| | | | ZTF te | escope changeo | ver work plar | _V7-Ba | ise | | | | | | | | | | | | | | |
|----|--|----------|-------------|----------------|---------------|---------|-----|------------|--------|---------|-------|---------|--------|-------------|-------|--------------|---------|-----------|---------|----------|----------|
| D | Task Name | Duration | Start | Finish | Predecessors | Jan 22, | Feb | 12, N | 1ar 5, | ' Mar 2 | 6, Ap | r 16, N | 1ay 7, | May 28, Jun | 18, J | Iul 9, '1 Jι | I 30, ' | Aug 20, 5 | Sep 10, | Oct 1, ' | 1 Oct 22 |
| 1 | PTF/ZTF Changeover | 137 days | Wed 3/1/17 | Wed 9/13/17 | | | | | | | | | | | | | | | 1 0% | | |
| 2 | PTF camera & e-rack removal | 2 days | Wed 3/1/17 | Thu 3/2/17 | | | | • 0 | % | | | | | | | | | | | | |
| 3 | Primary mirror removal | 1 day | Fri 3/3/17 | Fri 3/3/17 | 2 | | | F C |)% | | | | | | | | | | | | |
| 4 | Dummy mirror install | 0.5 days | Mon 3/6/17 | Mon 3/6/17 | 3 | | | K | 0% | | | | | | | | | | | | |
| 5 | Remove shutter & baffle | 0.5 days | Mon 3/6/17 | Mon 3/6/17 | 4 | | | F | 0% | | | | | | | | | | | | |
| 6 | Doublet ass'y removal and balance | 0.5 days | Tue 3/7/17 | Tue 3/7/17 | 5 | | | ŀ | 0% | | | | | | | | | | | | |
| 7 | Remove focus hub and spiders | 1.5 days | Tue 3/7/17 | Wed 3/8/17 | 6 | | | - | 0% | | | | | | | | | | | | |
| 8 | TCS Testing | 2 days | Thu 3/9/17 | Fri 3/10/17 | 7 | | | | 0% | 5 | | | | | | | | | | | |
| 9 | Doublet optics removal from cell | 1 day | Wed 3/8/17 | Thu 3/9/17 | 6FS+1 day | | | 1 | 0% | | | | | | | | | | | | |
| 10 | Doublet cell clean and replate | 3 wks | Thu 3/9/17 | Thu 3/30/17 | 9 | | | | | -0% | 6 | | | | | | | | | | |
| 11 | Grounding & lightning protection upgrade | 3 wks | Thu 3/16/17 | Wed 4/5/17 | 8FS+3 days | | | | | (| 0% | | | | | | | | | | |
| 12 | Dome power rewiring | 3 days | Wed 3/15/17 | Fri 3/17/17 | 8FS+2 days | | | | • | 0% | | | | | | | | | | | |
| 13 | Doublet cell/optics assembly | 3 days | Tue 4/4/17 | Fri 4/7/17 | 10FS+3 day | | | | | | 0% | | | | | | | | | | |
| 14 | Enlarge access hatch in tube | 3 days | Tue 3/14/17 | Thu 3/16/17 | 8FS+1 day | | | | * |)% | | | | | | | | | | | |
| 15 | Cut CCD cable port holes in tube | 1 day | Fri 3/17/17 | Fri 3/17/17 | 14 | | | | F | 0% | | | | | | | | | | | |
| 16 | Add primary end c'wgt mounts | 1 day | Mon 3/20/17 | Mon 3/20/17 | 15 | | | | 1 | 0% | | | | | | | | | | | |
| 17 | Remove South Finder Scope | 1 day | Tue 3/21/17 | Tue 3/21/17 | 16 | | | | F | 0% | | | | | | | | | | | |
| 18 | Add elect. rack mtg features to tube | 0.5 days | Wed 3/22/17 | Wed 3/22/17 | 17 | | | | ì | 0% | | | | | | | | | | | |
| 19 | Add filter exchanger mount features | 1 day | Wed 3/22/17 | Wed 3/22/17 | 17 | | | | ı | 0% | | | | | | | | | | | |
| 20 | ZTF ICS and TCS testing | 3 days | Thu 3/23/17 | Mon 3/27/17 | 19 | | | | | 0% | | | | | | | | | | | |
| 21 | Clean, prep and paint tube inside | 6 days | Fri 3/24/17 | Fri 3/31/17 | 19FS+1 day | | | | | -09 | % | | | | | | | | | | |
| 22 | Primary re-aluminize | 5 days | Mon 4/10/17 | Fri 4/14/17 | 21FS+5 day | | | | | | 09 | % | | | | | | | | | |
| | | | | Pag | e 1 | | | | | | | | | | | | | | | | |

| Install instruments support assy/hexapod 3 days Tue 4/4/17 Thu 4/6/17 21FS+1 day 10K | | | | ZTF tel | 1 3 | | | | | | | | | | | | | | | | |
|--|----|--|----------|-------------|-------------|------------|---------|-------|-----------|--------|-------|-------|--------|--------|---------|-----------|-----------|---------|-----------|-----------|-------|
| Cable routing & mgt system install (prelim) 2 days Fri 4/7/17 Mon 4/10/17 23 10 pry air system testing (prelim) 2 days Thu 4/13/17 Fri 4/14/17 25 70 Dry air system testing (prelim) 2 days Thu 4/13/17 Fri 4/14/17 25 70 pry air system testing (prelim) 2 days Thu 4/13/17 Fri 4/14/17 25 70 pry air system testing (prelim) 2 days Thu 4/13/17 Fri 4/14/17 25 70 pry air system testing (prelim) 2 days Mon 4/17/17 Wed 4/19/17 26 70 pry air system testing (prelim) 2 days Mon 4/20/17 Wed 4/19/17 26 70 pry air system testing (prelim) 2 days Mon 4/20/17 Thu 4/20/17 26 1 pry air system testing (prelim) 2 days Mon 4/20/17 Thu 4/20/17 26 1 pry air system testing (prelim) 2 days Mon 4/20/17 Thu 4/20/17 26 1 pry air system testing (prelim) 2 days Mon 4/20/17 Thu 4/20/17 26 1 pry air system testing (prelim) 2 days Mon 4/20/17 Thu 4/20/17 26 1 pry air system testing (prelim) 2 days Mon 4/20/17 Thu 4/20/17 26 1 pry air system testing (prelim) 2 days Mon 4/20/17 Thu 4/20/17 26 1 pry air system testing (prelim) 2 days Mon 5/10 True 5/20/17 38 1 pry air system testing (prelim) 2 days Mon 5/10/17 Thu 5/18/17 35FS+1 day 1 pry air system testing (prelim) 2 days Mon 5/10/17 Thu 5/18/17 35FS+1 day 2 pry air system testing (prelim) 3 days Mon 5/10/17 Thu 5/18/17 35FS+1 day 3 pry air system testing (prelim) 3 days Mon 5/10/17 Thu 5/18/17 35FS+1 day 3 pry air system testing (prelim) 3 days 4 pry air system testing (prelim) 4 pry air system testing (prelim) 4 pry air system testing (prelim) 5 pry air system testing (prelim) 6 pry air system testing (prelim) 6 pry air system testing (prelim) 7 pry air system testing (prelim) 7 pry air system testing (prelim) 8 pry air system testing (prelim) 8 pry air system testing (prelim) 9 pry air sys | | | Duration | | | | Jan 22, | Feb 1 | 2, Mar 5, | Mar 26 | Apr 1 | 16, N | lay 7, | May 28 | Jun 18, | Jul 9, '1 | Jul 30, ' | Aug 20, | Sep 10, 0 | Oct 1, '1 | Oct 2 |
| 25 | 23 | Install instrument support assy/hexapod | 3 days | Tue 4/4/17 | Thu 4/6/17 | | | | | |)% | | | | | | | | | | |
| Dry air system testing (prelim) 2 days Thu 4/13/17 Fri 4/14/17 25 TCS Testing 3 days Mon 4/37/17 Wed 4/19/17 26 Wind screen improvements 3 days Wed 4/26/17 Thu 4/27/17 28F5+1 day Install Field Assembly 2 days Wed 4/26/17 Fri 4/28/17 28F5+1 day Enviornmental sensor installation 3 days Wed 4/26/17 Fri 4/28/17 28F5+1 day Enviornmental sensor installation 3 days Wed 4/26/17 Fri 4/28/17 28F5+1 day Cable and hose routing hiware (finalize) 2 days Mon 5/17/17 Tue 5/2/17 31F5+2 day Air treatment system (final install & testing) 3 days Wed 5/3/17 Fri 5/5/17 32 Wed 5/3/17 Fri 5/5/17 32 TF camera transport to summit (Baseline) O days Mon 5/15/17 Mon 5/15/17 34F5+2 day Install e-rack & connect glycol plumbing 2 days Wed 5/17/17 Thu 5/18/17 35 TIT camera Alignment Testing O days Mon 5/22/17 Mon 5/22/17 39 TF Camera Alignment Testing O days Mon 5/22/17 Mon 5/22/17 39 TF Camera Alignment Testing O days Wed 6/7/17 Thu 6/8/17 41 Thu 6/8/17 Thu 6/8/17 42 TF Camera and cabling removal 2 days Wed 6/7/17 Thu 6/8/17 42 TF Camera and cabling removal 2 days Wed 6/7/17 Thu 6/8/17 42 Thu 6/8/17 Thu 6/8/17 41 Thu 6/8/17 Thu 6/8/17 41 Thu 6/8/17 Thu 6/8/17 42 | 24 | Cable routing & mgt system install (prelim) | 2 days | Fri 4/7/17 | Mon 4/10/17 | 23 | | | | * | 0% | | | | | | | | | | |
| TCS Testing 3 days Mon 4/17/17 Wed 4/19/17 26 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% | 25 | Install doublet & shutter | 2 days | Tue 4/11/17 | Wed 4/12/17 | 24 | | | | | 0% | | | | | | | | | | |
| Wind screen improvements 3 days Thu 4/20/17 Mon 4/24/17 27 | 26 | Dry air system testing (prelim) | 2 days | Thu 4/13/17 | Fri 4/14/17 | 25 | | | | | 0% | , | | | | | | | | | |
| Install Flat Field Assembly 2 days Wed 4/26/17 Thu 4/27/17 28F5+1 day 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% | 27 | TCS Testing | 3 days | Mon 4/17/17 | Wed 4/19/17 | 26 | | | | | 09 | % | | | | | | | | | |
| Enviornmental sensor installation 3 days Wed 4/26/17 Fri 4/28/17 28FS+1 day 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% | 28 | Wind screen improvements | 3 days | Thu 4/20/17 | Mon 4/24/17 | 27 | | | | | | 0% | | | | | | | | | |
| 313 RA Worm Bearing Adjustment 2 days Tue 4/25/17 Wed 4/26/17 28 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% | 29 | Install Flat Field Assembly | 2 days | Wed 4/26/17 | Thu 4/27/17 | 28FS+1 day | | | | | ì | 0% | 5 | | | | | | | | |
| 2 days Mon 5/1/17 Tue 5/2/17 31F5+2 day | 30 | Enviornmental sensor installation | 3 days | Wed 4/26/17 | Fri 4/28/17 | 28FS+1 day | | | | | | | | | | | | | | | |
| Air treatment system (final install & testing) Air treatment final alignment (final install & testing) Air treatment system (final install & testing) Air treatment final alignment (final install ktesting) Air treatment final alignment (final install ktesting) Air trea | 31 | RA Worm Bearing Adjustment | 2 days | Tue 4/25/17 | Wed 4/26/17 | 28 | | | | | | 0% | | | | | | | | | |
| Install and align primary mirror 2 days Wed 5/10/17 Thu 5/11/17 33FS+2 day 0% | 32 | Cable and hose routing h'ware (finalize) | 2 days | Mon 5/1/17 | Tue 5/2/17 | 31FS+2 day | | | | | | | | | | | | | | | |
| State Stat | 33 | Air treatment system (final install & testing) | 3 days | Wed 5/3/17 | Fri 5/5/17 | 32 | | | | | | |)% | | | | | | | | |
| Install Cryotiger lines & cabling | 34 | Install and align primary mirror | 2 days | Wed 5/10/17 | Thu 5/11/17 | 33FS+2 day | | | | | | | | | | | | | | | |
| Initial installation of ZTF camera 3 days Tue 5/16/17 Thu 5/18/17 35 | 35 | ZTF camera transport to summit (Baseline) | 0 days | Mon 5/15/17 | Mon 5/15/17 | 34FS+2 day | | | | | | | | | | | | | | | |
| Install e-rack & connect glycol plumbing 2 days Wed 5/17/17 Thu 5/18/17 35FS+1 day | 36 | Install Cryotiger lines & cabling | 1 day | Wed 5/17/17 | Wed 5/17/17 | 35FS+1 day | | | | | | | 09 | 6 | | | | | | | |
| 2 days 2 days 2 days 2 days 2 days 3 days 40 2 days 40 | 37 | Initial installation of ZTF camera | 3 days | Tue 5/16/17 | Thu 5/18/17 | 35 | | | | | | | | | | | | | | | |
| 2 days Mon 5/22/17 Mon 5/22/17 39 | 38 | Install e-rack & connect glycol plumbing | 2 days | Wed 5/17/17 | Thu 5/18/17 | 35FS+1 day | | | | | | | 09 | 6 | | | | | | | |
| 2 ZTF Camera Alignment Testing 10 days Tue 5/23/17 Tue 6/6/17 39 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% | 39 | ZTF camera functional verification | 2 days | Fri 5/19/17 | Mon 5/22/17 | 38 | | | | | | | | | | | | | | | |
| 2Tr Camera and cabling removal 2 days Wed 6/7/17 Thu 6/8/17 41 0% Install testing c'wgts & camera surrogate 2 days Fri 6/9/17 Mon 6/12/17 42 0% | 40 | ZTF Camera Alignment Testing | 0 days | Mon 5/22/17 | Mon 5/22/17 | 39 | | | | | | | • | | | | | | | | |
| 43 Install testing c'wgts & camera surrogate 2 days Fri 6/9/17 Mon 6/12/17 42 | 41 | ZTF Camera Alignment Testing | 10 days | | | | | | | | | | | | | | | | | | |
| mistali testing e wgts & camera surrogate 2 days 111 0/3/17 Wion 0/12/17 42 | 42 | ZTF camera and cabling removal | 2 days | Wed 6/7/17 | Thu 6/8/17 | 41 | | | | | | | | | | | | | | | |
| 44 Telescope drive & TCS testing 5 days Wed 6/14/17 Tue 6/20/17 43FS+1 day | 43 | Install testing c'wgts & camera surrogate | 2 days | | | | | | | | | | | | | | | | | | |
| | 44 | Telescope drive & TCS testing | 5 days | Wed 6/14/17 | Tue 6/20/17 | 43FS+1 day | | | | | | | | | 0% | | | | | | |

| | | | | escope changeo | | | | | | | | | | | | | | |
|----|---|----------|-------------|----------------|--------------|-----|------------|---------|---------|----------|---|----|--------------|---------|-----------|--------|--------|--------|
| | Task Name | Duration | Start | Finish | Predecessors | Feb | 12, Mar 5, | Mar 26, | Apr 16, | May 7, ' | | | Jul 9, '1 | Jul 30, | ' Aug 20, | Sep 10 | Oct 1, | '1 Oct |
| 45 | Transport Filter Exchanger to Palomar | 1 day | Mon 6/12/17 | Mon 6/12/17 | 43FS+1 day | | | | | | | 0% | | | | | | |
| 46 | Install Filter Exchanger | 2 days | Tue 6/20/17 | Wed 6/21/17 | 44FS+1 day | | | | | | i | 0% | | | | | | |
| 47 | Filter exchanger testing | 10 days | Thu 6/22/17 | Fri 7/7/17 | 46 | | | | | | | | 0% | | | | | |
| 48 | Baffle Installation | 1 day | Wed 8/2/17 | Wed 8/2/17 | 51 | | | | | | | | | 0% | | | | |
| 49 | Trim plate delivery | 0 days | Mon 7/17/17 | Mon 7/17/17 | | | | | | | | | ♦ 7 . | /17 | | | | |
| 50 | Crane certification | 2 days | Mon 7/24/17 | Tue 7/25/17 | | | | | | | | | 4 | 0% | | | | |
| 51 | ZTF trim plate install & c'wgt adjust | 1 day | Tue 8/1/17 | Tue 8/1/17 | | | | | | | | | | 0% | | | | |
| 52 | ZTF camera reinstall | 3 days | Fri 7/28/17 | Tue 8/1/17 | 51SF+1 day | | | | | | | | | 0% | | | | |
| 53 | ZTF First Light | 0 days | Tue 8/1/17 | Tue 8/1/17 | 52 | | | | | | | | | 8/1 | Ĺ | | | |
| 54 | Camera, filter exchanger engineering check-out incl. DIQ verification, scattered light eval.) | 5 days | Wed 8/2/17 | Tue 8/8/17 | 53 | | | | | | | | | 0 | % | | | |
| 55 | Full robotic operations check-out (open/close, weather interrupts, fault recovery, queue I/F, safety) | 10 days | Wed 8/9/17 | Tue 8/22/17 | 54 | | | | | | | | | | 0% | | | |
| 56 | Operational efficiency optimization | 10 days | Wed 8/16/17 | Tue 8/29/17 | 55FS-5 day: | | | | | | | | | 4 | 09 | % | | |
| 57 | Engineering contingency | 10 days | Wed 8/30/17 | Wed 9/13/17 | 56 | | | | | | | | | | | 0% | | |
| 58 | Begin ZTF Science Verification | 0 days | Wed 9/13/17 | ' Wed 9/13/17 | 57 | | | | | | | | | | | 9/1 | L3 | |