

Compress the Bicycle Schedule

Rafael Appe, Ronald Carns, Kristin Dexter, Jaime Jack, Katy Sorrells, Benjamin Srock

Embry-Riddle Aeronautical University Worldwide Campus

Plan, Direct, Control Project

PMGT 614

Instructor: Jimmie Flores

Table of Contents

Compress the Bicycle Schedule.....	3
Change Evaluation	3
Budget Changes	5
Original Schedule.....	6
Compressed Schedule	10
Schedule Compression Techniques	12
References.....	13

Compress the Bicycle Schedule

In order to meet market demands, the project sponsor requested the project manager to improve the project schedule in order to expedite overall production and provide quicker deliverable of goods. The following change evaluation seeks to meet the new business demands and ensure the interest of our organizations, shareholders, and associated stakeholders.

Change Evaluation

The team evaluated the change request received from the customer to determine what compression techniques were appropriate for use. The evaluation determined the best course of action was to crash key activities along the critical pathway to reduce the project schedule. Four activities were identified during this analysis. The completed Change Request Form is shown in Figure 1.

The frame construction time was compressed from four hours to two hours using additional labor hours. The phone dock time was compressed from 1.2 days to two hours due to the outsourcing of this item. Final testing of the completed product was reduced from eight to four hours as the customer testing will suffice for product testing. Finally, the project closeout process can be reduced from eight hours to six hours as this process will be active between project phases.

Project Change Request Form				
Name of Project: BICYCLE	Project Manager: Kristin Dexter			
Change Request #: 1.0	Change Request Date: 6-Jun-17			
Change Requested by Name: Customer	Current Project Phase: Initiation			
<p>Description of Change: Customer states project schedule is too long. Requests schedule compression. Primary constraint is time. The project team recommends:</p> <ol style="list-style-type: none"> 1. Crashing the time to order the frame from 4 hours to 2 hours. 2. Crashing the time to assemble and mount the phone dock from 1.2 days to 2 hours as this product is being shipped directly from the outside vendor ready to assemble and mount. 3. Crashing the time to test the final product from 8 hours to 4 hours since each component is tested when assembled, and the customer will test the final product. 4. Crashing the project closeout from 8 hours to 6 hours since paperwork, invoicing, etc. should be submitted and closed throughout the project. 				
Original completion date: 26-Jun-17		Revised completion date: 22-Jun-17		
<p>Scope Impact: The scope will remain unchanged. Project schedule will be changed which will require additional changes to the project documents.</p>				
<p>Cost Impact: The total cost of crashing the project leads to a reduction in the overall cost of \$50.23</p> <table style="width: 100%;"> <tr> <td style="width: 50%;">Original EAC: \$6,212.66</td> <td style="width: 50%;">Revised EAC: \$6,162.43</td> </tr> </table>			Original EAC: \$6,212.66	Revised EAC: \$6,162.43
Original EAC: \$6,212.66	Revised EAC: \$6,162.43			
<p>Quality Impact: The quality level of the product will remain unchanged.</p>				
<p>Possible Risks: The possibility of failing to meet the new time line. Crash costs exceed the estimated costs causing additional delays or change of scope. Outside vendor delays getting materials, which can cause additional delays to the schedule.</p>				
Reviewed by: Kristin Dexter	Position: Project Manager	Date: 7-Jun-17		
<p>Recommended Action: APPROVE</p>				

Figure 1. Customer change request to compress the project schedule.

Budget Changes

Table 1

Provides information regarding the budget prior to proposed changes.

WBS		Expenses					
WBS No	WBS Element	Labor	Travel	Materials	Subcontracts	Other Direct Costs	Totals
1.1	Frame Set	\$ 3.77	\$ -	\$ 75.92	\$ -	\$ 5.00	\$ 84.69
1.2	Crank Set	\$ 1.31	\$ 439.00	\$ 28.79	\$ -	\$ 15.00	\$ 484.10
1.3	Wheels	\$ 0.94	\$ 439.00	\$ 38.79	\$ -	\$ 10.00	\$ 488.73
1.4	Braking System	\$ 1.31	\$ 439.00	\$ 16.98	\$ -	\$ 10.00	\$ 467.29
1.5	Shifting System	\$ 1.67	\$ 439.00	\$ 17.11	\$ -	\$ -	\$ 457.78
1.6	Integration	\$ 91.25	\$ 1,649.00	\$ -	\$ -	\$ -	\$ 1,740.25
1.7	Phone Dock	\$ 69.96	\$ 439.00	\$ 6.16	\$ 250.00	\$ -	\$ 765.12
1.8	Project Management	\$ 75.70	\$ 1,649.00	\$ -	\$ -	\$ -	\$ 1,724.70
Totals		\$ 245.91	\$ 5,493.00	\$ 183.75	\$ 250.00	\$ 40.00	\$ 6,212.66

Table 2

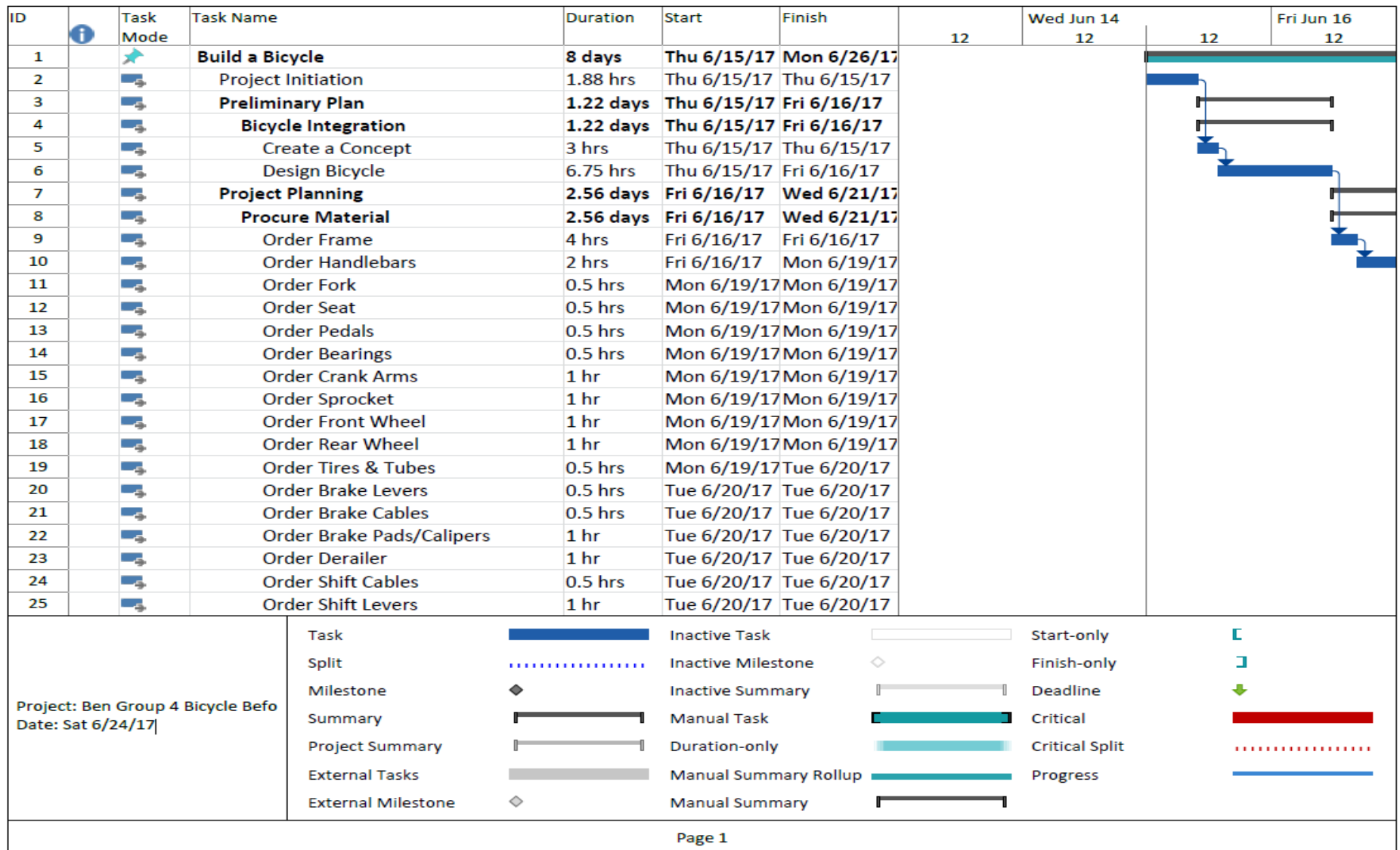
Includes the crashing costs for the project and the difference between the original cost and the proposed new budget

WBS					Expenses					
WBS No	WBS Element	Before Crash Hours	After Crash Hours	Crashing Costs	Labor	Travel	Materials	Subcontracts	Other Direct Costs	Totals
1.1	Frame Set	0.52	0.52	\$ -	\$ 3.77	\$ -	\$ 75.92	\$ -	\$ 5.00	\$ 84.69
1.2	Crank Set	0.18	0.18	\$ -	\$ 1.31	\$ 439.00	\$ 28.79	\$ -	\$ 15.00	\$ 484.10
1.3	Wheels	0.13	0.13	\$ -	\$ 0.94	\$ 439.00	\$ 38.79	\$ -	\$ 10.00	\$ 488.73
1.4	Braking System	0.18	0.18	\$ -	\$ 1.31	\$ 439.00	\$ 16.98	\$ -	\$ 10.00	\$ 467.29
1.5	Shifting System	0.23	0.23	\$ -	\$ 1.67	\$ 439.00	\$ 17.11	\$ -	\$ -	\$ 457.78
1.6	Integration	18.25	14.25	\$ 10.00	\$ 71.25	\$ 1,649.00	\$ -	\$ -	\$ -	\$ 1,720.25
1.7	Phone Dock	9.65	2.00	\$ 27.73	\$ 14.50	\$ 439.00	\$ 6.16	\$ 250.00	\$ -	\$ 709.66
1.8	Project Management	15.14	10.14	\$ 12.50	\$ 50.70	\$ 1,649.00	\$ -	\$ -	\$ -	\$ 1,699.70
Totals		44.28	27.63	\$ 50.23	\$ 145.45	\$ 5,493.00	\$ 183.75	\$ 250.00	\$ 40.00	\$ 6,162.43

Original Cost	\$ 6,212.66
---------------	-------------


















Difference	\$	(50.23)
------------	----	---------





















Original Schedule



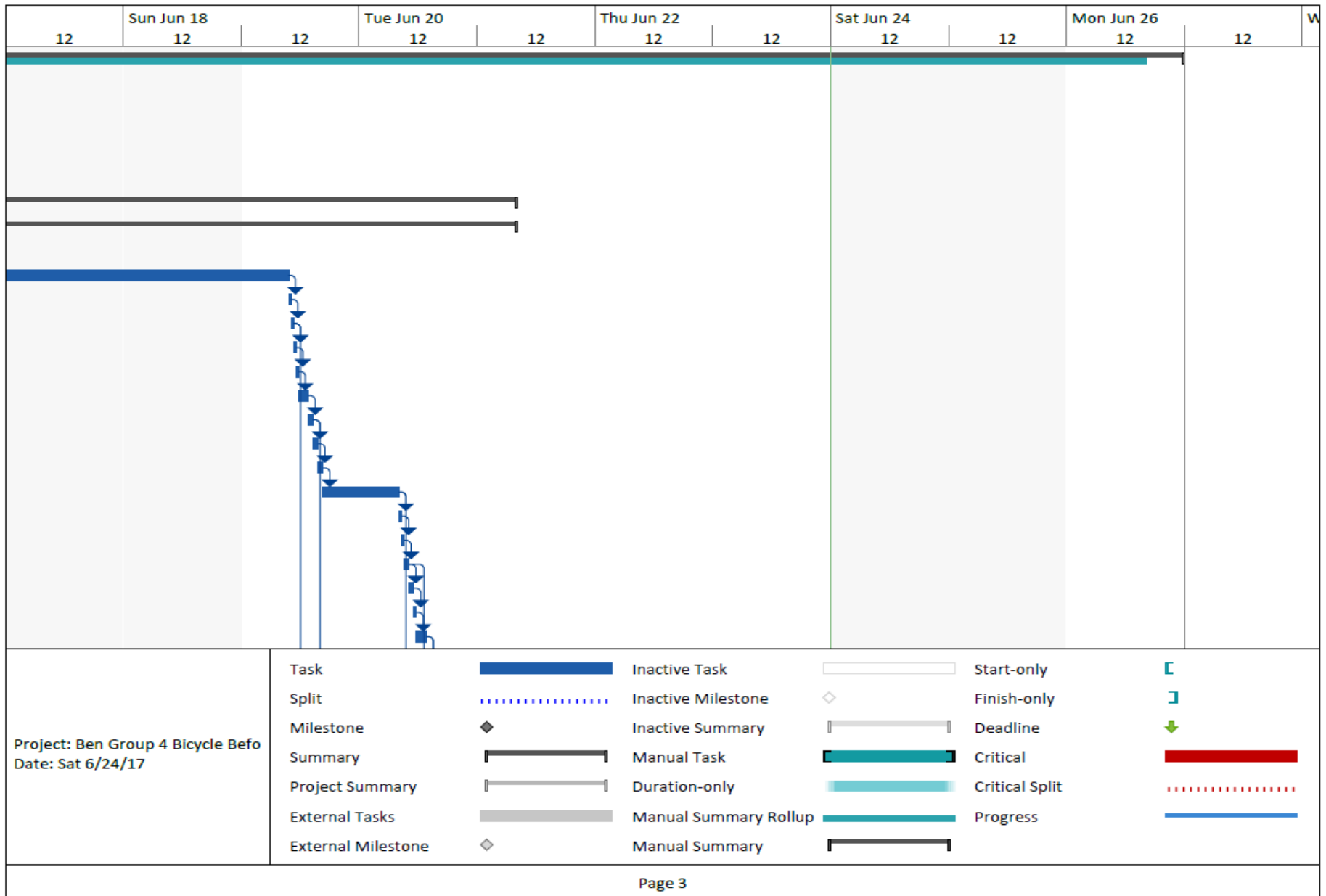
COMPRESS THE BICYCLE SCHEDULE

7

ID	 Task Mode	Task Name	Duration	Start	Finish	12	Wed Jun 14 12	12	Fri Jun 16 12
26		Order Phone Dock, Power Supply, and Bluetooth from Contractor	3.5 hrs	Tue 6/20/17	Wed 6/21/17				
27		Project Production	4.58 days	Mon 6/19/17	Fri 6/23/17				
28		Bicycle Assembly	4.58 days	Mon 6/19/17	Fri 6/23/17				
29		Assemble Frameset	0.28 days	Mon 6/19/17	Mon 6/19/17				
30		Assemble Crankset to Frame	0.4 days	Mon 6/19/17	Tue 6/20/17				
31		Assemble Wheels & Mount to Frame Set	0.42 days	Tue 6/20/17	Tue 6/20/17				
32		Assemble Braking System & Mount to Frame Set	0.01 days	Tue 6/20/17	Tue 6/20/17				
33		Assemble Shifting System & Mount to Frame Set	0.02 days	Tue 6/20/17	Tue 6/20/17				
34	 	Assemble Phone Dock & Mount to Frame Set	1.2 days	Wed 6/21/17	Thu 6/22/17				
35		Perform Assembly Testing	1.56 days	Thu 6/22/17	Fri 6/23/17				
36		Perform Component Test	1.25 hrs	Thu 6/22/17	Thu 6/22/17				
37		Perform Product Test	8 hrs	Thu 6/22/17	Fri 6/23/17				
38		Perform Customer Testing	3.25 hrs	Fri 6/23/17	Fri 6/23/17				
39		Deliver Bicycle to Customer	1 hr	Fri 6/23/17	Fri 6/23/17				
40		Project Closeout	1 day	Fri 6/23/17	Mon 6/26/17				

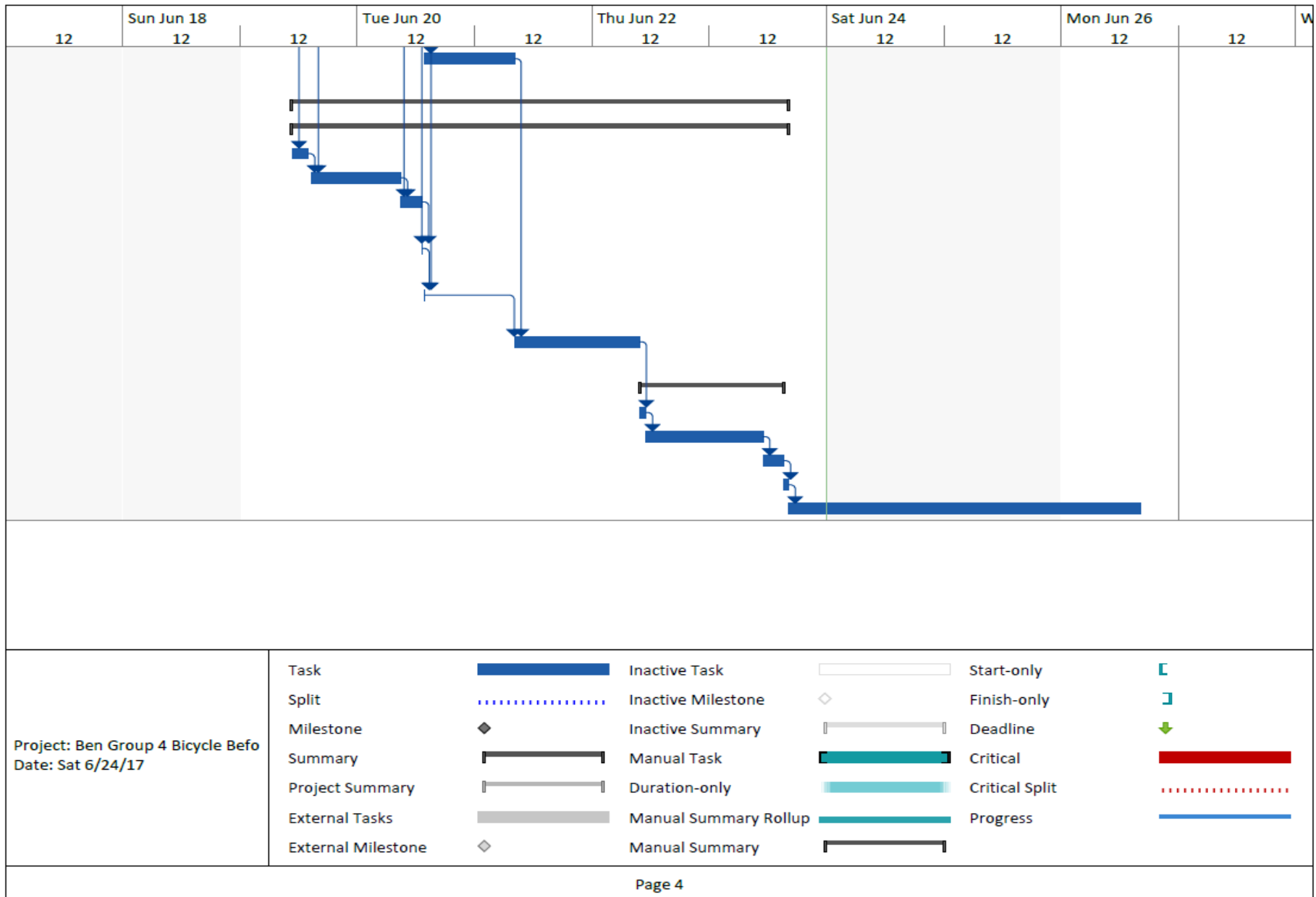
Project: Ben Group 4 Bicycle Befo Date: Sat 6/24/17	Task		Inactive Task		Start-only	
	Split		Inactive Milestone		Finish-only	
	Milestone		Inactive Summary		Deadline	
	Summary		Manual Task		Critical	
	Project Summary		Duration-only		Critical Split	
	External Tasks		Manual Summary Rollup		Progress	
	External Milestone		Manual Summary			

8

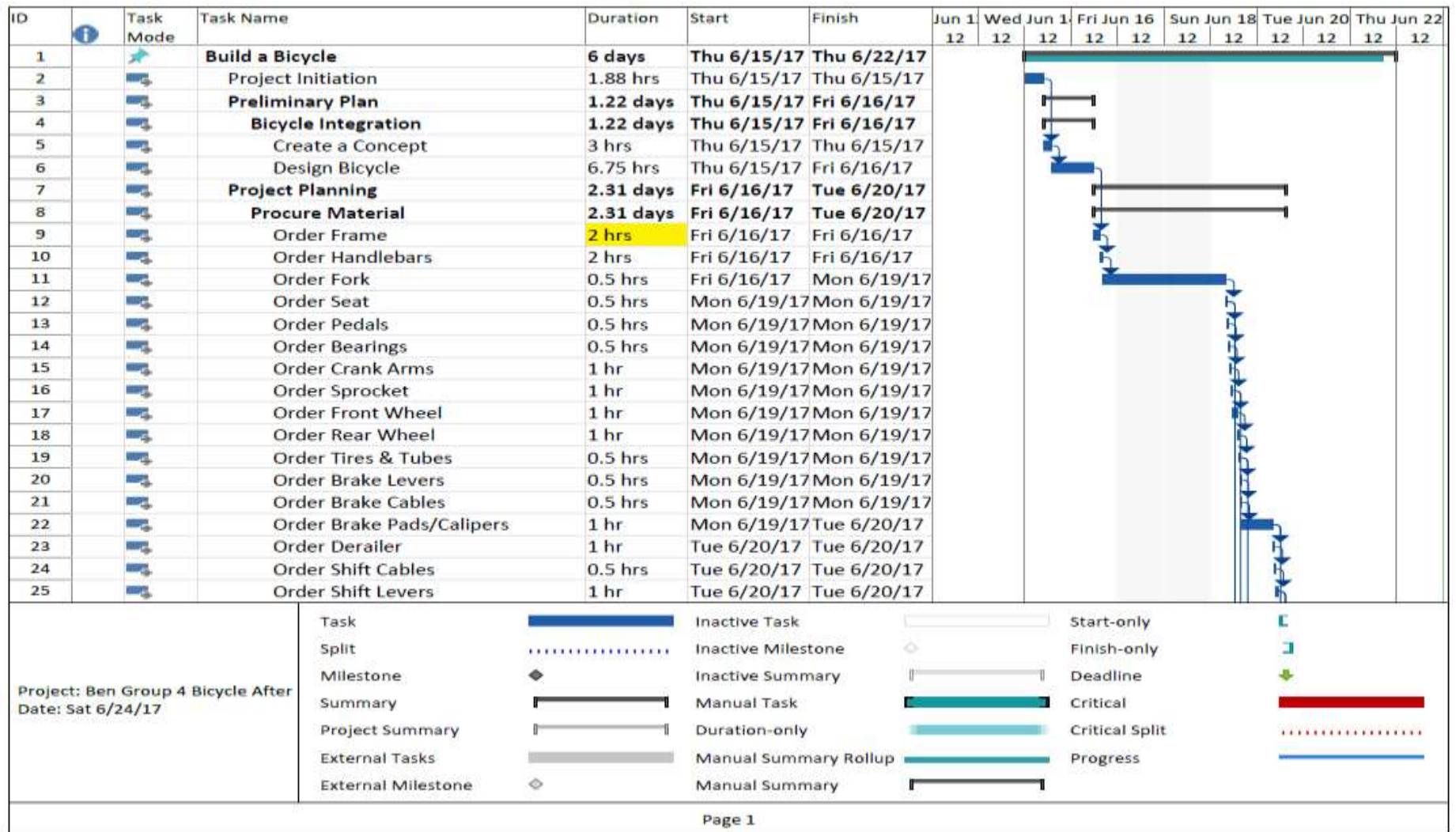


COMPRESS THE BICYCLE SCHEDULE

9

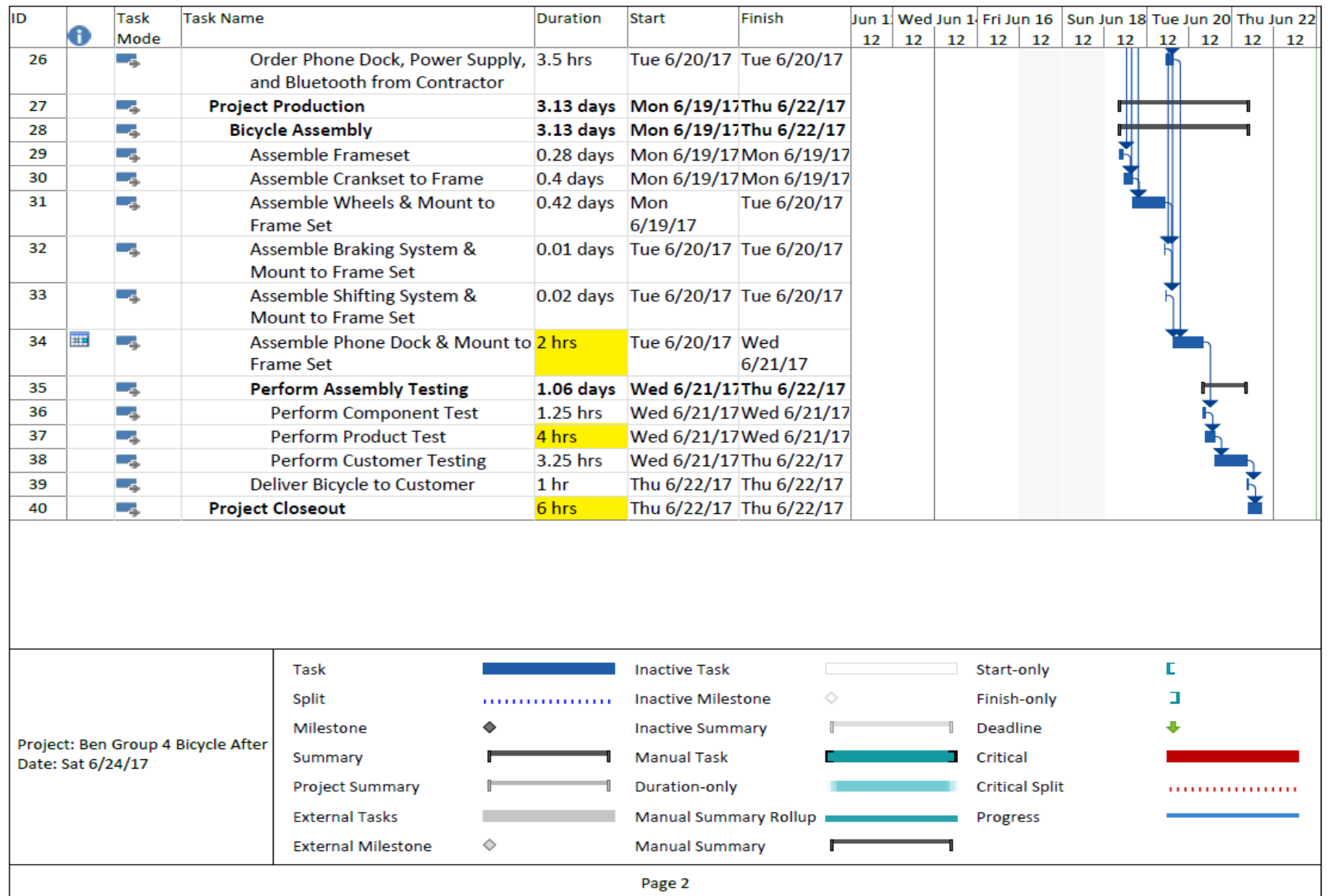


Compressed Schedule



COMPRESS THE BICYCLE SCHEDULE

11



Schedule Compression Techniques

Two techniques are commonly utilized to compress schedules when scope change is not required: fast tracking and crashing. With the availability of additional funds, and the need to complete the project earlier than initially planned, crashing was the compression technique used for the Bicycle Project. Crashing seeks to add additional resources to the project to decrease the planned duration of project tasks (Project Management Institute, 2013). Additional resources (et. al. hired resources, provided overtime, or monetary compensation) are assigned specifically to the tasks associated with the critical pathway for the project; as well as to project activities that can have additional resources assigned without adding additional cost to the project (Project Management Institute, 2013) When the technique of crashing is utilized, the reduction in duration with less cost input will occur; as the process is continued project cost will grow at an exponential rate as more significant reduction in task duration occurs. However, the compression technique of crashing cannot be applied to all activities of the schedule.

References

Larson, E. W. & Gray, C. F. (2014). *Project Management: The managerial process* (6th ed.).

New York, NY: McGraw-Hill.