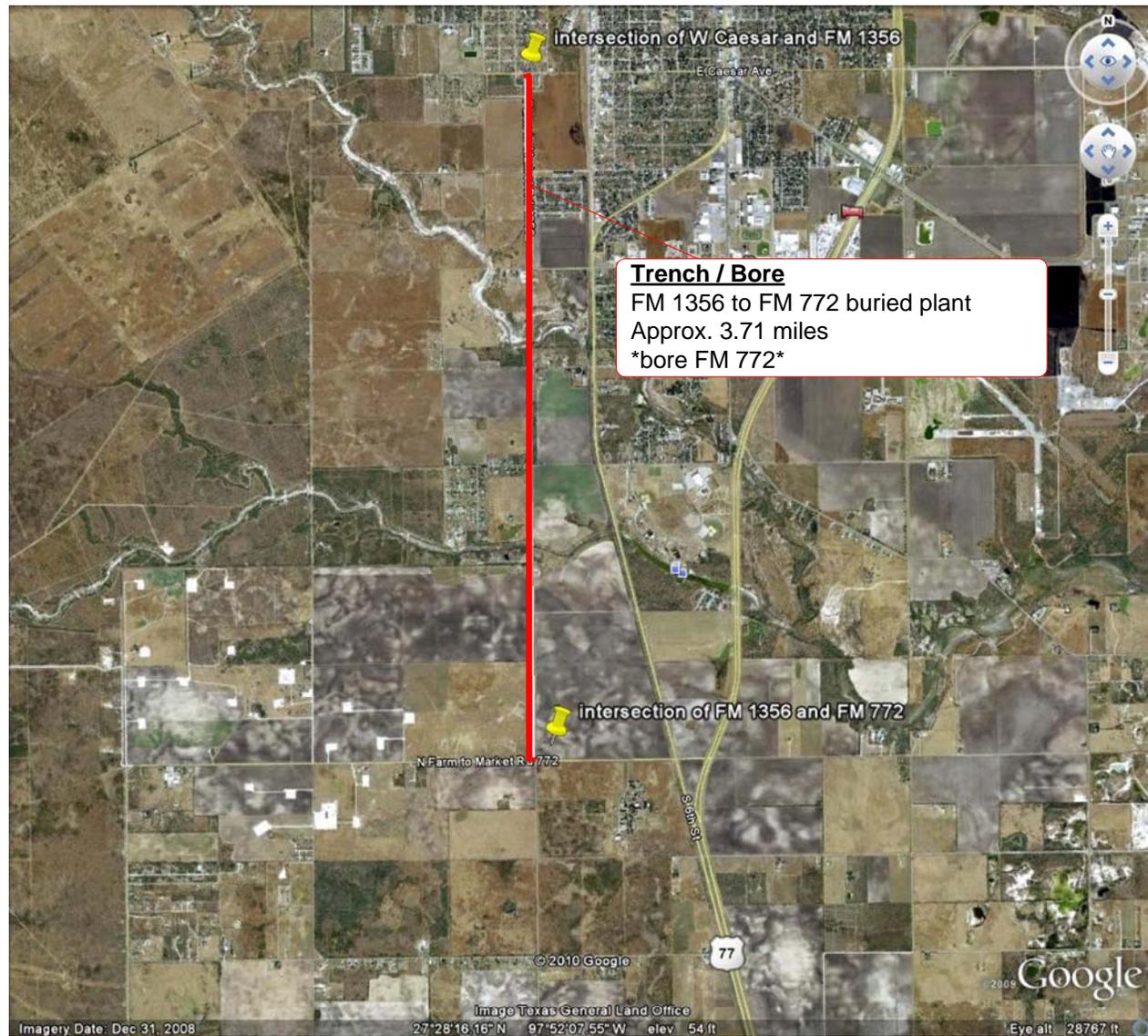




# Texas A&M Kingsville – Caesar Fiber Path



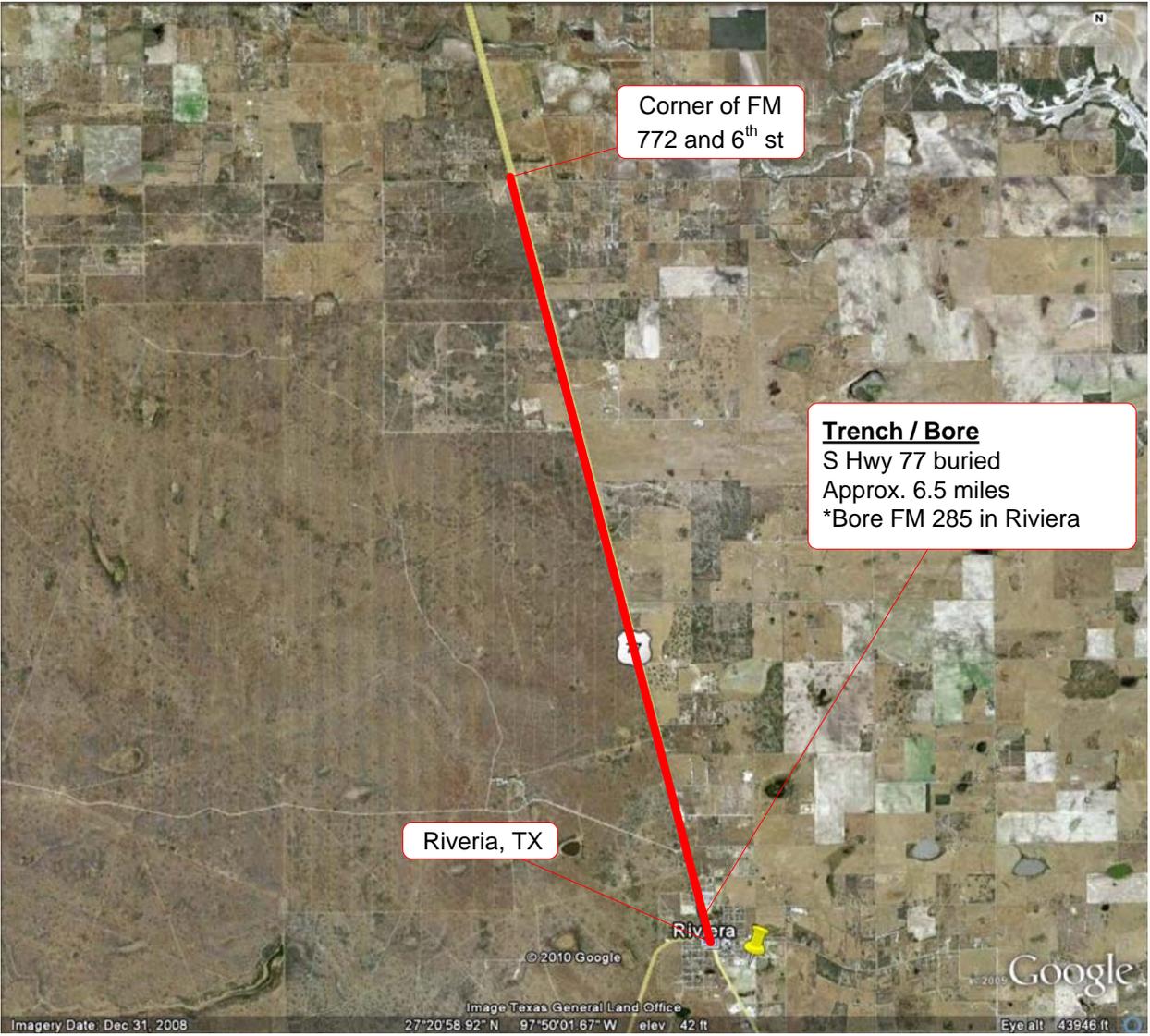
# Texas A&M Kingsville – FM 1356 to FM 772 Fiber Path



# Texas A&M Kingsville – FM 722 to Rail Road Fiber Path



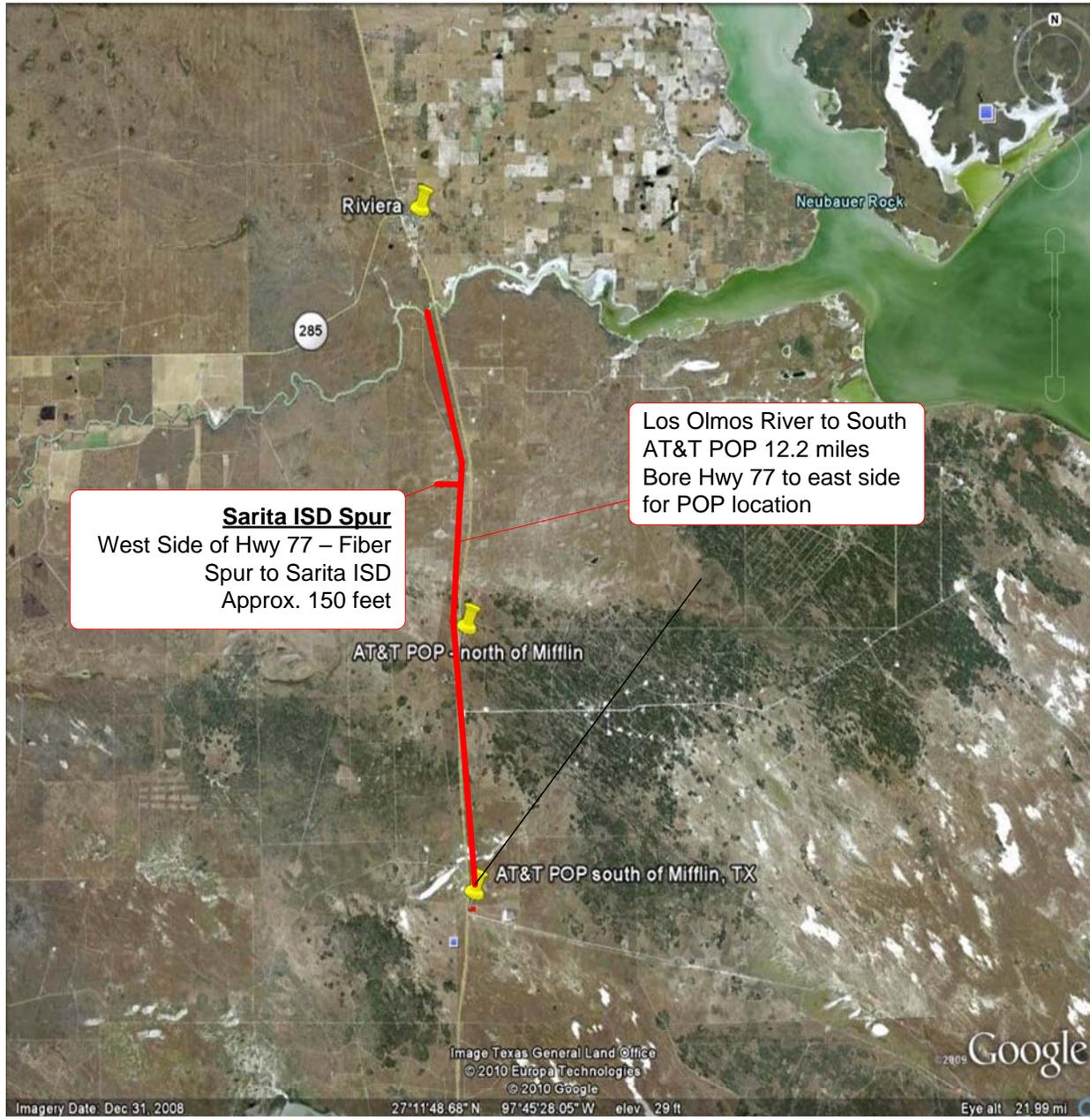
# Texas A&M Kingsville – FM 722 tp Riveria, TX Fiber Path



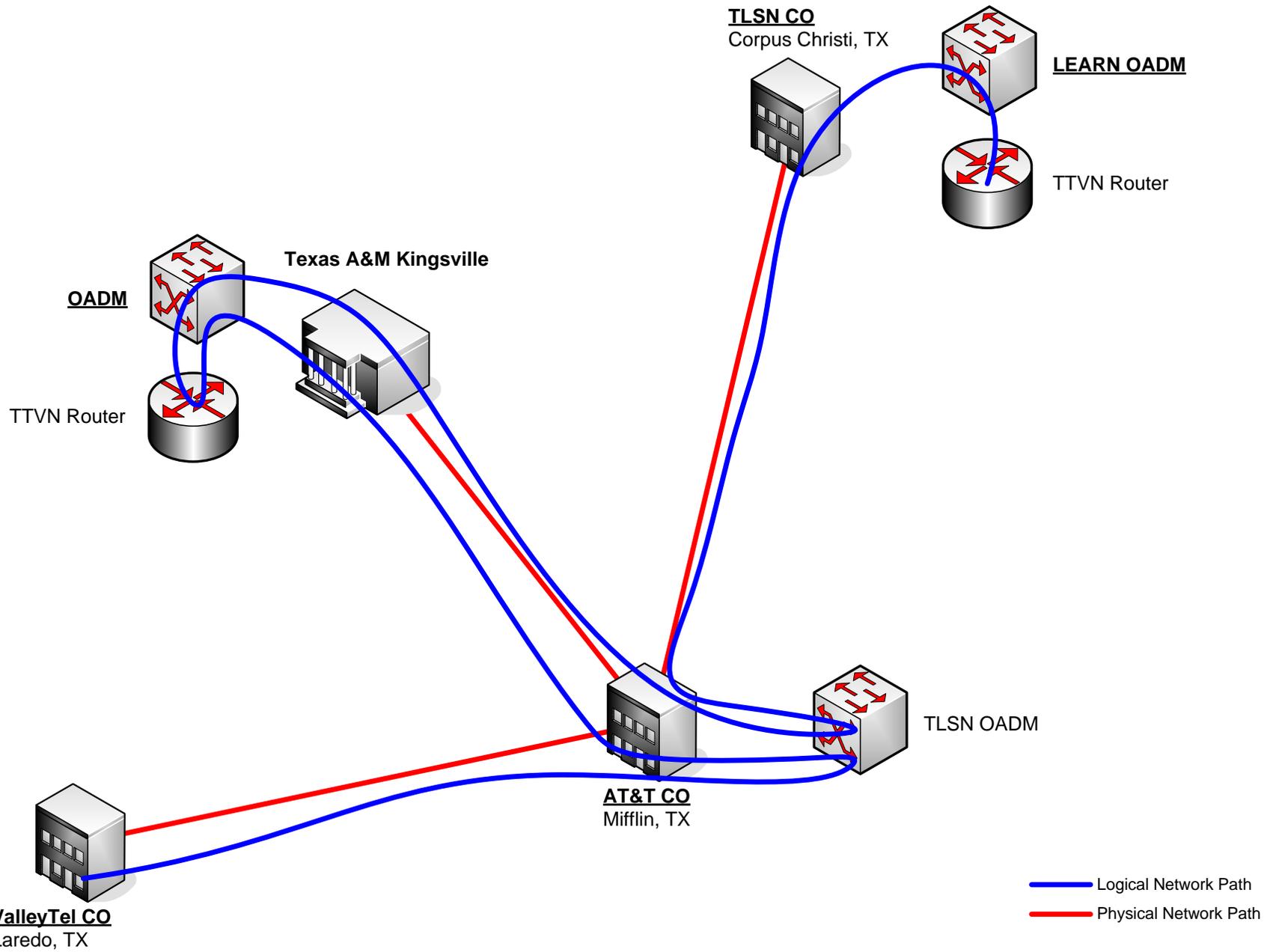
# Texas A&M Kingsville – Riviera, TX to Los Olmos River Fiber Path



# Texas A&M Kingsville – Los Olmos River to AT&T POP Fiber Path



# Texas A&M Kingsville – Logical Network Diagram



# Texas A&M University – Riverside Campus – Fiber Path Overview



Sinetana

21

**Riverside Campus**

47

Leonard Rd

**Project Fiber Route**  
Apprx. 27,065 ft. / 5.13 Miles

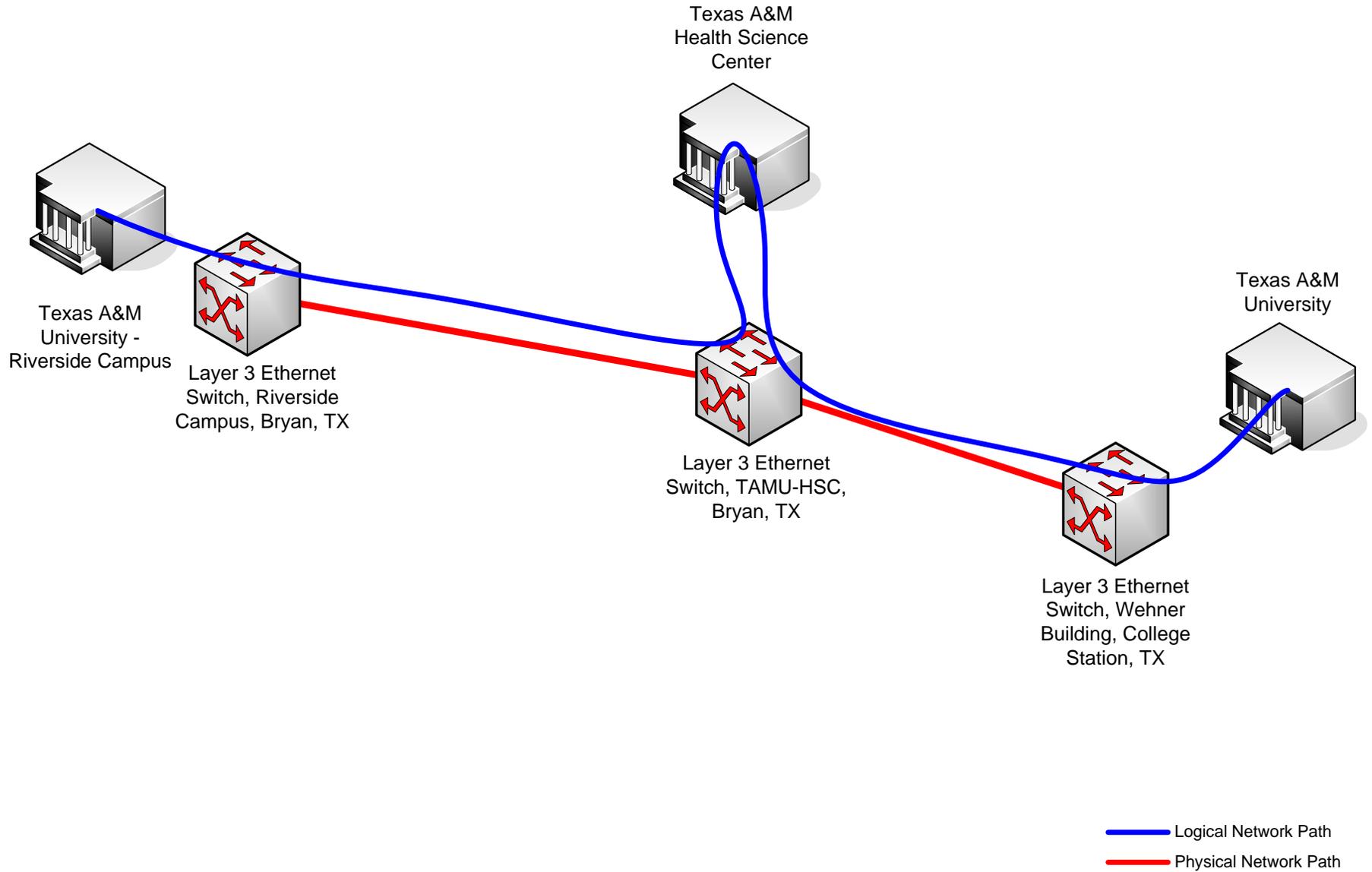
**Texas A&M Health Science Center**

Image © 2010 DigitalGlobe  
© 2010 Google

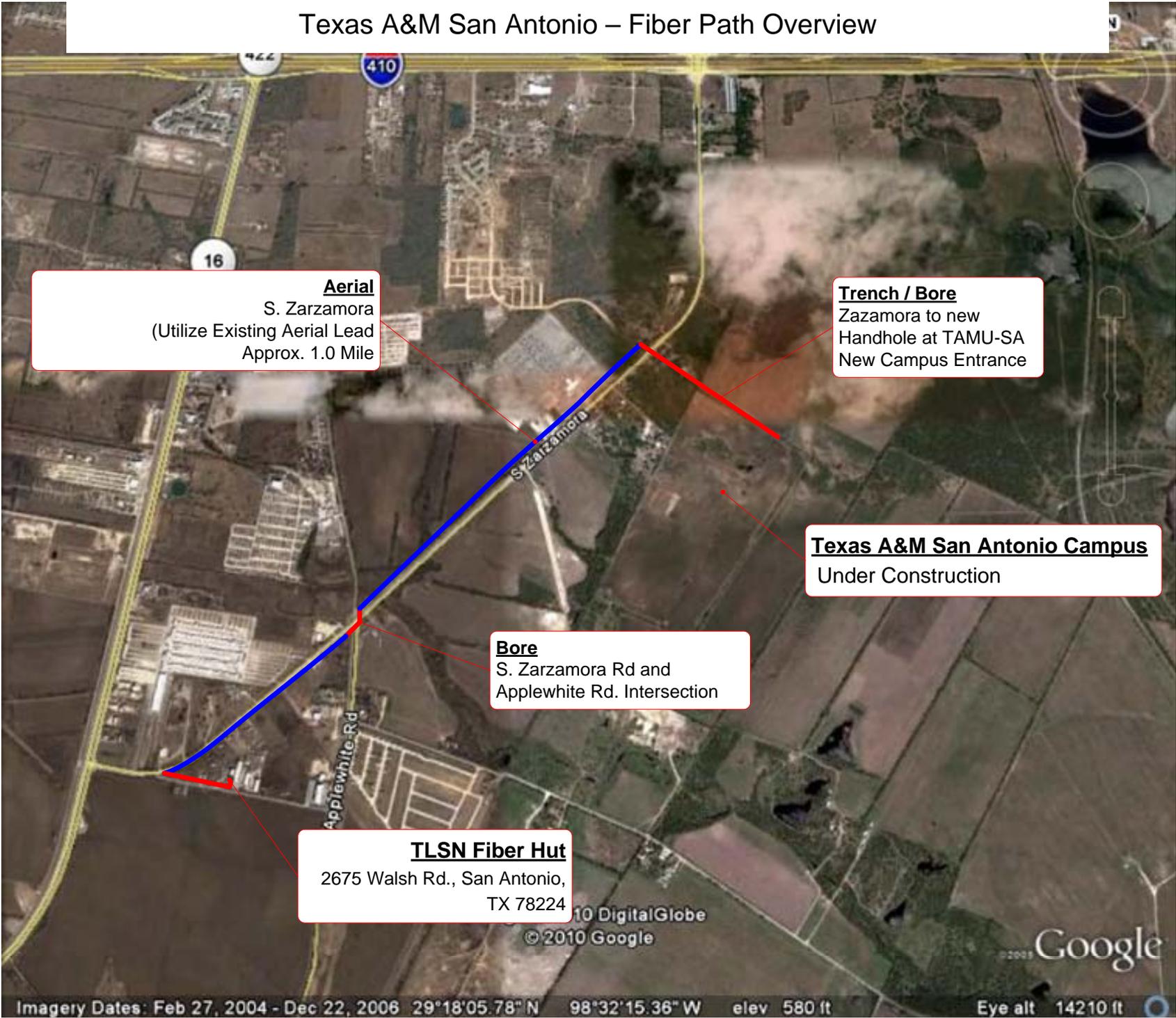
Google

Imagery Dates: Jun 28, 2005 - Aug 31, 2006 30°37'18.87" N 96°25'39.24" W elev. 286 ft Eye alt 28028 ft

# Texas A&M University – Riverside Campus – Logical Network Diagram



# Texas A&M San Antonio – Fiber Path Overview



**Aerial**  
S. Zarzamora  
(Utilize Existing Aerial Lead  
Approx. 1.0 Mile)

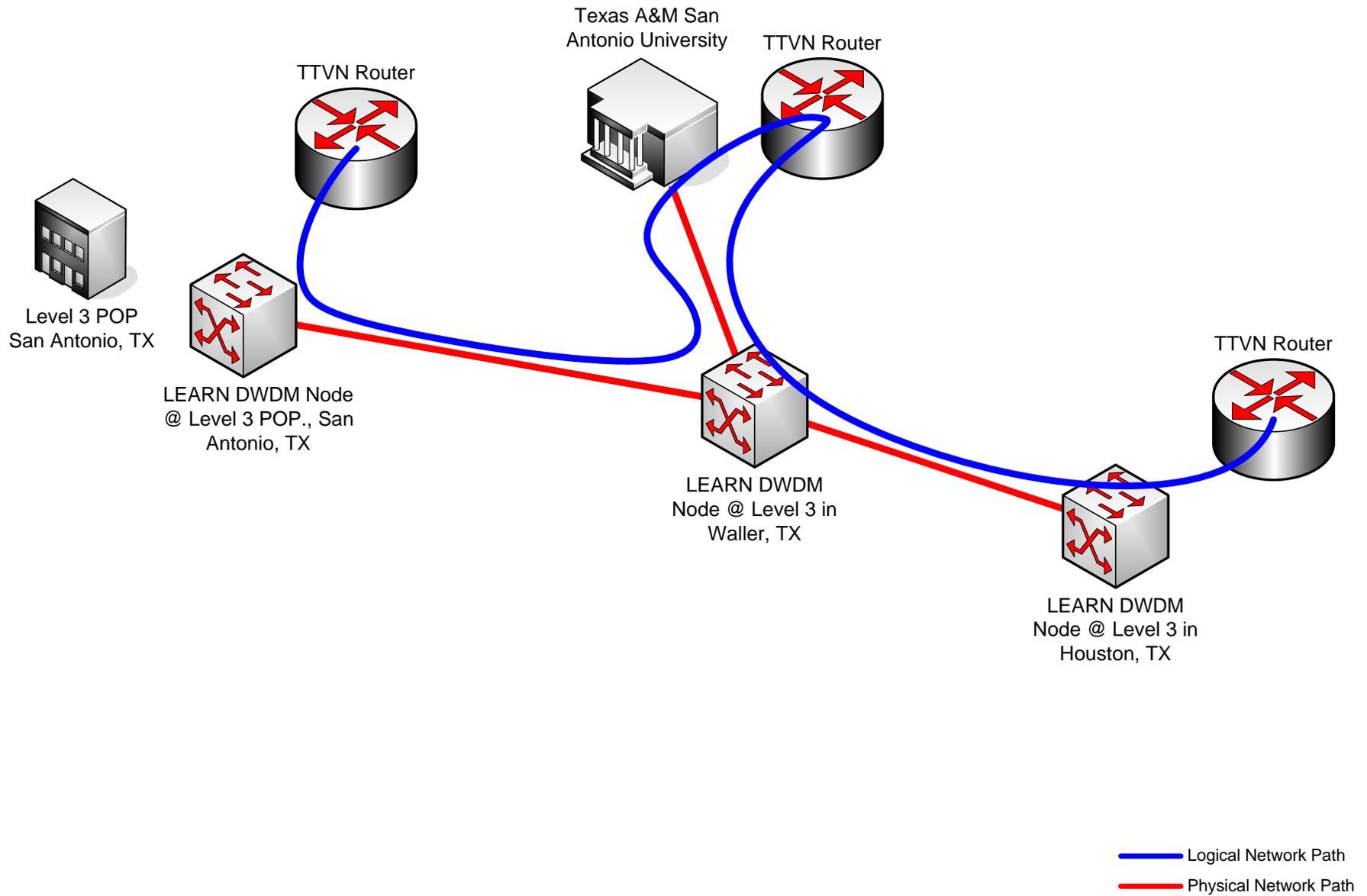
**Trench / Bore**  
Zazamora to new  
Handhole at TAMU-SA  
New Campus Entrance

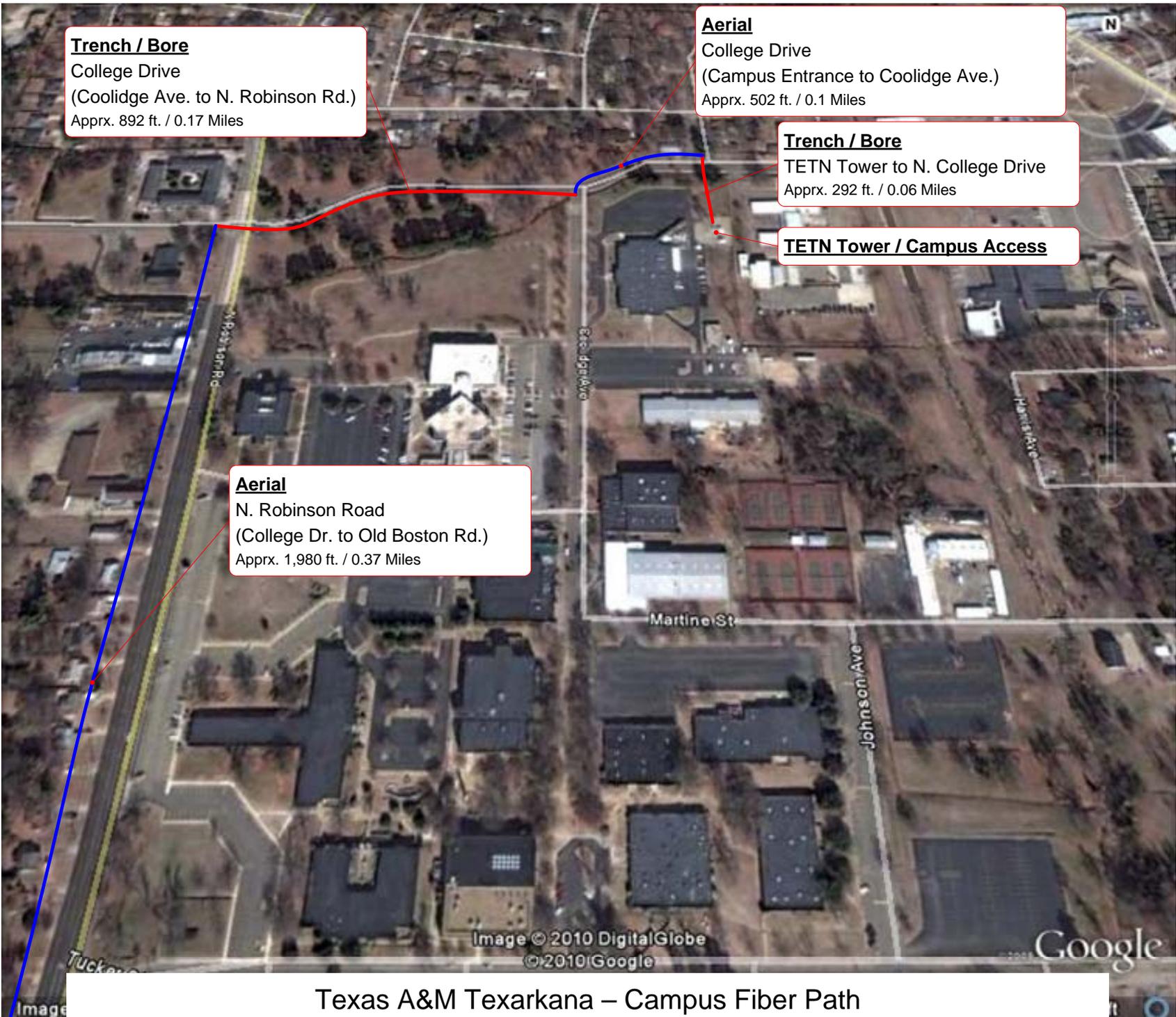
**Texas A&M San Antonio Campus**  
Under Construction

**Bore**  
S. Zarzamora Rd and  
Applewhite Rd. Intersection

**TLSN Fiber Hut**  
2675 Walsh Rd., San Antonio,  
TX 78224

# Texas A&M San Antonio – Logical Network Diagram





**Trench / Bore**  
College Drive  
(Coolidge Ave. to N. Robinson Rd.)  
Apprx. 892 ft. / 0.17 Miles

**Aerial**  
College Drive  
(Campus Entrance to Coolidge Ave.)  
Apprx. 502 ft. / 0.1 Miles

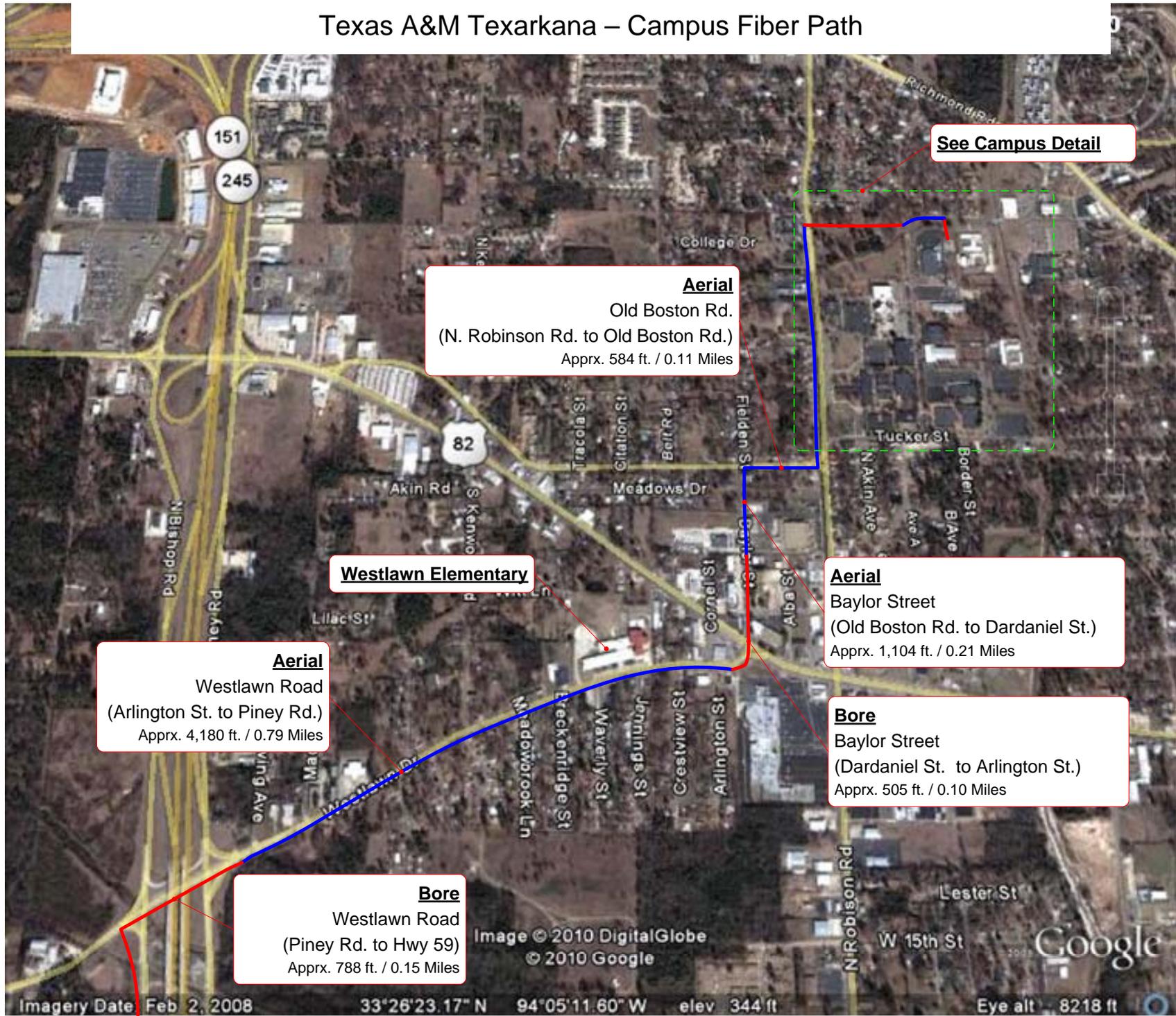
**Trench / Bore**  
TETN Tower to N. College Drive  
Apprx. 292 ft. / 0.06 Miles

**TETN Tower / Campus Access**

**Aerial**  
N. Robinson Road  
(College Dr. to Old Boston Rd.)  
Apprx. 1,980 ft. / 0.37 Miles

Texas A&M Texarkana – Campus Fiber Path

# Texas A&M Texarkana – Campus Fiber Path



[See Campus Detail](#)

**Aerial**  
Old Boston Rd.  
(N. Robinson Rd. to Old Boston Rd.)  
Approx. 584 ft. / 0.11 Miles

**Westlawn Elementary**

**Aerial**  
Baylor Street  
(Old Boston Rd. to Dardaniel St.)  
Approx. 1,104 ft. / 0.21 Miles

**Aerial**  
Westlawn Road  
(Arlington St. to Piney Rd.)  
Approx. 4,180 ft. / 0.79 Miles

**Bore**  
Baylor Street  
(Dardaniel St. to Arlington St.)  
Approx. 505 ft. / 0.10 Miles

**Bore**  
Westlawn Road  
(Piney Rd. to Hwy 59)  
Approx. 788 ft. / 0.15 Miles

# Texas A&M Texarkana – Texarkana, TX to Atlanta, TX Fiber Path

Business Hwy 59

**Trench / Bore**  
Business Highway 59  
(Westlawn Dr. – Hwy. 59)  
Apprx. 13,384 ft. / 2.53 Miles

**Submerged Bore**  
US Highway 59 -  
(Horseshoe Loop / Park Road to McCartney  
Bridge – Sulphur River)  
Apprx. 8,846 ft. / 1.68 Miles

*NOTE: Amount is included in the total distance  
for the US 59 Route, this is the estimated  
portion of the bore that will be in submerged  
terrain.*

McCartney Bridge

**Trench / Bore**  
US Highway 59  
(Business 59 – Sulphur River to Loop 59 – Atlanta, TX)  
Apprx. 100,178 ft. / 18.97 Miles

Loop - Highway 59 – Atlanta, TX

# Texas A&M Texarkana – Atlanta, TX City Detail



# Texas A&M Texarkana – Atlanta, TX to Level 3 Fiber Path



**Trench / Bore**  
South Hwy. 59 – W. Main St. to CR 1222  
Apprx. 33,333 ft. / 6.31 Miles

**Trench / Bore**  
CR 1925 – Level 3 Fiber Hut  
Apprx. 447 ft. / 0.08 Miles

Imagery Date: Jun 28, 2005

©2010 Google  
A Farm Service Agency  
13°57.05' W elev 320 ft

Google  
Eye alt 28324 ft

# Texas A&M Agriculture Center – Weslaco, TX – Fiber Path



**Texas A&M Citrus Center**

**Project Fiber Route**  
Apprx. 5,100 ft. / 0.97 Miles

**Texas A&M Weslaco Agriculture Center**

Image City of McAllen

© 2010 Google

© 2010 INEGI

Imagery Date: Oct 15, 2007

26°09'34.23" N 97°57'31.30" W elev 71 ft

Eye alt 4697 ft

TAMU Weslaco Overview

# Texas A&M Agriculture Center – Weslaco, TX – Ag Center Detail

**Trench / Bore**  
International Blvd.  
(Citrus Center Entrance to Agriculture Center West Entrance)  
Apprx. 3,525 ft. / 0.67 Miles

**Trench / Bore**  
Agriculture Center West Entrance Road  
(International Blvd., to Ag. Center Campus NOC)  
Apprx. 1,121 ft. / 0.21 Miles



Ag Center Campus Detail

# Texas A&M Agriculture Center – Weslaco, TX – Citrus Center Detail



## Trench / Bore

Citrus Center  
(Campus NOC to N. International Blvd.)  
Aprx. 454 ft. / 0.09 Miles

## Trench / Bore

International Blvd.  
(Citrus Center Entrance to Agriculture  
Center West Entrance)  
Aprx. 3,525 ft. / 0.67 Miles

Image City of McAllen

© 2010 Google

© 2010 INEGI

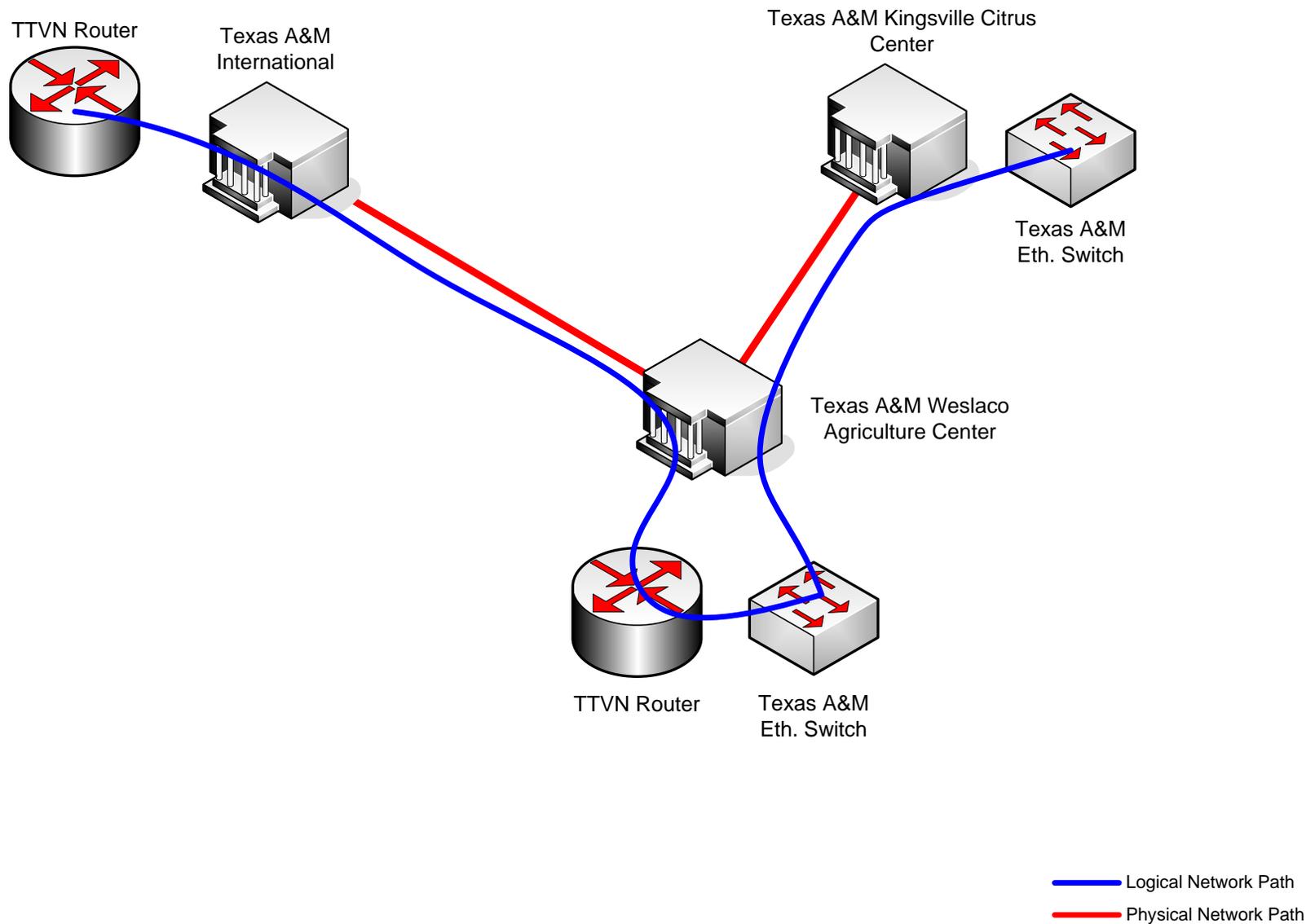
Imagery Date: Oct 15, 2007

26°09'53.15" N 97°57'30.51" W elev 67 ft

Eye alt 1626 ft

Citrus Center Detail

# Texas A&M Agriculture Center – Weslaco, TX – Logical Network Diagram



Logical Diagram

# Tarleton State University – Campus Fiber Path Detail

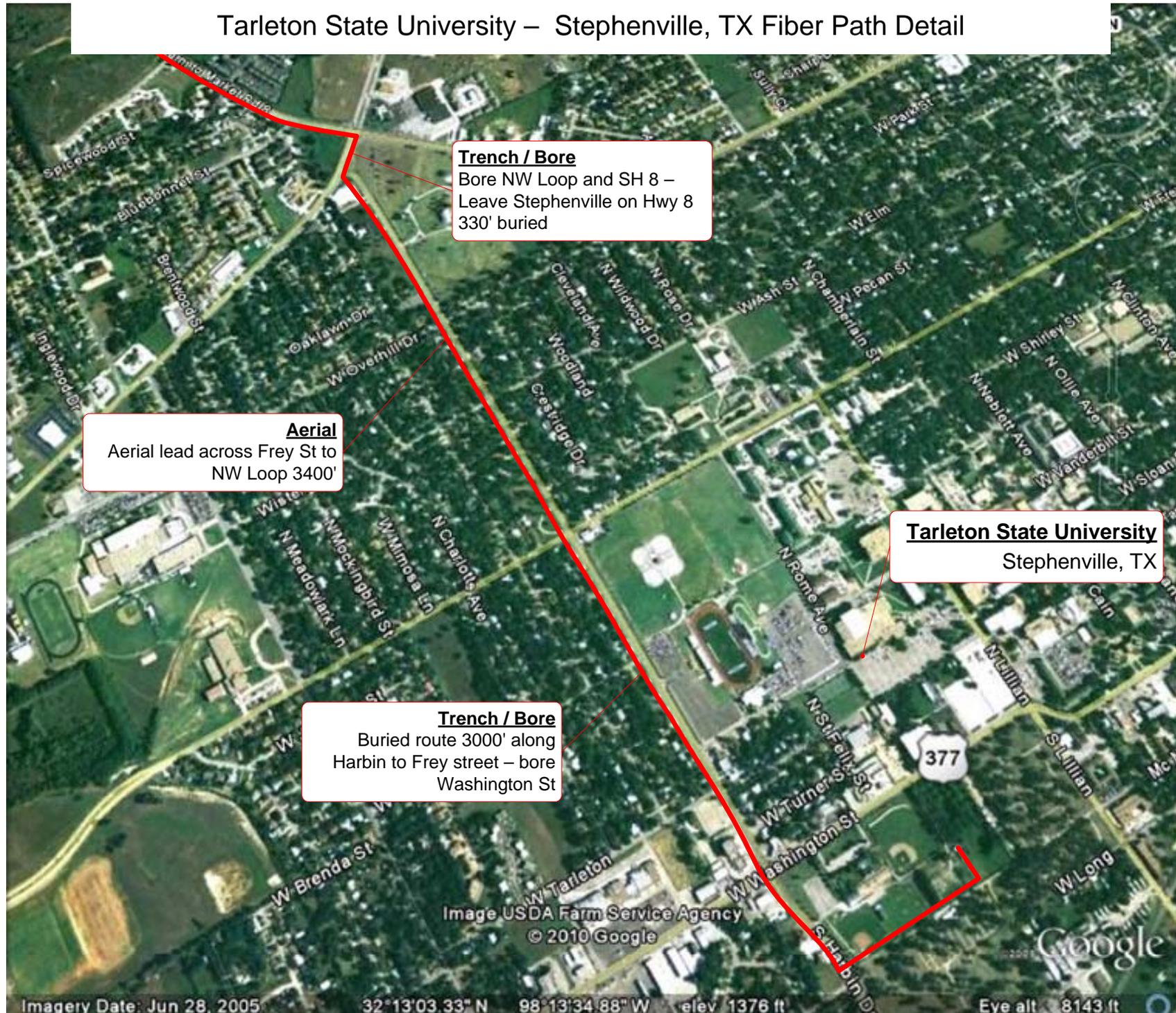


**Tarleton State University**  
Stephenville, TX

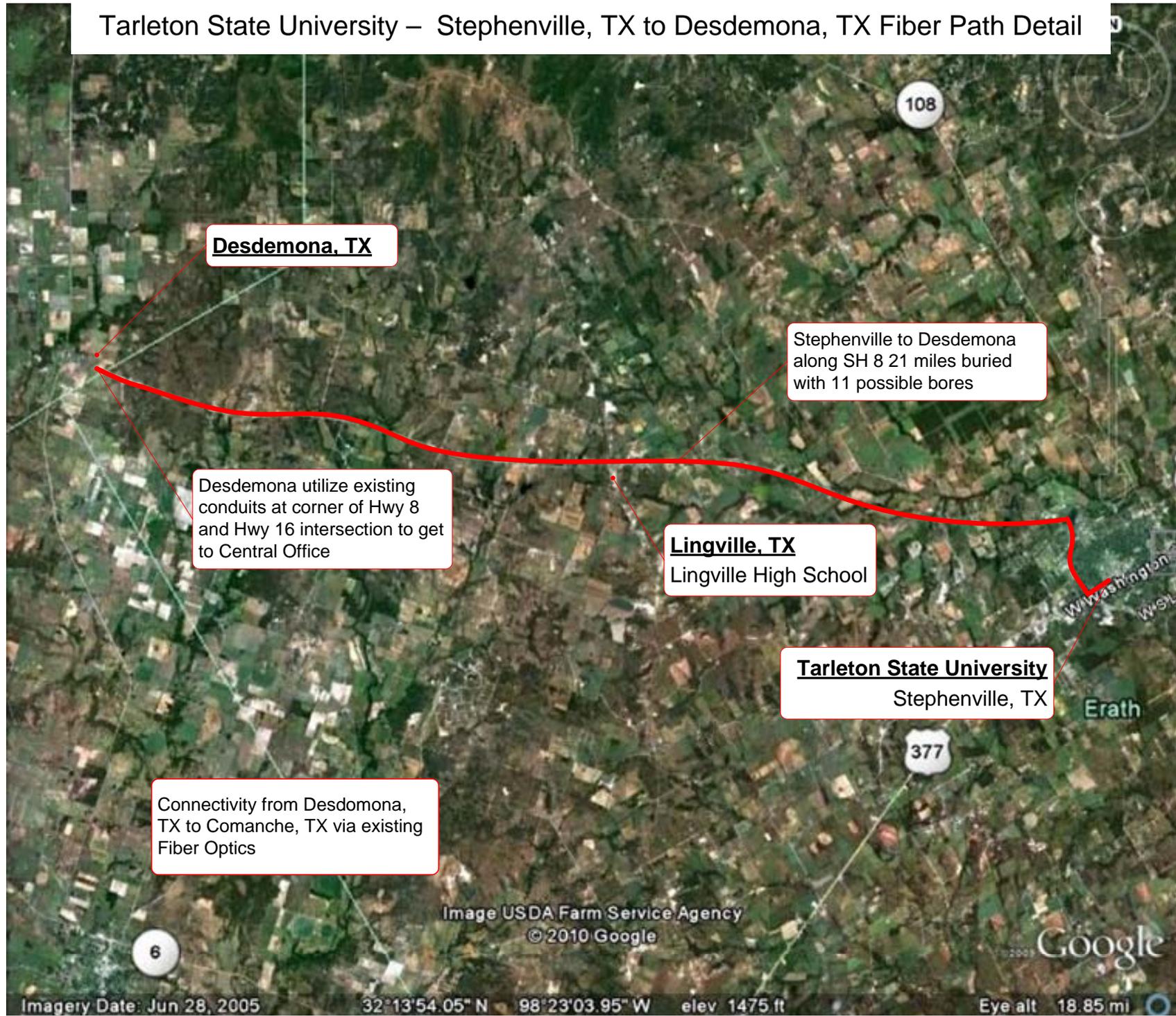
**Trench / Bore**  
Harbin Street to Existing Fiber Hut  
Approx. 400 feet

**Trench / Bore**  
Bore Lillian Street then attach to existing  
aerial lead to Harbin across from campus  
Approx. 3,460 feet

# Tarleton State University – Stephenville, TX Fiber Path Detail



# Tarleton State University – Stephenville, TX to Desdemona, TX Fiber Path Detail



**Desdemona, TX**

Stephenville to Desdemona along SH 8 21 miles buried with 11 possible bores

Desdemona utilize existing conduits at corner of Hwy 8 and Hwy 16 intersection to get to Central Office

**Lingville, TX**  
Lingville High School

**Tarleton State University**  
Stephenville, TX

Connectivity from Desdomona, TX to Comanche, TX via existing Fiber Optics

Image USDA Farm Service Agency  
© 2010 Google

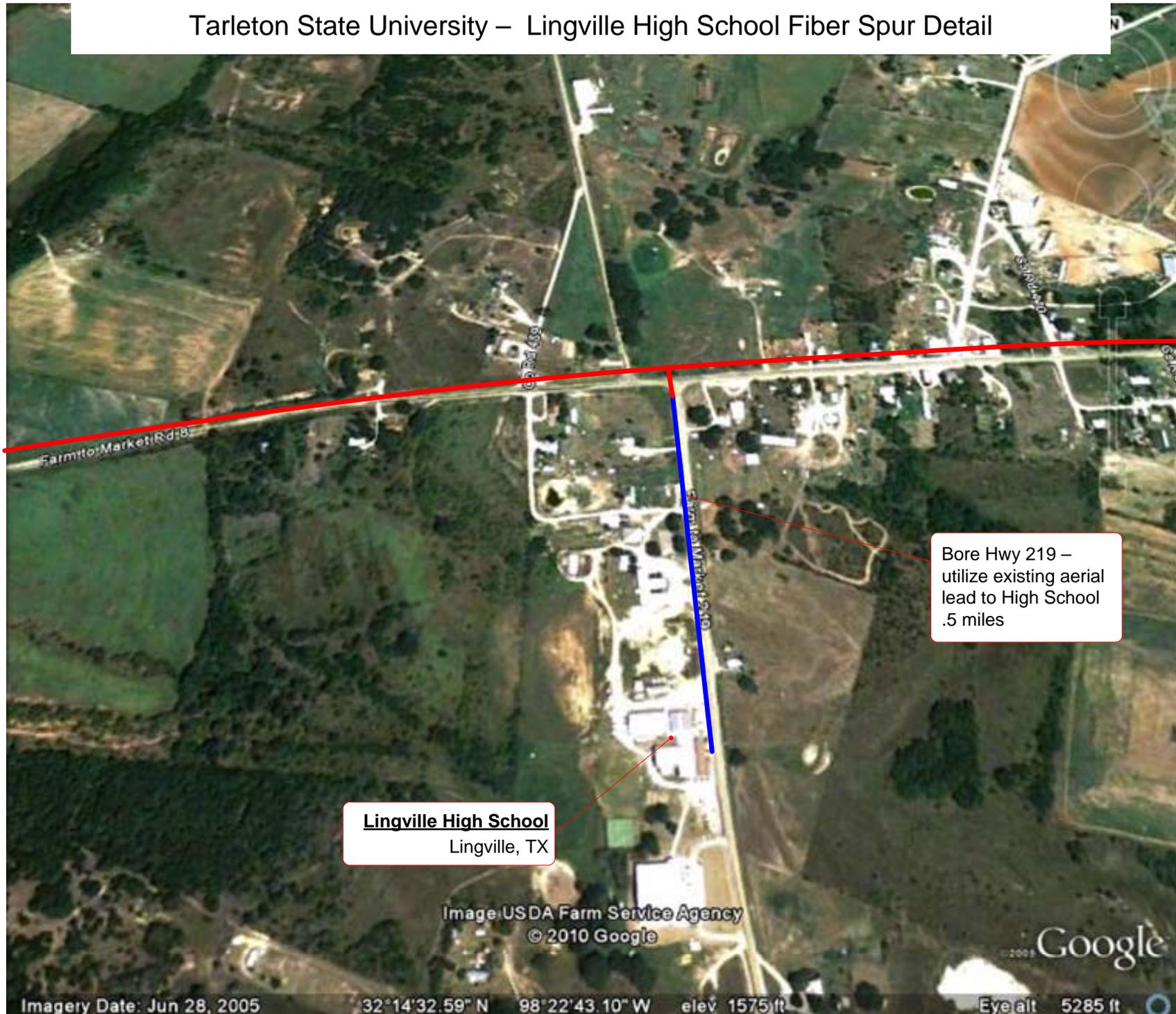
Google

Imagery Date: Jun 28, 2005

32°13'54.05" N 98°23'03.95" W elev 1475 ft

Eye alt 18.85 mi

# Tarleton State University – Lingville High School Fiber Spur Detail



Bore Hwy 219 –  
utilize existing aerial  
lead to High School  
.5 miles

**Lingville High School**  
Lingville, TX

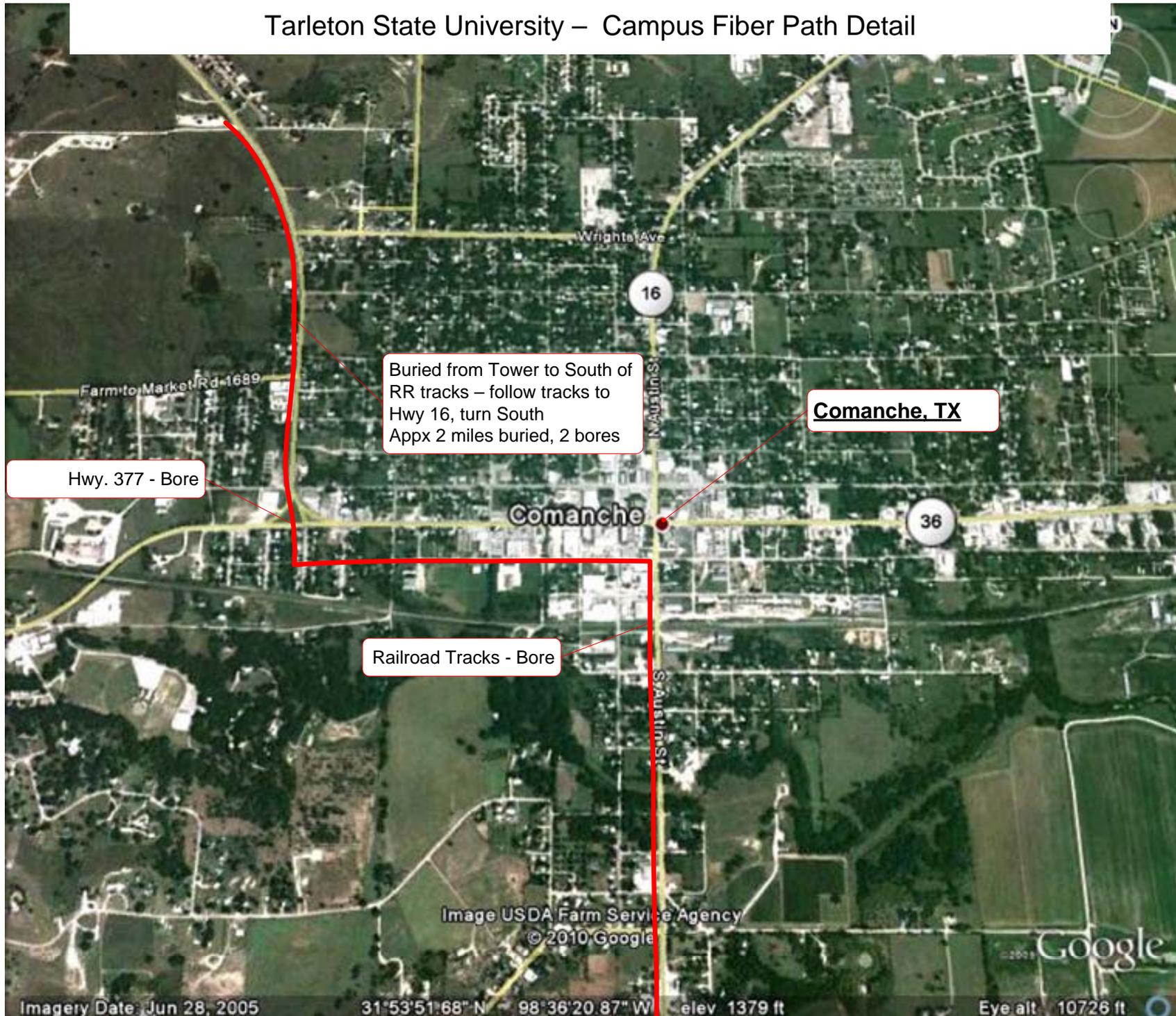
Image: USDA Farm Service Agency  
© 2010 Google

Google

# Tarleton State University – Comanche, TX to Priddy, TX Fiber Path Detail



# Tarleton State University – Campus Fiber Path Detail



# Tarleton State University – Priddy, TX Fiber Path Detail



Entering Priddy, set HH to service Priddy ISD Office, bore Hwy 16 and enter Central Office

**Priddy Central Office**  
1738 SH 16, Priddy, TX 76442

**Priddy ISD**  
1378 SH 16N, Priddy, TX 76442

Image USDA Farm Service Agency  
© 2010 Google

Schleer St  
Google

Imagery Date: Jun 28, 2005

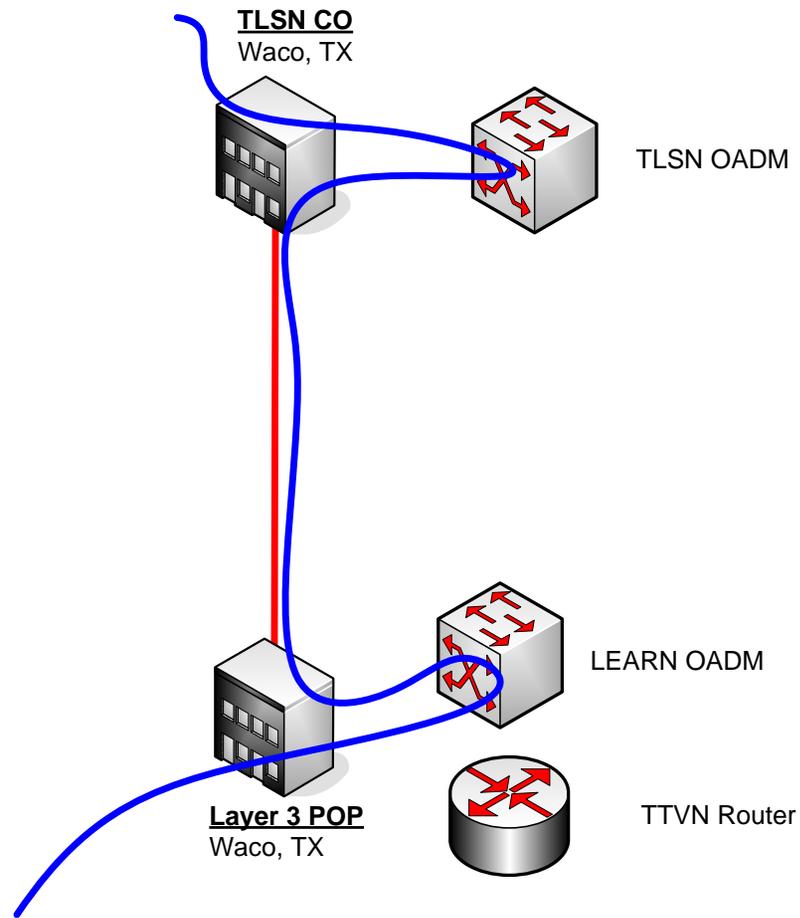
31°40'35.52" N 98°30'29.24" W elev 1533 ft

Eye alt 5958 ft

# Waco, TX – City Fiber Path

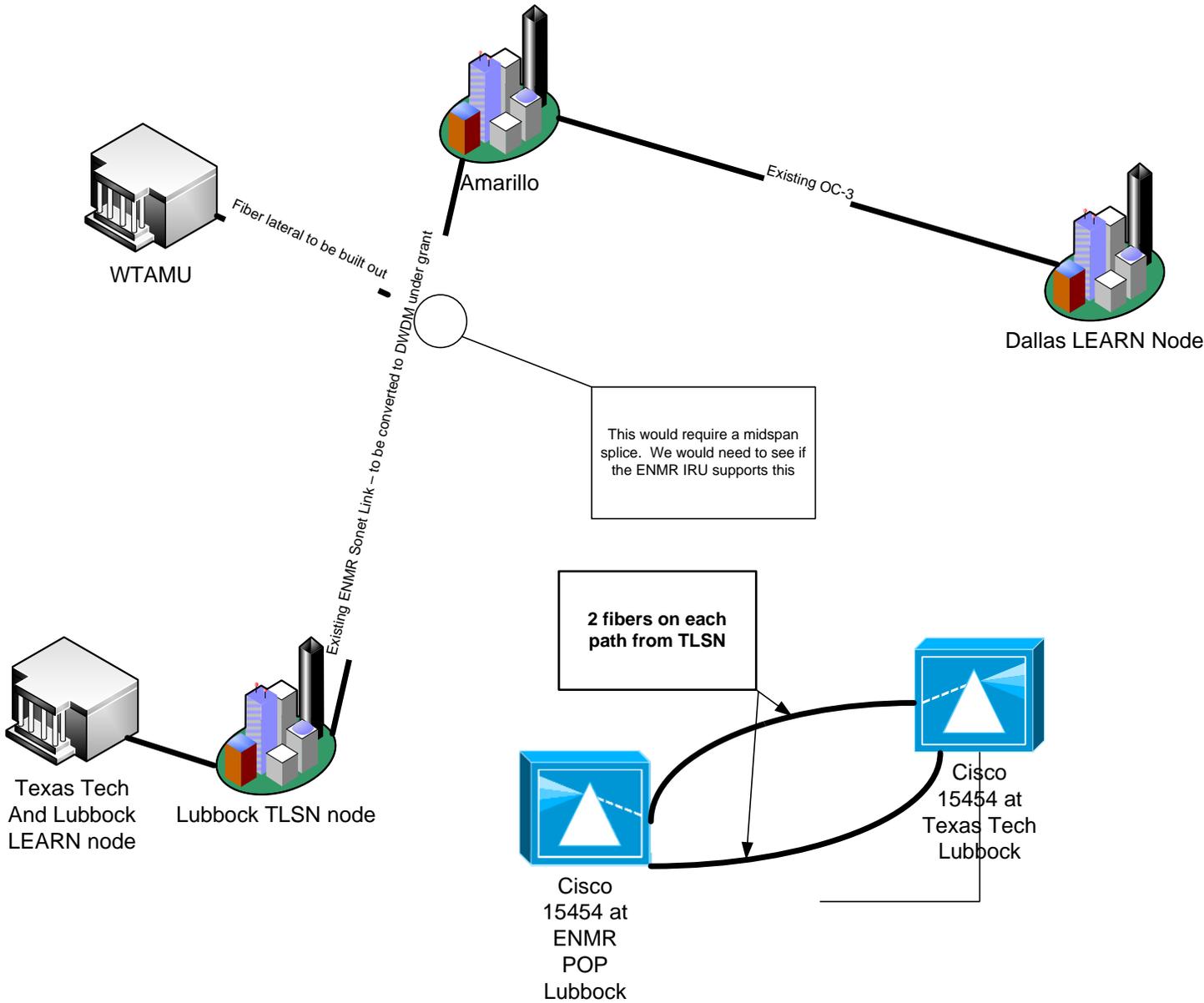


# Waco, TX – Logical Network Diagram



— Logical Network Path  
— Physical Network Path

# West Texas A&M University



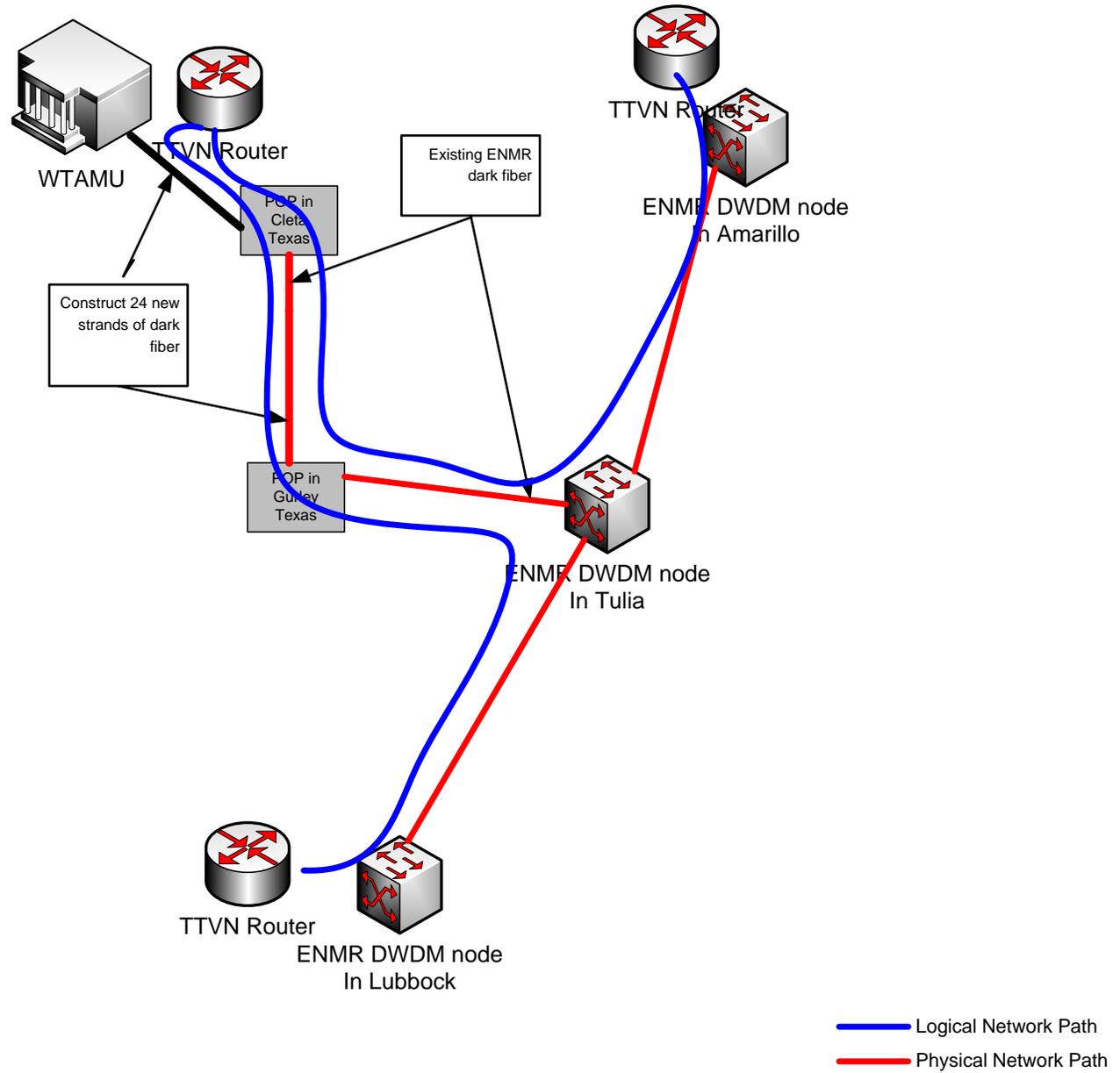
# West Texas A&M University – City Fiber Path



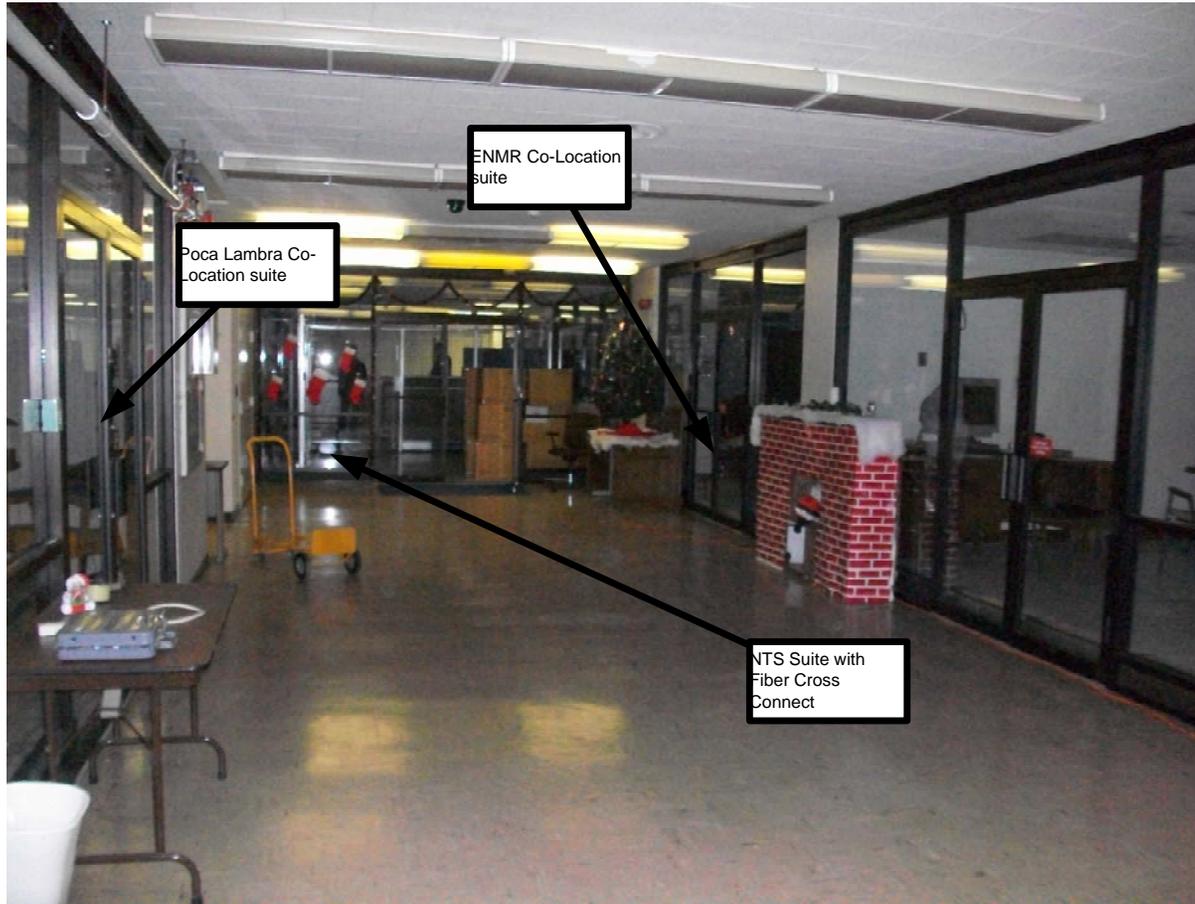
# West Texas A&M University – Girley to Cleeta POP Fiber Path Detail



# West Texas A&M University – Logical Network Diagram



# West Texas A&M University – Lubbock POP



Time Period	Quarter	Milestones	Support for Reasonableness/Data Points
Year 0	-	Specify Core CIS routers	These must be installed as soon as an award is made to support other existing requirements
		Construct Campus to HSC fiber	These must be installed as soon as an award is made to support other existing requirements
		Specify core TTVN routers	These must be installed as soon as an award is made to support other existing requirements
Year 1	Qtr. 1	Initial Planning meeting to begin project plan imlimentation	This will detail all of the sub task, assign responsibilities and establish desired dates
		Outside plant (OSP) engineering of Kingsville campus	This will be done by College Station engineering team It is required to determine all permits, equipments lists etc.
		OSP engineering of West Texas A&M campus	Same tasks as above completed by the Midplains engineer
		OSP engineering of City of Corpus Christi campus	Same tasks as above completed by City of Corpus Christi engineer
		OSP engineering of Riverside campus	Same tasks as above completed by College Station engineering team
		Specify and order Texas DPS radio gateways	Completed working with Texas DPS IT department in Austin
		Secify and order Waco DWDM optical upgrade	Completed by TLSN, independent of other tasks
		Specify and order TAMU Commerce optical upgrade	Completed by TLSN, independent of other tasks
		Order TTVN routers	Completed by TTVN, independent of other tasks
		Order Core Cis routers	Completed by CIS, independent of other tasks
	Qtr 2	OSP engineering of Tarleton State University campus	Detailed OSP engineering by College Station engineering team
		OSP engineering of TAMU Galveston campus	Detailed OSP engineering by College Station engineering team
		Construction of Riverside campus	Utilizes College Station fiber installaton team
		Installation of City of Corpus Christi fiber	Installed by City of Corpus sub contractor
		Installation of Riverside campus fiber	Utilizes College Station fiber installaton team
		Installation of Kingsville campus fiber	Utilizes College Station fiber installaton team
		Install replacement core TTVN routers	Compeded by TTVN engineering staff
		Specify and order TAMU Commerce generator	To be specified by TLSN
		Specify and order TTVN core routers	
	Qtr 3	OSP engineering of Prairie View campus	Detailed OSP engineering by College Station engineering team
		OSP engineering of TAMIU campus	Detailed OSP engineering by College Station engineering team
		Install Texas DPS radio gateways	Requires DPS, Tamu radio staff and campus IT staff.
		Install TAMU Galveston fiber	Utilizes College Station fiber installaton team
		Order Dark fiber link from Galveston to League City	
		Install TAMU Commerce generator	To be completed by local Commerce electrical contractor
		Install Waco DWDM equipement	Installed by TLSN
		Install TAMU Commerce DWDM equipment	Installed by TLSN

		Install Tarleton State University fiber	Installed by College Station fiber installaton team.
		Specify and order Tarleton DWDM equipment	
	Qtr 4	OSP engineering of Central Texas A&M fiber	Detailed OSP engineering by College Station engineering team
		OSP engineering of TAMU Texarkana fiber	Detailed OSP engineering by College Station engineering team
		OSP engineering of Waco LEARN node fiber	Detailed OSP engineering by College Station engineering team
		Install of Prairie View A&M campus fiber	Utilizes College Station fiber installaton team
		Install of TAMIU campus fiber	Utilizes College Station fiber installaton team
Year 2	Qtr. 1	Installation of Central Texas A&M fiber	Utilizes College Station fiber installaton team
		OSP engineeering of TAMU San Antonio fiber	Detailed OSP engineering by College Station engineering team
		Installation of TAMU Texarkana fiber	Utilizes College Station fiber installaton team
		Install TarletonState University DWDM equipment	Installed by Totelcom
		Order LEARN city pair Waller to Houston	
		Install Waco Learn node fiber	Utilizes College Station fiber installaton team
	Qtr 2	Installation of TAMU San Antonio fiber	Utilizes College Station fiber installaton team
		Order Lamda circuit for TAMU Texarkana to Dallas link (Atlanta Texas to Dallas Texas	Ordered from Arkansas Regional Optical Network
		Install LEARN city pair Waller to Houston	Completed by LEARN staff
		Order LEARN city pair Waco to Austin	
	Qtr 3	Install LEARN city pair Waco to Austin	Completed by LEARN staff
	Qtr 4	Final turnup and test of all TTVN routers/switches	Final clean up and full system testing
Year 3	Qtr. 1		
	Qtr 2		
	Qtr 3		
	Qtr 4		



**Service Area**

**TAMU Waco area**

	Year 0	Year 1 Qtr 1	Year 1 Qtr 2	Year 1 Qtr 3	Year 1 Qtr 4	Year 2 Qtr 1	Year 2 Qtr 2	Year 2 Qtr 3	Year 2 Qtr 4
Infrastructure Funds									
Infrastructure funds advanced (estimate)						\$ 414,488			
Percentage of total funds							0%		
Entities Passed and %									
Households									
Percentage of Households									
Businesses									
Percentages of Businesses									
Community Anchor Institutions							2		
Percentage of Anchor Institutions							10%		

Service Area	Total Project Composite timeline									
	Year 0	Year 1 Qtr 1	Year 1 Qtr 2	Year 1 Qtr 3	Year 1 Qtr 4	Year 2 Qtr 1	Year 2 Qtr 2	Year 2 Qtr 3	Year 2 Qtr 4	
Infrastructure Funds										
Infrastructure funds advanced (estimate)		\$ 781,863	\$ 2,473,639	\$ 1,679,588	\$ 439,369	\$ 2,191,923	\$ 128,205			\$ 391,600
Percentage of total funds		9%	28%	19%	5%	25%	1%	0%		4%
Entities Passed and %										
Households										
Percentage of Households										
Businesses										
Percentages of Businesses										
Community Anchor Institutions		2	12	2	1	4	1			1
Percentage of Anchor Institutions		10%	60%	10%	5%	20%	5%	0%		5%

**Service Area**

**Install core switching and routing equipment**

	Year 0	Year 1	Qtr 1	2	Year 1 Qtr 3	Year 1 Qtr 4	Year 2 Qtr 1	Year 2 Qtr 2	Year 2 Qtr 3	Year 2 Qtr 4
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Infrastructure Funds

Infrastructure funds advanced (estimate)		\$	781,863							
Percentage of total funds			9%							

Entities Passed and %

Households

Percentage of Households

Businesses

Percentages of Businesses

Community Anchor Institutions 2

Percentage of Anchor Institutions 0.1

Service Area	Prairie View A&M								
	Year 0	Year 1 Qtr 1	Year 1 Qtr 2	Year 1 Qtr 3	Year 1 Qtr 4	Year 2 Qtr 1	Year 2 Qtr 2	Year 2 Qtr 3	Year 2 Qtr 4
Infrastructure Funds									
Infrastructure funds advanced (estimate)					\$ 439,369				
Percentage of total funds					0%	5%			
Entities Passed and %									
Households									
Percentage of Households									
Businesses									
Percentages of Businesses									
Community Anchor Institutions						1			
Percentage of Anchor Institutions						5%			

**Service Area**

**TAMU College Station Riverside Campus**

	Year 0	Year 1 Qtr 1	Year 1 Qtr 2	Year 1 Qtr 3	Year 1 Qtr 4	Year 2 Qtr 1	Year 2 Qtr 2	Year 2 Qtr 3	Year 2 Qtr 4
<b>Infrastructure Funds</b>									
Infrastructure funds advanced (estimate)					\$ 485,381				
Percentage of total funds					5%				
<b>Entities Passed and %</b>									
Households									
Percentage of Households									
Businesses									
Percentages of Businesses									
Community Anchor Institutions					1				
Percentage of Anchor Institutions					5%				

**Service Area**

**Texas A&M Galveston**

	Year 0	Year 1 Qtr 1	Year 1 Qtr 2	Year 1 Qtr 3	Year 1 Qtr 4	Year 2 Qtr 1	Year 2 Qtr 2	Year 2 Qtr 3	Year 2 Qtr 4
Infrastructure Funds									
Infrastructure funds advanced (estimate)				\$ 407,000					
Percentage of total funds				5%					
Entities Passed and %									
Households									
Percentage of Households									
Businesses									
Percentages of Businesses									
Community Anchor Institutions				1					
Percentage of Anchor Institutions				5%					

**Service Area**

**Texas A&M International University**

	Year 0	Year 1 Qtr 1	Year 1 Qtr 2	Year 1 Qtr 3	Year 1 Qtr 4	Year 2 Qtr 1	Year 2 Qtr 2	Year 2 Qtr 3	Year 2 Qtr 4
<b>Infrastructure Funds</b>									
Infrastructure funds advanced (estimate)			\$ 45,000						
Percentage of total funds			1%						
<b>Entities Passed and %</b>									
Households									
Percentage of Households									
Businesses									
Percentages of Businesses									
Community Anchor Institutions			1						
Percentage of Anchor Institutions			5%						

Service Area	TAMU Commerce									
	Year 0	Year 1 Qtr 1	Year 1 Qtr 2	Year 1 Qtr 3	Year 1 Qtr 4	Year 2 Qtr 1	Year 2 Qtr 2	Year 2 Qtr 3	Year 2 Qtr 4	
Infrastructure Funds										
Infrastructure funds advanced (estimate)				\$	309,406					
Percentage of total funds					0%					
Entities Passed and %										
Households										
Percentage of Households										
Businesses										
Percentages of Businesses										
Community Anchor Institutions					1					
Percentage of Anchor Institutions					5%					

**Service Area**

**TAMU Kingsville**

	Year 0	Year 1 Qtr 1	Year 1 Qtr 2	Year 1 Qtr 3	Year 1 Qtr 4	Year 2 Qtr 1	Year 2 Qtr 2	Year 2 Qtr 3	Year 2 Qtr 4
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Infrastructure Funds

Infrastructure funds advanced (estimate)				\$ 176,000					
Percentage of total funds				2%					

Entities Passed and %

Households

Percentage of Households

Businesses

Percentages of Businesses

Community Anchor Institutions 1

Percentage of Anchor Institutions 5%

**Service Area**

**Texas A&M Corpus Christi**

	Year 0	Year 1 Qtr 1	Year 1 Qtr 2	Year 1 Qtr 3	Year 1 Qtr 4	Year 2 Qtr 1	Year 2 Qtr 2	Year 2 Qtr 3	Year 2 Qtr 4
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Infrastructure Funds

Infrastructure funds advanced (estimate)				\$ 279,466					
Percentage of total funds				3%					

Entities Passed and %

Households

Percentage of Households

Businesses

Percentages of Businesses

Community Anchor Institutions 1

Percentage of Anchor Institutions 5%



Service Area	Texas A&M San Antonio									
	Year 0	Year 1 Qtr 1	Year 1 Qtr 2	Year 1 Qtr 3	Year 1 Qtr 4	Year 2 Qtr 1	Year 2 Qtr 2	Year 2 Qtr 3	Year 2 Qtr 4	
Infrastructure Funds										
Infrastructure funds advanced (estimate)							\$ 128,205			
Percentage of total funds								1%		
Entities Passed and %										
Households										
Percentage of Households										
Businesses										
Percentages of Businesses										
Community Anchor Institutions								1		
Percentage of Anchor Institutions								5%		

Service Area	Texas A&M Texarkana									
	Year 0	Year 1 Qtr 1	Year 1 Qtr 2	Year 1 Qtr 3	Year 1 Qtr 4	Year 2 Qtr 1	Year 2 Qtr 2	Year 2 Qtr 3	Year 2 Qtr 4	
Infrastructure Funds										
Infrastructure funds advanced (estimate)						\$ 1,777,435				
Percentage of total funds						20%				
Entities Passed and %										
Households										
Percentage of Households										
Businesses										
Percentages of Businesses										
Community Anchor Institutions						2				
Percentage of Anchor Institutions						10%				

Service Area	Tarleton State University									
	Year 0	Year 1 Qtr 1	Year 1 Qtr 2	Year 1 Qtr 3	Year 1 Qtr 4	Year 2 Qtr 1	Year 2 Qtr 2	Year 2 Qtr 3	Year 2 Qtr 4	
Infrastructure Funds										
Infrastructure funds advanced (estimate)				\$	1,370,182					
Percentage of total funds					15%					
Entities Passed and %										
Households										
Percentage of Households										
Businesses										
Percentages of Businesses										
Community Anchor Institutions					1					
Percentage of Anchor Institutions					5%					



## BTOP Comprehensive Community Infrastructure Service Area Template

Please complete the complete the CCI Service Area worksheet. In each line you will provide name of a service area and one of the contiguous Census tracts or block groups that make up service area. Please provide full 11-digit Census tract numbers, includes the 2-digit State FIP the 3-digit county code, followed by a unique 6-digit tract number. For Census block groups please provide the full tract number, plus the 1-digit block group number (12 digits total). If more than one Census tract or block group in a service area, there will be multiple lines in the table for that service area. It is critical that the service area names provided in this table match with service area names provided in the Service Area Details page of the application. Please review the application document and Service Area Details page for consistency before submitting your application.

Important Note: Excel truncates leading zeros from numbers. Consequently, the tract/block group column on the worksheet has been formatted as text. This formatting should not be altered as the validity of your data may be compromised.

The data provided via this template will be subject to automated processing. Applicants are therefore required to provide this upload as an Excel file, and not to convert it to a PDF prior to upload. Additionally, applicants should not modify the format of this file (e.g. by adding or removing worksheets). Do not leave blank lines in the table between service areas.

### EXAMPLE

Service Area Name	Tract or Block Group #
Big BB Project South	01001020100
Big BB Project South	01001020100
Big BB Project South	010010202001
Big BB Project West	01001020400
Big BB Project North	01001020800
Big BB Project North	010010209002

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**BTOP CCI Service Area Template**

Title: **Texas Pipes**  
Easy Grants ID: **7487**

Service Area Name	Tract or Block Group #
Prairie View A&M	484736804001
Texas A&M - Riverside	480410002022
Texas A&M - Commerce	48231960600
Texas A&M International	484790017023
Texas A&M - Kingsville	482730203003
Texas A&M - Texarkana	480370112001
Texas A&M - Galveston	481677240003
Texas A&M - Corpus Christi	483550029001

## PIERCE E. CANTRELL

Vice President and Associate Provost for Information Technology  
Associate Professor, Electrical Engineering  
p-cantrell@tamu.edu

### Professional Interests

Computer Communications and Networks  
Microprocessor Architecture, Interfacing, and Operating Systems

### Education

Ph.D., Electrical Engineering, Georgia Institute of Technology,  
Atlanta, Georgia, 1981  
M.S.E.E., Georgia Tech, 1971.  
B.E.E. (with honor), Georgia Tech, 1970

### Academic Experience

**Vice President and Associate Provost for Information Technology**, Texas A&M University, March 2006–Present; Associate Provost for Information Technology, March 1999–February 2006; Interim Associate Provost, April 1998–February 1999. Serves as the University’s Chief Information Officer responsible for academic and administrative computing, computer networks, telecommunications, faculty instructional technology support, classroom instructional technology, high performance computing, public television and radio, and the statewide Texas A&M University System Trans Texas Data and Video Network (TTVN). As an extra duty, serves as the Associate Vice Chancellor for Information Technology for the Texas A&M University System, January 2008–Present.

**Associate Professor and Assistant Department Head**, Electrical and Computer Engineering, Texas A&M University; Associate Professor, Sept. 1988 – Present; Assistant Professor, Jan. 1982 – Aug. 1988. Recent research: multimedia networking and IP-based layered multicast video conferencing. Teaching: computer networking and computer engineering. Administration: Assistant Department Head 1992–1998, responsible for undergraduate programs and laboratories in ECE for 1000 student department.

**Graduate Teaching/Research Assistant**, Electrical Engineering, Georgia Tech, 1971-76. Taught undergraduate courses in computer programming, interfacing minicomputers, electronics, and control theory. Dissertation research “An Experimental Investigation of Automated Noninvasive Electrocochleography,” directed by Dr. J. H. Schlag.

## Industrial Experience

**Systems Analyst** (Captain, U.S. Army). North American Air Defense Command (NORAD), Colorado Springs, Colorado, 1977-81. Worked in Intelligence Computer Programs Division, Computer Networking Support Branch. Responsible for design of real time data communications processing system. Wrote communication device drivers, link layer protocol software, and real-time operating system. Worked closely with computer operations and hardware maintenance personnel to troubleshoot problems day and night.

**Personnel Officer** (Lieutenant, U.S. Army). Fort Carson, Colorado Springs, Colorado, 1976-77. Personnel officer for 620 person signal battalion.

**Consultant.** Systems Instrument Research, Atlanta, Georgia, 1971-75. Developed software for real-time automated test systems of digital and analog printed circuit boards.

## Honors

Charles Crawford Teaching Award, College of Engineering, Texas A&M University, 1998.

Tenneco Meritorious Teaching Award, College of Engineering, Texas A&M University, 1992.

Eta Kappa Nu; NDEA Fellow 1971, 1973, 1974; NSF Trainee 1972; Army Commendation Medal 1977; Defense Meritorious Service Medal 1981.

## Professional Activities

Lonestar Education and Research Network (LEARN), Chair of the Board, 2007; Board Member 2004-present; Operations and Services Committee, Chair 2005, 2006, and 2009; Member of the Executive Committee 2005-present.

Southeast Texas GigaPoP, Member Council 2004-present, Secretary 2004-present.

Information Technology Council for Higher Education (ITCHE), Texas A&M University System Representative, 2003-present.

Internet2 Search Advisory Committee for CTO, Member 2009.

IEEE : Computer Society and the Communications Society.

Reviewer for *IEEE Transactions on Information Theory*, *IEEE Transactions on Communications*, *Operations Research*, McGraw-Hill, and Prentice-Hall.

NSF: Research Initiation Grant Review Panel for NCR, May 1991; CISE Infrastructure Grant Review Panel, May 1992; Reviewed proposals 91, 92, 93. CISE Institutional Research Infrastructure (II-RI) Grant Review Panel, Jan. 1994; CISE Research Instrumentation Review Panel, Dec 1994; NSF-CONACyT Collaborative Research Opportunities for CISE/OCDA Review Panel, June 1996; CISE Research Instrumentation Review Panel, Oct. 1996; Advisory Committee to Tuskegee University NSF HPCP Infrastructure Grant, meetings Dec 1996,

Jan. 1998; CISE Research Instrumentation Review Panel Oct. 1997; SBIR Phase I Review Panel, Sept. 1998.

## Research Support

Co-Principle Investigator (with PI N. Reddy, and Co-PI W. Shi), “Secure Networked Storage Systems,” NSF CISE Research Resources (CISE-RR) CISE Instrumentation, Sept. 2002 - Aug. 2005, \$100,000.

Principle Investigator, Higher Education Grant (HE4) for Texas A&M University (non-competitive), Texas Telecommunications Infrastructure Fund, Sept. 2002 - Aug. 2003, \$850,000.

Principle Investigator, Discovery Grant (DI4) for the TTVN Data and Videoconferencing Network, Texas Telecommunications Infrastructure Fund, May 2001 - April 2002, \$850,000.

Principle Investigator, Higher Education Grant (HE3) for Texas A&M University (non-competitive), Texas Telecommunications Infrastructure Fund, Aug. 2001 - Dec. 2002, \$850,000.

Principle Investigator, Discovery Grant (DI3) for the TTVN Data and Videoconferencing Network, Texas Telecommunications Infrastructure Fund, Oct. 2000 - Sept. 2002, \$750,000.

Principle Investigator, Higher Education Grant (HE2) for Texas A&M University (non-competitive), Texas Telecommunications Infrastructure Fund, Jul. 1999 - June 2000, \$1,500,000.

Principle Investigator, Electronic Learning Incentives Program, Academy for Advanced Telecommunications & Learning Technologies, VXtreme Video Server and Producer Technology, Jul. 1997, \$5,000 + \$11,500 matching from College.

Co-Principle Investigator (with PI L. Ellis, Co-PIs Ewing, Leggett, Pilant), “vBNS Connectivity for Texas A&M University,” NSF-Connections to the Internet, July 1997 - Jun. 1998, \$350,000.

Co-Principle Investigator (with PI N. Reddy, Co-PIs Mercer, Choi, Lu), “Development of a novel systems software for multimedia and high-performance computing,” NSF-ARI, Sept. 1996-Aug. 1999, \$127,450.

Investigator, NSF Foundation Coalition, Member campus management team and responsible for computer and classroom technology, Sept. 1993–Aug. 1997, \$80,000 (\$20,000 per summer).

Principle Investigator, Classroom Technology Update program, “High Performance LCD Projection System for a Large Lecture Hall,” University-wide competition, June 1995, \$20,000.

Co-Principle Investigator (with J. D. Gibson), “Servers for Multimedia Access in Manufacturing (Continuation),” Compaq - PAM Program, Sept. 1994–Aug. 1995, \$27,000.

Co-Principle Investigator (with J. D. Gibson), “Telecommunications Networks for Interactive Multimedia: Wideband to Wireless,” Texas ATP, Jan. 1994-Dec. 1996, \$207,586.

Co-Principle Investigator (with J. D. Gibson), “Servers for Multimedia Access in Manufacturing,” Compaq - PAM Program, Sept. 1993–Aug. 1994, \$27,000.

Principle Investigator, “Wireless In-Building Network (WIN) Applications to the Classroom,” Computer Innovations Program, Texas A&M University, Nov. 1992–May 1993, \$7,560.

Principle Investigator, “Electronic Proposal Submission,” TEES, Sept. 1991–Aug. 1993, \$31,000.

Principle Investigator, “Transient Approximations for Markovian Networks,” College of Eng., Texas A&M, Eng. Excellence Funds, June–Aug. 1986, \$18,372.

Co-Principle Investigator (with W. K. Tsai), “New Routing Algorithm for BIT-NET,” Computer Services Center, Texas A&M, CSC funded GRA for EE student, Sept. 1987–Dec. 1988, \$12,800.

Co-Principle Investigator (with J. D. Gibson), “Non-Real Time Compression of Voice Signals,” VMX, Inc., June 1986–Jan. 1987, \$19,803.

Co-Principal Investigator (with J. D. Gibson), “Digital Signal Processing/ Communications Equipment,” National Science Foundation Equipment Grant, 1983, \$40,000.

## Journal Publications

W. K. Tsai and P. E. Cantrell, “A simple derivation of transient queue statistics,” *Performance Evaluation*, vol. 10, pp. 103–114, 1989.

P. E. Cantrell and G. R. Beall, “Transient M/M/1 queue variance computation using generalized Q-functions,” *IEEE Trans. Commun.*, vol. COM-36, pp. 756–758, June 1988.

P. E. Cantrell and A. K. Ojha, “Comparison of generalized Q-function algorithms,” *IEEE Trans. Inform. Theory*, vol. IT-33, pp. 591–596, July 1987.

P. E. Cantrell, “On the calculation of the generalized Q-function via Parl’s method,” *IEEE Trans. Inform. Theory*, vol. IT-32, pp. 817–824, Nov. 1986.

P. E. Cantrell, “Calculation of the transient M/M/1 queue cdf, pdf, and mean with generalized Q-functions,” *IEEE Trans. Commun.*, vol. COM-34, pp. 814–817, Aug. 1986.

W. D. McLeod, H. N. Nunally and P. E. Cantrell, “Dependence of EMG power spectra on electrode type,” *IEEE Trans. Biomed. Eng.*, Vol. BME-23, pp. 172–175, March 1976.

## Conference Papers

- SanKu Jo and Pierce E. Cantrell, "A Dynamic QoS Control Scheme for Videoconferencing in a Heterogenous Internet," in *Proc. INET'99*, <http://www.isoc.org/inet99/proceedings>, San Jose, CA, June 1999.
- S. K. Jo and P. E. Cantrell, "An agent-assisted layered multicast architecture for videoconferencing," in *Proc. Multimedia Technology and Applications Conf.*, pp. 242–248, Anaheim, CA, Sept. 1998.
- T. B. Brown, P. E. Cantrell, and J. D. Gibson, "Multicast layered video teleconferencing: overcoming bandwidth heterogeneity," in *Proc. First Annual Telecom. Conf.*, pp. 145–152, Austin, TX, Oct. 1996.
- T. Brown, S. Sazzad, C. Schroeder, P. Cantrell, and J. Gibson, "Packet Video for Heterogeneous Networks using CU-SeeMe," in *Proc. ICIP'96*, pp. 9–12, Lausanne, Switzerland, Sept. 1996.
- M. G. Kyeong, P. E. Cantrell, and T. A. Dowling, "The effect of discrete TOA randomization on capture phenomenon in DS/SS local radio communications," in *Proc. IEEE ICCS '94*, Singapore, Nov. 1994.
- M. G. Kyeong, P. E. Cantrell, and T. A. Dowling, "DS/SS indoor wireless communications with near-perfect multi-packet capture," in *Proc. IEEE ICUPC '94*, San Diego, CA, Sept. 1994.
- P. E. Cantrell, "Gateways between OSI and proprietary networks," in *Proc. ISA '92*, Houston, TX, Oct. 1992.
- J. M. Andrewartha and P. E. Cantrell, "Transient Approximations for Jackson Networks," in *Proc. IEEE GLOBECOM '89*, Dallas, Texas, vol. 2, pp. 26.8.1–26.8.5, Nov. 1989.
- T. Caohuu, P. Cantrell, N. Griswold, and Y.-Y. Leung, "Realtime convolution and morphology on VLSI-based mesh: a systolic approach," in *Proc. ISCAS'89*, Portland, OR, May 1989.
- W. K. Tsai, P. E. Cantrell, and J. Goos, "Fairness of optimal routing in virtual circuit networks," in *Proc. IEEE INFOCOM'89*, Ottawa, Canada, Apr. 1989.
- P. E. Cantrell, W. K. Tsai, and J. F. Tuan, "Pseudo-Bayesian control of CSMA-CD," in *Proc. IEEE ICC'88*, Philadelphia, PA, vol. 3, pp. 1275–1279, June 1988.
- P. E. Cantrell, H. N. Nunally, and J. H. Schlag, "Techniques for automated threshold electrocochleography," *Proceedings 27th Conference on Engineering in Medicine and Biology*, p. 116, Sept. 1975.

## Graduate Students Supervised

- E. Christensen, MS Dec. 1999, Thesis: *A Preference-Based Extension to the Scalable Consensus-Based Bandwidth Allocation Protocol in a Multicast Videoconferencing Environment*.
- S.-K. Jo, PhD Dec. 1998, Thesis: *An Agent-Assisted Layered Multicast Architecture for Videoconferencing in Heterogeneous Internetworks*.

H. Kim, ME May 1998.

R. A. Gholmieh, MS Dec. 1997, Thesis: *Multicast Multilayer Videoconferencing: Enhancement of a Multilayer Codec and Implementation of the Receiver Driven Layered Multicast Protocol.*

R. Gonzalez Barron, MS Dec. 1997, Thesis: *World Wide Web-Based In-Class Response System.*

R. A. Sheikh, ME, Aug. 1997, Project: *WWW-Based In-Class Response System.*

M. Woodings, MS Aug. 1997, Thesis: *A Router Agent for Capacity Assessment in Packet Video.*

N. Q. Nguyen, ME Dec. 1996, Project: *Simulation of Two Flow Control Methods for ATM Networks.*

T. B. Brown, MS May 1996, Thesis: *A Layered Multicast Packet Video System.*

C. G. Schroeder, MS May 1996, Thesis: *Increased Network Efficiency for Variable Rate Video Streams in an Integrated Services Packet Network Environment.*

S.-T. Cheng, MS May 1995, Thesis: *A Lightweight Transport Protocol for Multi-Resolution and Real-Time Multimedia Communications Over Heterogeneous Networks.*

H. L. Goh, ME Aug. 1994, Project: *Multicast IP in Ethernet Networks.*

B. R. M. Pandjaitan, ME Aug. 1994, Project: *A Manual for Setting up a SLIP or PPP Connection to the EE Xyplex Terminal Server.*

T. F. Johannsen, ME May 1994, Project: *Issues in Implementing an Internet Videophone.*

B. Sunkara, ME May 1994, Project: *World Wide Webb Home Page for Electrical Engineering.*

G. Joo, Ph.D. May 1994, Thesis: *Development and Analysis of a hybrid Random/Token Access Protocol for High Speed Local Area Networks.*

B. H. Lee, Ph.D. Dec. 1993, Thesis: *Transient Queueing Approximations for Modeling Computer Networks.*

M. G. Kyeong, Ph.D. Dec. 1993, Thesis: *Spread Spectrum Slotted Aloha Packet Radio Networks with Near Perfect Multipacket Capture.*

T. Mummert, ME Aug. 1992, Project: *Closure Approximations for Computer Networks.*

P. J. Park, Ph.D. Dec. 1991, Thesis: *Development and Analysis of a Practical, Asynchronous FCFS Splitting CSMA-CD Algorithm.*

Y. W. Chan, MS Dec. 1990, Thesis: *Pseudo-Bayesian Control for Ethernet Type Networks.*

G. Lesartre, ME May 1990, Project: *On Chip Random Number Generation.*

T. Caohuu, Ph.D. Dec. 1989 (co-advisor with N. C. Griswold), Thesis: *Special Purpose Architectures for Computer Vision.*

P. J. Park, MS Dec. 1989, Thesis: *A Comparison of pseudo-Bayesian CSMA, FCFS Splitting CSMA, and Virtual Time CSMA.*

J. M. Andrewartha, MS May 1989, Thesis: *Transient Network Queueing Models.*

C-H. Ku, MS May 1989, Thesis: *Routing Algorithm and Topology Design for the BITNET Computer Network.*

R. Oertel, ME May 1988, Project: *LaTeX Thesis Document Style.*

J. Goos (Co-advisor with W. K. Tsai), MS Dec. 1988, Thesis: *Cost functions for network routing algorithms.*

P. Schleider, ME Dec. 1987, Project: *A Microprocessor Development Facility.*

W. A. Baker, MS Dec. 1986, Thesis: *Transient Queueing Approximations for Computer Networks.*

A. K. Ojha, MS May 1985, Thesis: *Comparative Performance of Algorithms for Machine Computation of the Q-function.*

S.-H. Chu, MS May 1985, Thesis: *Evaluation of a Transient Queueing Approximation for M/M/1 and Tandem Queues.*

J. F. Freeman, Undergraduate Fellow May 1986, Thesis: *Generalized Q-function Calculations for Large Orders.*

G. R. Beall, Undergraduate Fellow May 1985, Thesis: *Efficient Methods for Calculation of M/M/1 Queue Transient Probabilities.*

W-L. Hsieh, left w/o completing PhD.

P. Utama, left w/o completing PhD.

A. Khalil, left w/o completing ME.

## Committees

*ECE Dept.:* Assistant Head July 92–May 98; Dept. Computer Supervisor, 87–98; Chair, Curriculum Committee July 92–May 97; Professorship Review Committee, Aug. 1994; Department Head Search Committee 90-92, 96-97; Computer 86-87, 87-88, 88-89, 89-90, 90-91, 91-92; Scholarship 84-85, 85-86, 86-87; Salary and Awards 84-85; Faculty Recruiting 84-85.

*College of Engineering:* NSF Foundation Coalition TAMU Management Team 93-97; Joint CS/EE Computer Engineering Committee 92–present; Distance Learning Task Force 93-94; College of Engineering Faculty Awards Committee 89-90, 90-91; TEES Computer Services Advisory Committee 88-89, 89-90, 90-91; Computer Engineering Committee 86-87.

*University:* Search Advisory Committee for Dean of Faculties and Associate Provost, Chair 2009, 2001, and 1998; Member Teaching and Learning Roadmap Committee, 2009; Enterprise Information Systems Selection Committee, Chair 2005-2006; Search Advisory Committee for Assistant Provost, Chair 2003; Vision 20/20 Library and Information Technology Committee, 1998; Provost’s Information Policy Committee, Chair 96-present; Provost’s Strategic Plan Consulting Committee 97; Provost’s Task Force on University Computing Resources 95;

Provost's Electronic Information Study Group 94-95; Matching the Supply and Demand for the Speech and Writing Curriculum CI Team 94; Junior Fulbright Grant Campus Screening Committee, Chair 93-94; College of Engineering Rep on Strategic Planning Committee for Computing 90-91, 91-92, 92-93, 93-94, 94-95; College of Engineering Rep on Network Operations and Planning Committee (NOPEC) 92-93, 93-94, 94-95; Provost's Committee on Guidelines for Departmental Change 91; Institutional Self Study Core Curriculum Assessment Subcommittee 92; LAN Planning Committee 89; University Unix Committee 88-89; LAN Working Group 86;

*Faculty Senate:* Speaker 95-96; Deputy Speaker 94-95; Representative 90-93, 93-96; Research Committee 90-91; Academic Affairs Committee 91-92, 92-93, Vice-Chair 92-93; Core Curriculum Oversight Subcommittee, 90-91, 91-92, Chair 91-92, Chair 92-93, 93-94, 94-95; Chair of Engineering Caucus 92-93; Executive Committee 93-94, 94-95, Chair 95-96, ex officio 96-97; Liaison to Student Senate 93-94, 94-95; University Curriculum Committee 93-94.

5-18-2009

# VITA



**Name:**

**Rodney L. Zent**

**Current Position:**

Executive Director  
Educational Broadcast Services - KAMU-TV/FM TTVN  
Visiting Assistant Professor of Educational Administration and  
Human Resource Development

**Address:**

4244 TAMU  
Texas A&M University  
College Station, TX 77843-4244  
  
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r-zent@tamu.edu

## **Education:**

### **Ph.D.: Texas A&M University, 1981.**

Major Field: Educational Administration  
Dissertation: "Administrative Functions and Tasks Common to Television Station  
Managers Employed in Institutions of Higher Education."  
Supporting Fields: Educational Psychology, Interdisciplinary Education

### **M.Ed.: Texas A&M University, 1974**

Major Field: Educational Technology  
Supporting Field: Educational Curriculum and Instruction

### **B.S.: Montana State University, 1970**

Major Field: Television Production  
Minor Emphasis: Film Production  
Commercial Photography

## **Professional Experience:**

1988-Present: **Executive Director**, Educational Broadcast Services, Texas A&M University

**2009-Present Adjunct Professor of Agricultural Communication and Journalism**

**1990 – 2009 Visiting Assistant Professor of Educational Administration and Human Resource Development.**

Serve as CEO for TTVN, the wide area data network for the Texas A&M System. Also serves as General Manager of , KAMU-TV, and KAMU-FM. Teaches graduate and undergraduate courses in Distance Learning and Television Production. Serve on Master and Ph.D. committees. Provide advice and counsel to faculty and staff utilizing multimedia computer presentations for television, the classroom, and the web. (Promoted from Director to Executive Director in 2007.)

1978-1988: **Station Manager**, KAMU-TV, Texas A&M University

Supervised departments of Programming, Production, and Engineering. Developed computer programs to aid in the management of the EBS budget, the auction, and membership drives. Served as a major on-air talent during fund drives. Promoted.

1974-1988: **Acting Station Manager**, KAMU-FM

Major creative force in putting station on the air. Doubled as Station Manager at various times when position vacant.

1974-1978: **Program Director**, KAMU-TV, Texas A&M University

In charge of all purchasing, scheduling, and production of programming broadcast on KAMU-TV. Was a major force in securing funds from 160 other PBS stations to produce PBS Series "Cousteau/ Oasis in Space". Promoted.

1972-1974: **Producer/Director**, KAMU-TV, Texas A&M University

Produced and directed a variety of local arts and public affairs programs for broadcast. Produced 15 News, a daily half –hour newscast. Promoted.

1970-1972: **Television Production Coordinator**, Montana State University

Supervised MSU Television Production Center, directed closed circuit instructional programming. Left for professional advancement.

1968-1970: **Radio Announcer, Assistant Program Director, Public Relations Director**, KXXL, commercial radio station, Bozeman, Montana

## **COURSES TAUGHT (Texas A&M University 1972 to Present):**

### AGCJ-489 “Television Production for Agricultural Journalists”

Agricultural journalists must have an understanding of television as a means of visual communications to enable them to work in a variety of digital media that utilize video. This course provides the student with the fundamental concepts required to put together a broadcast quality video production. It utilizes the high definition facilities of KAMU-TV and TTVN and provides a hands on approach to immerse students with no prior video experience into a fast paced learning environment that takes them through the basic stages of video production, and culminates in a professional program series broadcast on KAMU-TV

### EHRD- 465 “TV Production for Training and Development”.

Development of knowledge and skills towards the application of television production techniques in public education and corporate training settings; focus on practices, techniques, and tools for managers of training and development. Produce and broadcast 10 half-hour magazine programs in high definition on KAMU-TV. 2002 -to present

### EHRD- 673 “Introduction to Distance Learning”.

Introduction to the field of distance learning; application of distance learning principles to training settings via a variety of distance learning modalities. Focus on television and video as a vehicle for distance learning. 1996 - 2002

### JOUR- 326 “Television Production II”

Advanced course in television production for JOUR students. Taught this course during the final phase-out time of the JOUR department to enable students to complete their course plan. 2001

### EHRD-672 "Television Techniques in Distance Learning"

Taught the practical techniques of television production as they apply to distance learning. Students produced real instructional video tapes of broadcast quality that were used in actual educational and training sessions. 1991 - 2002.

### EDTC-631 "Instructional Television".

Designed to enable students to develop and refine instructional designs in educational television by producing, testing, and revising single concept instructional television programs. 1988-2000.

EDTC-660 "Interactive Video".

Provides a forum in which students design and produce an interactive videodisc. 1987-1989.

JOUR-326 "Television Production II".

Advanced class in television production. Produced with students a weekly half-hour magazine program entitled "ETC." that was broadcast on KAMU-TV. 1977-1987.

EDTC-645 "Micro Computer Applications in the Classroom".

Focused on the use of Applesoft Basic and other software packages applicable to the educational needs of teachers. 1986.

EDTC-489 "Advanced Television Production".

Advanced techniques in television production relating to instructional television objectives. 1986.

JOUR-489 "A Technical Approach to Television Production". (Senior Production Workshop)

Special course to enable JOUR majors completing JOUR 326 to produce advanced television programs for broadcast. Spring, 1978.

JOUR-425 "Documentary Film Production".

Techniques for producing 16mm motion picture documentary films. 1975-1977.

JOUR-225 "Television Production I".

Beginning course in television production. Students learn basic production techniques through studio exercises. Final project ("Broadcast Day") is a live series of short programs broadcast on KAMU-TV. 1972-1974.

**Walt Magnussen, Ph.D.**

Texas A&M University Director for Telecommunications and  
Director for Texas A&M Internet2 Technology Evaluation Center (ITEC)

Walt Magnussen is the Director for both Texas A&M University Telecommunications and the Texas A&M ITEC. In his capacity as Telecommunications Director Dr. Magnussen manages all aspects of Telecommunications for the third largest university in the United States. As the ITEC Director he leads the VoIP and IPTV initiatives for Internet2, a consortium of the 209 leading research universities in the United States.

Projects completed within the ITEC include leading the development of the Next Generation 9-1-1 (NG 9-1-1) Proof of Concept projects for both the United States' Departments of Commerce and Transportation. These projects were completed in collaboration with the real time laboratory at Columbia University.

Other NG 9-1-1 projects include:

- funding from the National Science Foundation for a security testbed lab;
- management of NG9-1-1 routing data base for the State of Texas' Commission for State Emergency Communications (CSEC), and
- pending funding from Verizon for work in NG 9-1-1 security.

Other accomplishments include:

- Chair of the Operational Subcommittee of the State of Texas Telecommunications Planning and Oversight Council (TPOC),
- Past President of the Association of Information Communications Technology Professionals in Higher Education (ACUTA),
- Chair of Internet2 VoIP and IPTV Special Interest Groups (SIGs), and
- Leader of the Routing Working Group for the National Institute for Standards and Technology (NIST) Building Information Exchange for First Responders (BIFER) project.

Dr. Magnussen has his Bachelors and Masters degrees from the University of Minnesota and his Doctorate degree from Texas A&M University.

## RESUME

### WAYNE M. PECENA

(personal contact info available upon request)  
voice: 979.845.5662 [w-pecena@tamu.edu](mailto:w-pecena@tamu.edu) fax: 979-458-2113

## PROFESSIONAL EXPERIENCE

**Assistant Director for Engineering & Operations**, Educational Broadcast Services, Texas A&M University, College Station, TX 1996 - present

Serves as **Director of Engineering** and is responsible for overall leadership and management of technology, technical support, and operations conducted by Educational Broadcast Services (EBS) at Texas A&M University. These operations include the Trans-Texas Videoconference Network (TTVN) which provides Enterprise Internet/Intranet data services and videoconferencing services to Texas A&M System locations within the state. In addition, EBS operates distance learning video production, campus cable TV services, and satellite origination facilities as well as operating public TV and radio stations, KAMU-TV/DT and KAMU-FM.

**Chief Engineer**, Educational Broadcast Services, Texas A&M University, 1978 - 1996

Responsible for KAMU TV technical facilities, KAMU FM technical facilities, and video-telecommunications facilities of a state-wide compressed video network. Past accomplishments includes the total design, purchase, and project management of new studio production facilities, remote production vehicle, UHF transmitter plant, multi-server Local Area Network(s), and a Ku uplink facility. Provided design assistance and equipment specification of a fiber optic based data / video campus distribution network and coordinated the installation of over fifty videoconference locations.

**Research Engineer**, Oceanography Dept., Texas A&M University. 1977 - 1978.

Responsible for the design, construction, and operation of a shipboard based data acquisition system.

**Radio/TV Engineer**, KAMU FM, Texas A&M University, 1976-1977.

Responsible for the design and construction of new technical facilities for KAMU FM.

**Radio/TV Technician**, KAMU TV, Texas A&M University, 1973-1976

Responsible for the installation and maintenance of camera and video tape equipment.

**Service Technician**, Platt's Communications Service, Bryan, TX, 1971 – 1973 (part time)

Responsible for the installation and repair of Motorola / GE mobile communications equipment.

## EDUCATION

**Master of Science**, Industrial Engineering Technology – Telecommunications, Texas A&M University, College Station, TX. 1982.

**Bachelor of Business Administration** - Management, Texas A&M University, College Station, TX. 1976

**High School Diploma**, Mt. Pleasant High School, Mt. Pleasant, TX 1971

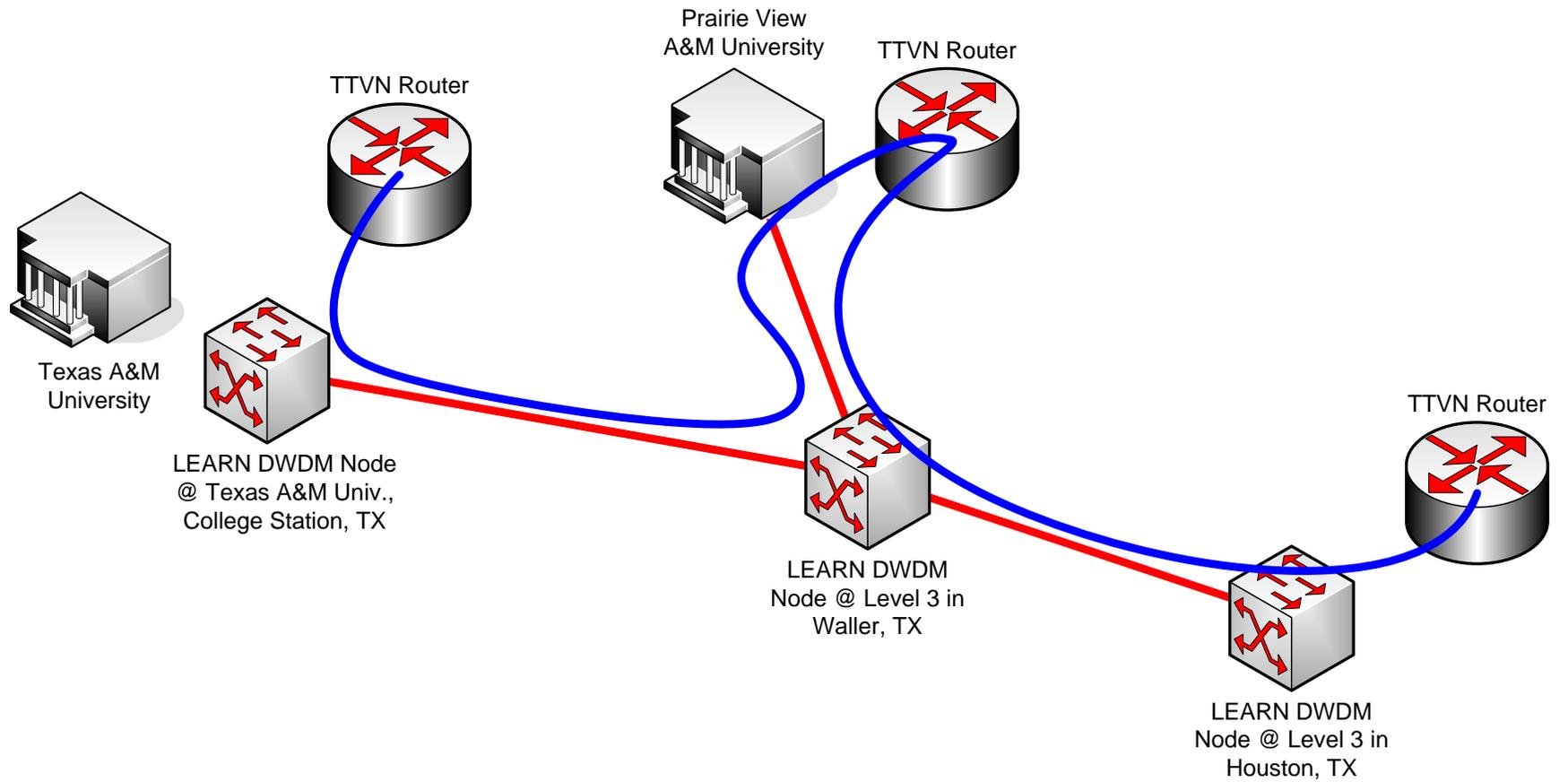
## PROFESSIONAL ORGANIZATIONS & MEMBERSHIPS

Society of Broadcast Engineers  
Society of Motion Picture & Television Engineers  
National Association of Radio and Telecommunications Engineers  
Society of Cable Television Engineers  
American Radio Relay League  
Aircraft Owners and Pilots Association  
Texas VHF-FM Society

## PROFESSIONAL LICENSES / CERTIFICATIONS

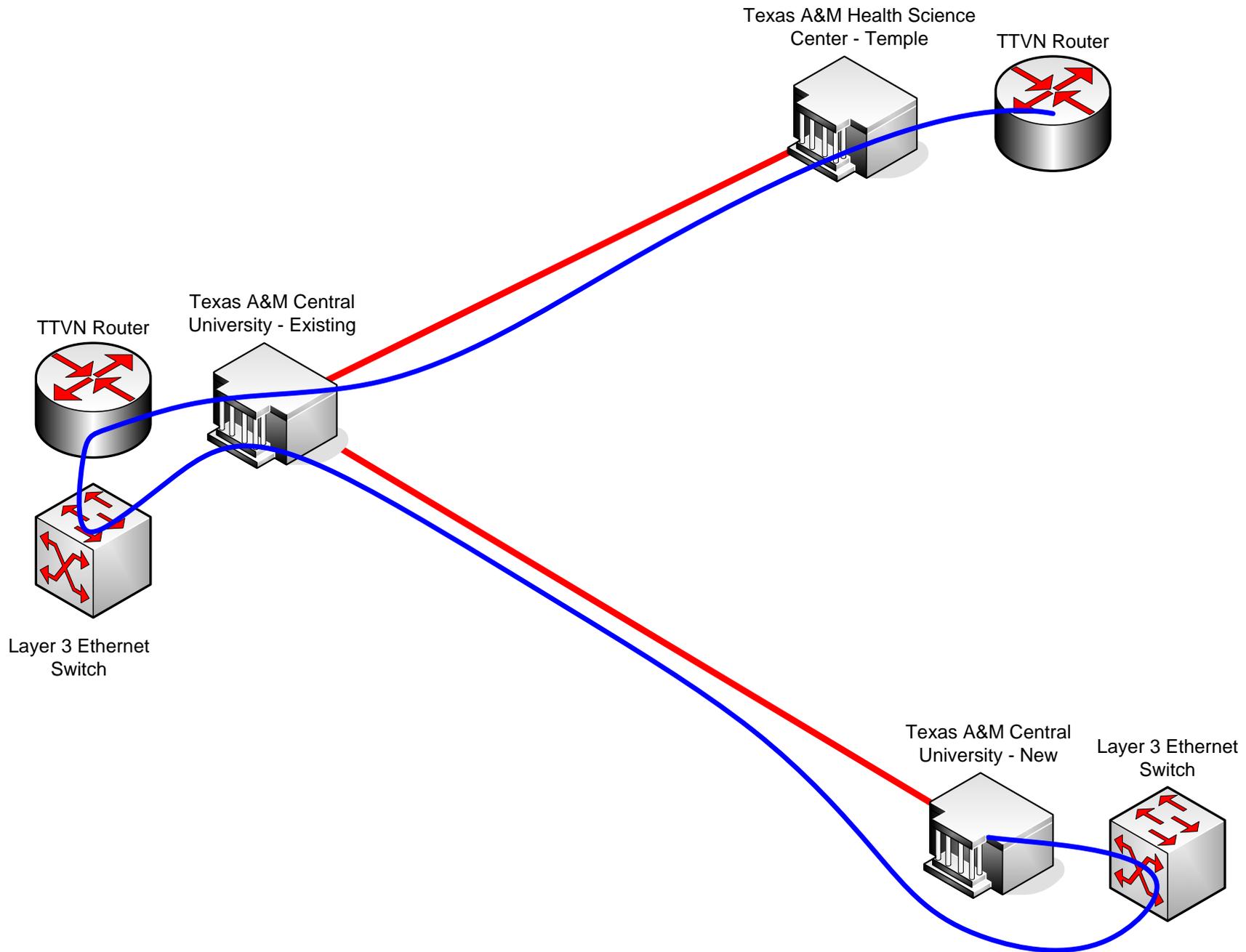
InfoComm International  
    **CTS** – Certified Technology Specialist  
Society of Broadcast Engineers  
    **CPBE** - Professional Broadcast Engineer - AM-FM / TV (# 50404)  
    **CBNT** - Broadcast Networking Technologist (#80875)  
    **8VSB** - 8-VSB Specialist  
    **DRB** – Digital Radio Broadcast  
    **AMD** – AM Directional Specialist  
National Association of Radio and Telecommunications Engineers  
    **Certified Engineer** - Land Mobile Radio, AM, FM, & TV (# E1 - 00255)  
National Association Business & Educational Radio  
    **Certified Communications Technician** (# 02152)  
Federal Communications Commission  
    **General Class Radiotelephone**, w/Radar Endorsement (PG-9-9679)  
    **Amateur Radio Operator** – Extra Class “N1WP”  
Federal Aviation Administration  
    **Private Pilot** (Single Engine Land)

# Prairie View A&M University – Logical Network Diagram

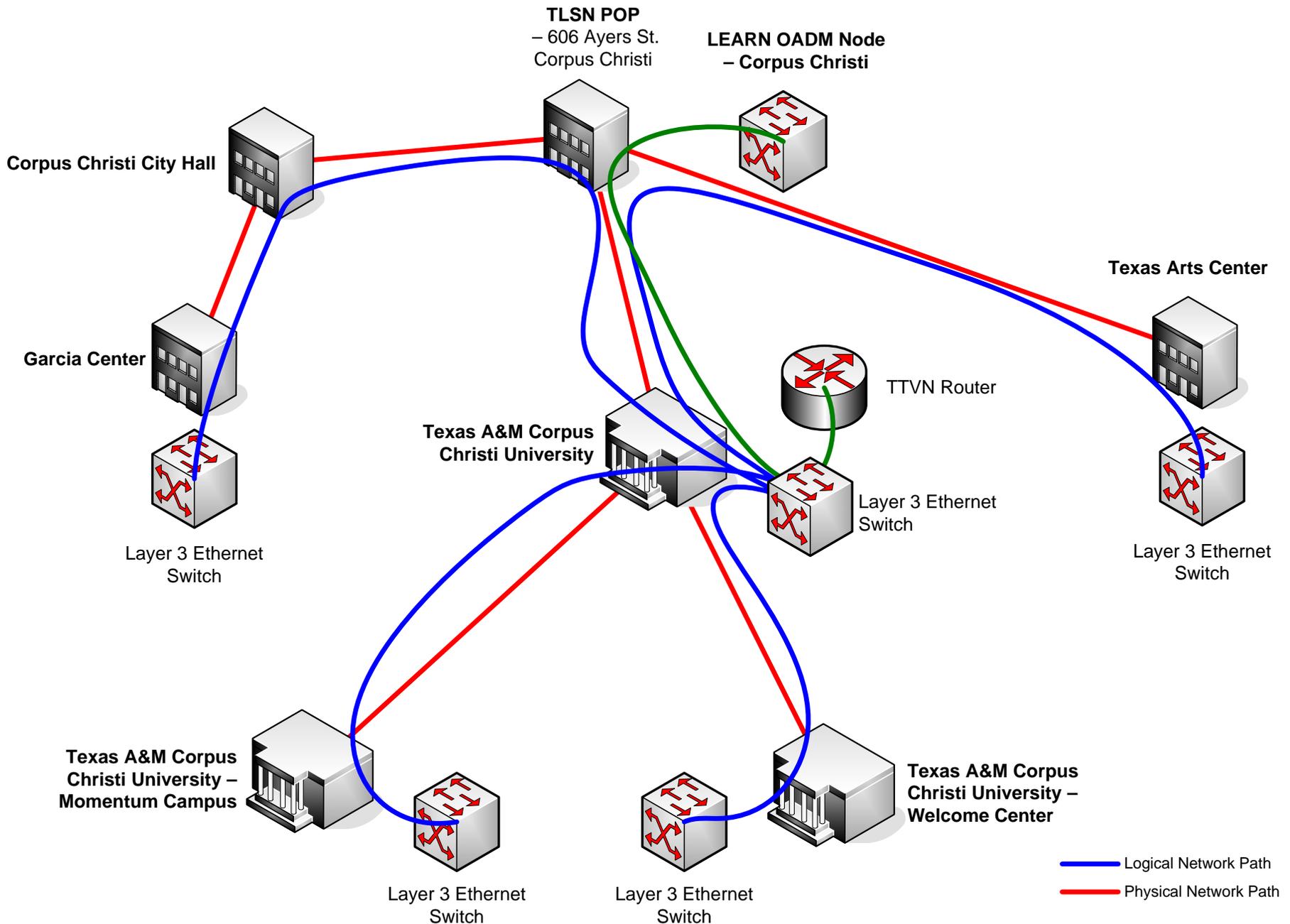


— Logical Network Path  
— Physical Network Path

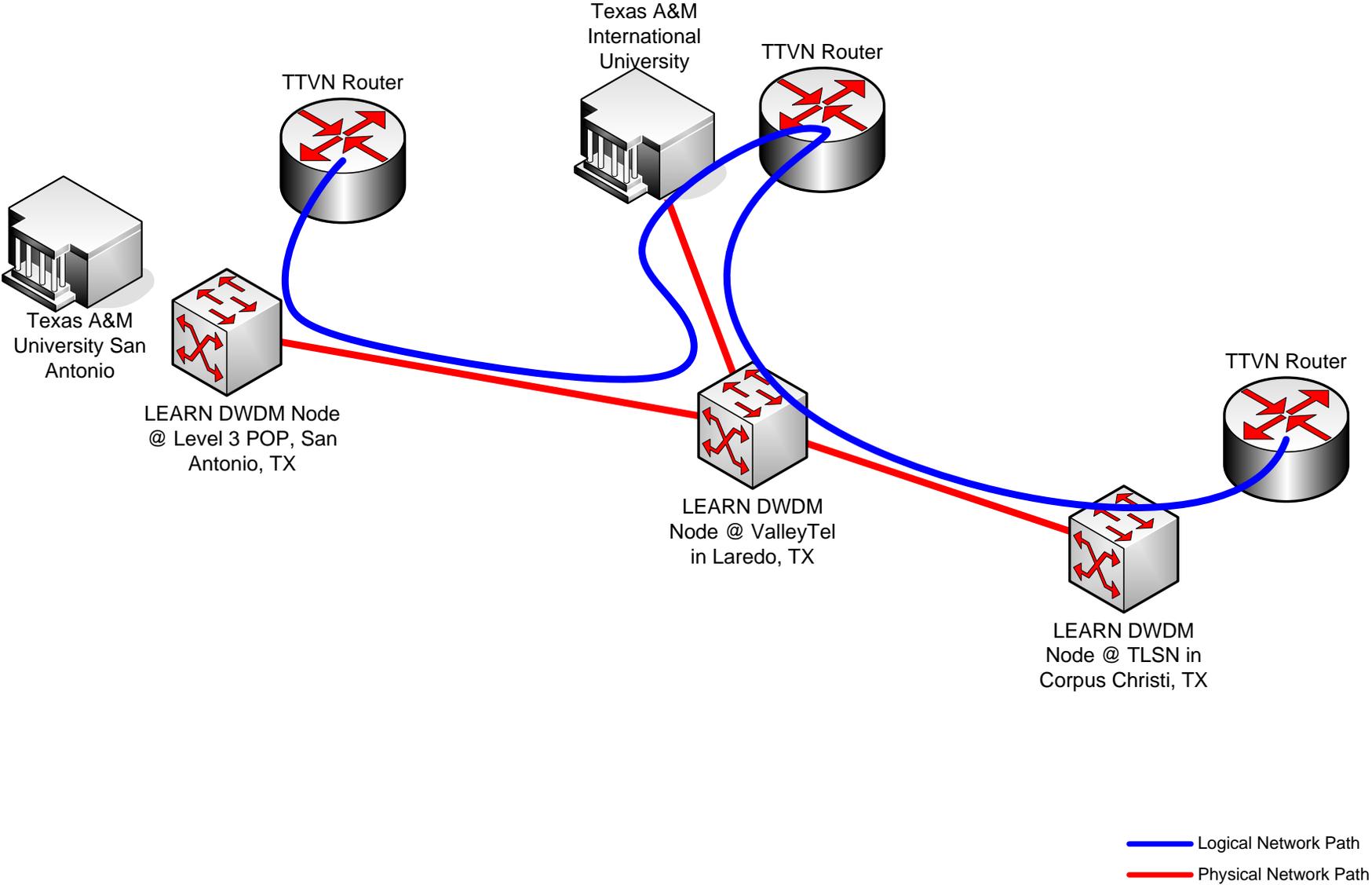
# Texas A&M Central – Logical Network Diagram



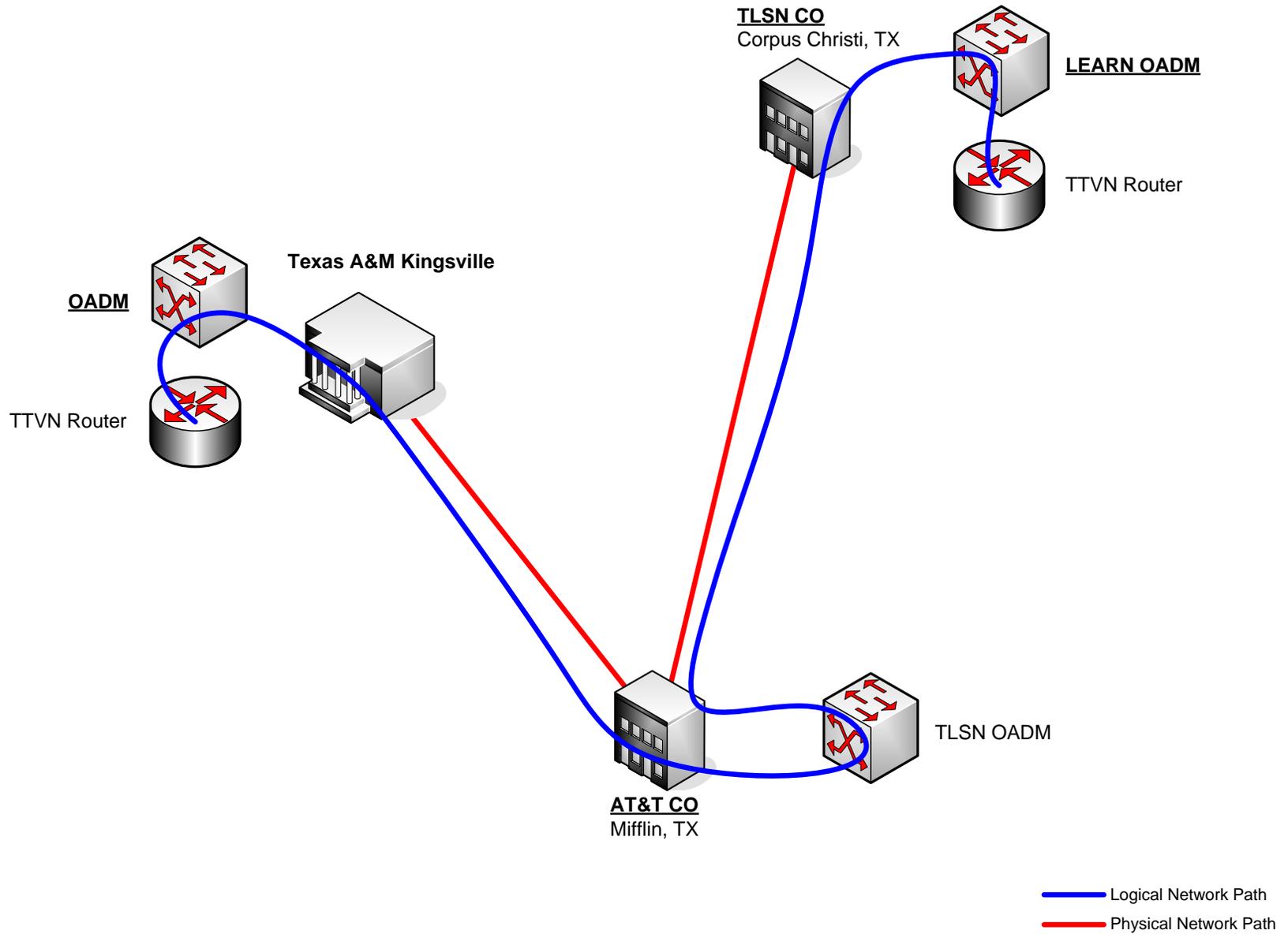
# Texas A&M Corpus Christi – Logical Network Diagram



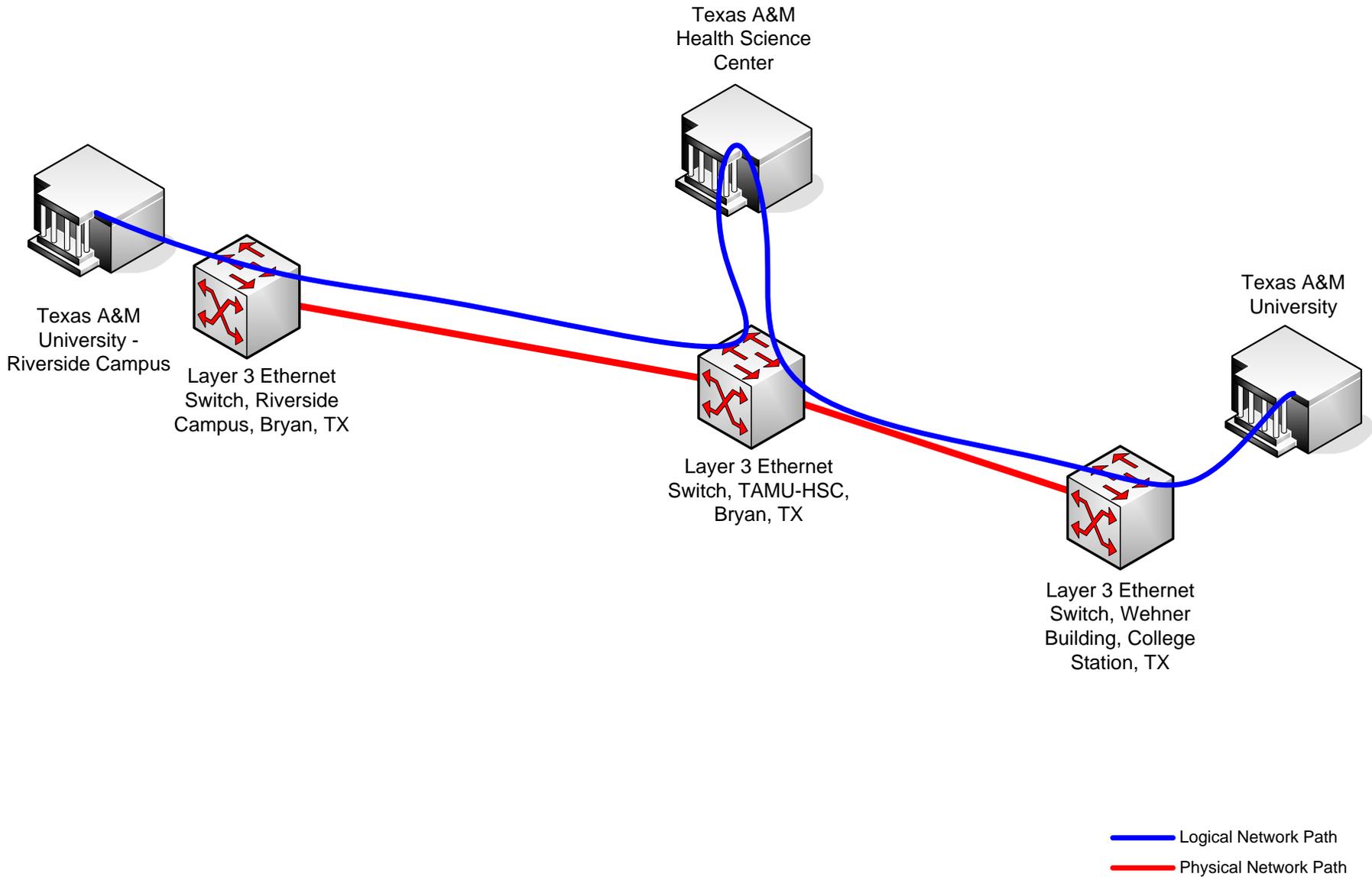
# Texas A&M International – Logical Network Diagram



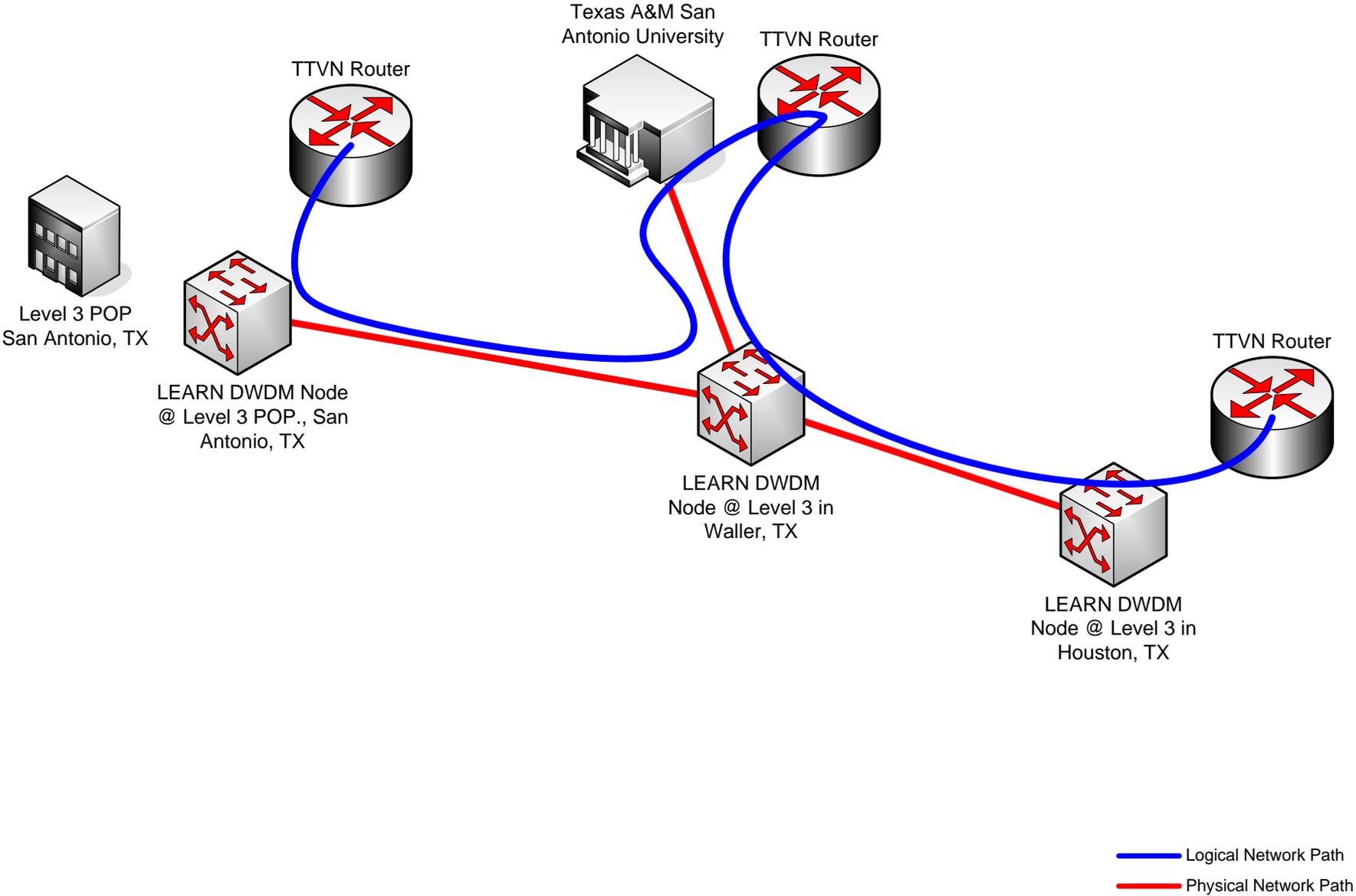
# Texas A&M Kingsville – Logical Network Diagram



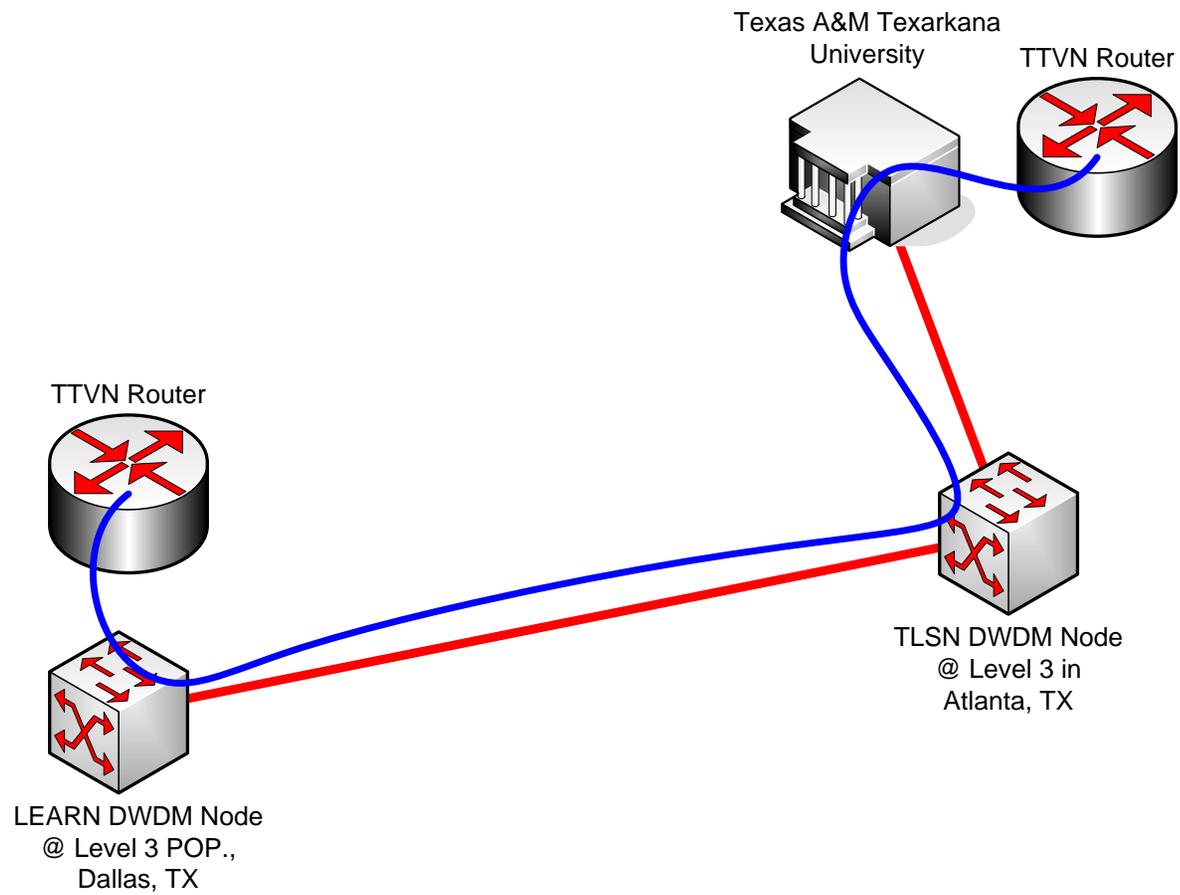
# Texas A&M University – Riverside Campus – Logical Network Diagram



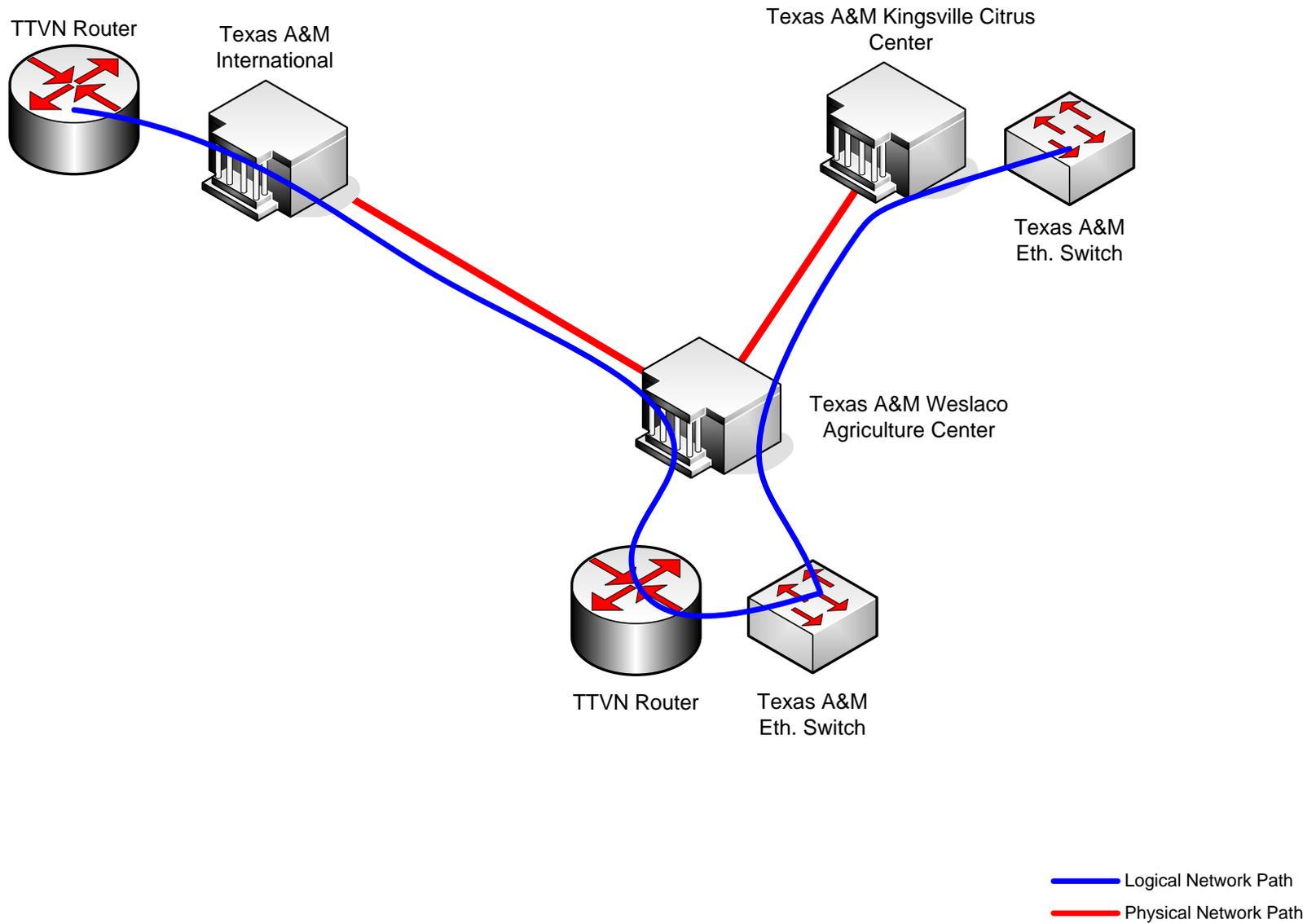
# Texas A&M San Antonio – Logical Network Diagram



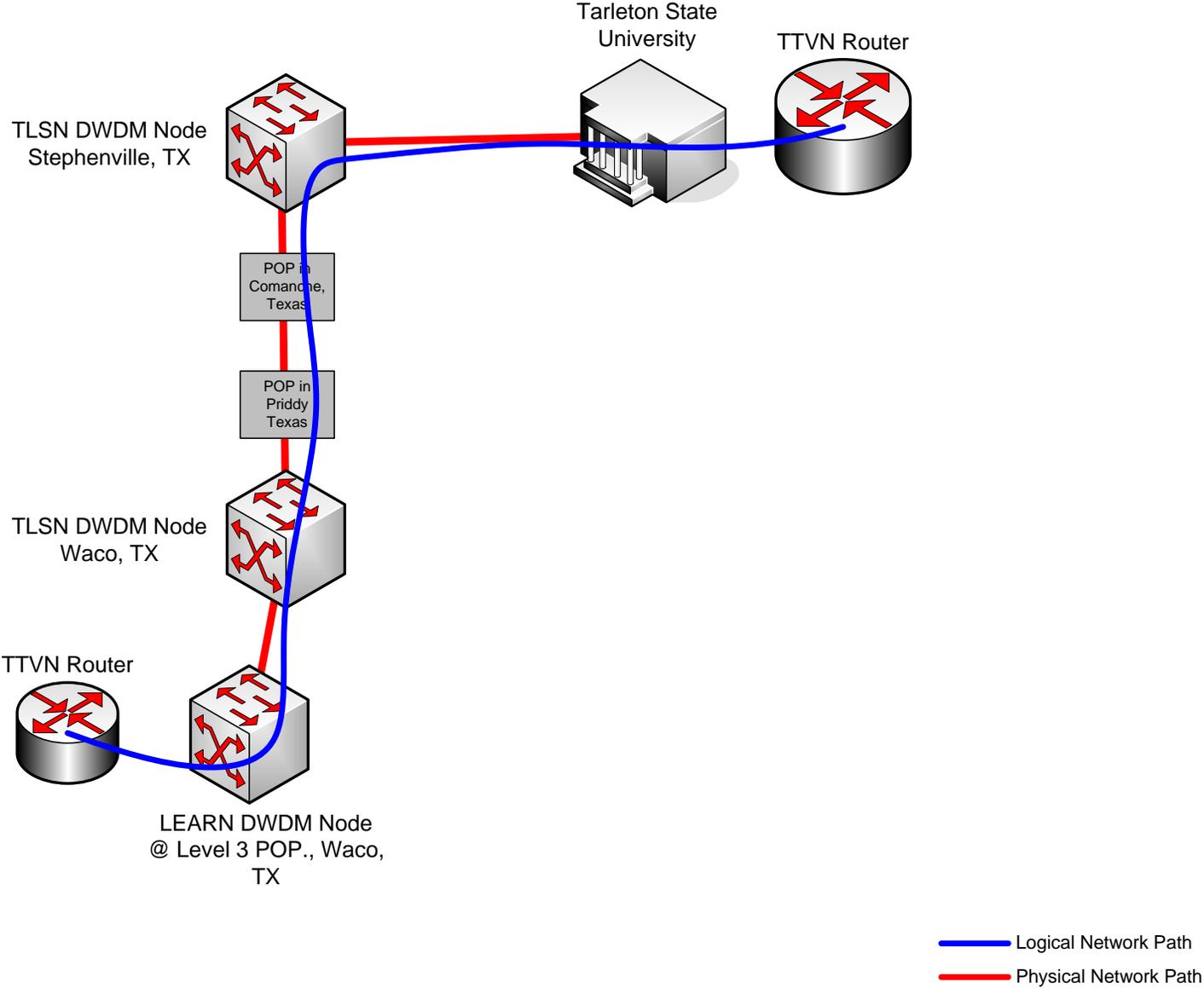
# Texas A&M Texarkana – Logical Network Diagram



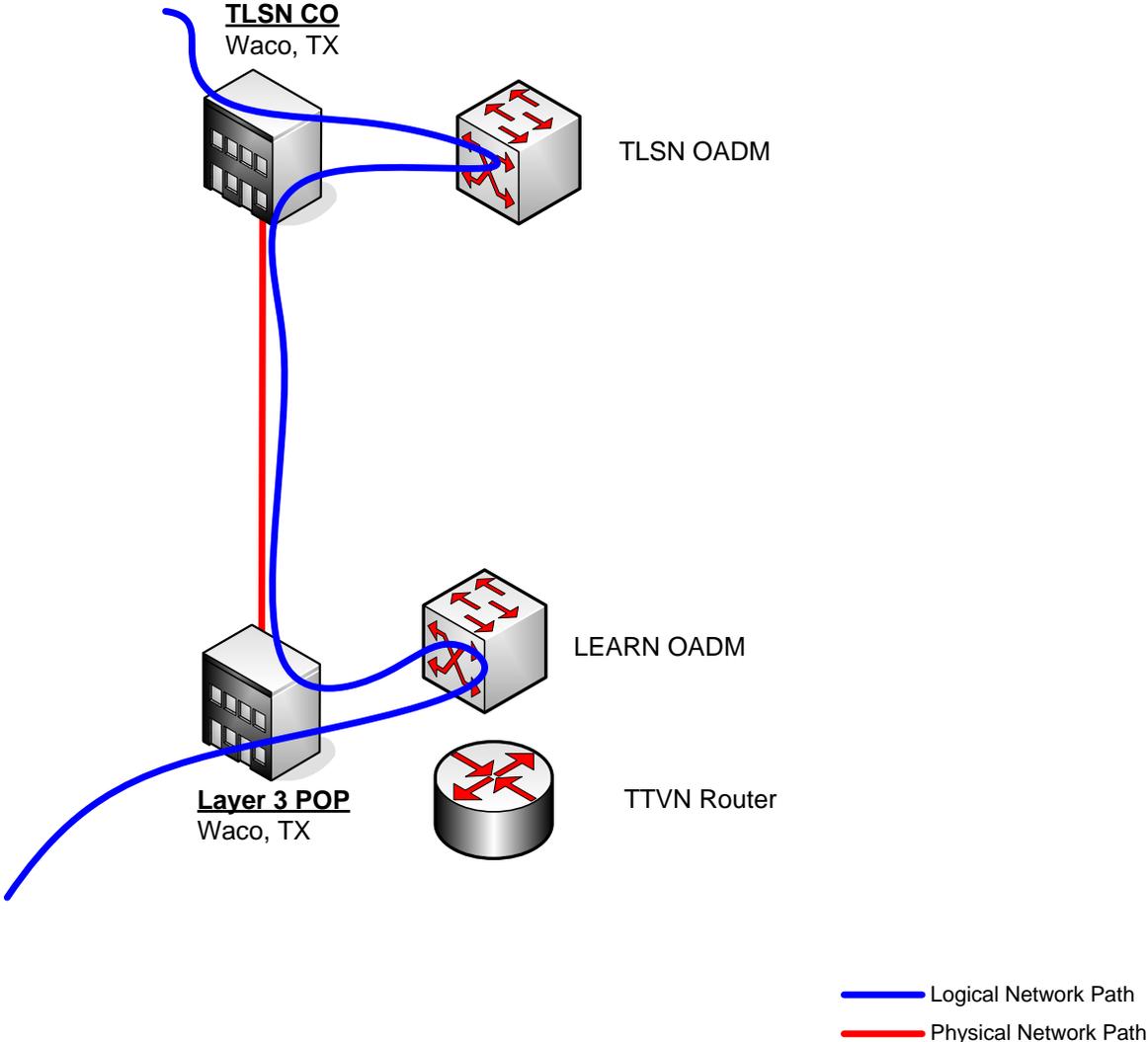
# Texas A&M Agriculture Center – Weslaco, TX – Logical Network Diagram



# Tarleton State University – Logical Network Diagram



# Waco, TX – Logical Network Diagram



# West Texas A&M University – Logical Network Diagram

