

Introduction

The purpose of the University of Maryland Upper Chesapeake Health (UMUCH) and Union Hospital of Cecil County (UHCC) Regional Partnership (RP) is to address the medical and social needs of high utilizer patients and those with multiple chronic conditions. It is difficult to divorce the medical needs from the social needs of these patients, therefore this plan calls for the development and expansion of post-acute clinics and the creation of a team of care givers that work with patients in the community. Ultimately, patients will gain confidence controlling their conditions and receive supplemental support in conjunction with the practice of primary care that prevents future, expensive, and potentially avoidable utilization.

1. Target Population

University of Maryland Upper Chesapeake Health (UM UCH) and Union Hospital of Cecil County (UHCC) have assembled a multi-stakeholder partnership to address the health needs of citizens in northeast Maryland and evolve the care delivery system. Leaders from Harford and Cecil Counties recognize the importance of this collaboration as patients can and do receive care on both sides of the Susquehanna River. The target areas include all of the zip codes in Harford and Cecil Counties with a combined population exceeding 348,000 citizens.

Analysis of data from varying sources underscores the need for transformation in this region. Community Health Needs Assessments (CHNA), Hospital Utilization Data, and HSCRC Data show that these residents have complex health needs that are compounded by human factors such as obesity and tobacco use. These factors have led to rates of chronic conditions that, although similar to other counties, remain high. For example, the 2012 HSCRC data shows greater than 81,000 patients with a hospital encounter and at least one chronic condition. Cardiac related conditions such as coronary artery disease and hypertension were recorded in at least 30,000 charts for patients. Of the nearly 15,000 unique Medicare patients with at least one chronic condition, more than 50% have hypertension in Harford County and 40% in Cecil County.

Data also indicates that the needs of the Medicare and Medicaid populations in this region may differ. Despite similarities in the rates of behavioral health conditions such as mood disorders and “other mental health” issues, fee-for-service Medicaid patients have a larger percentage of substance abuse issues relative to the Medicare population, resulting in a 12% delta in Harford and 6% in Cecil County. It will be important to account for these differences in the development of our programs. The development of a regional behavioral health collaborative across both counties and co-developed by the two hospital systems will assist in supporting an integrated, public/private response to these issues.

In terms of high utilizers, the most recent HSCRC zip code data reveals a subset of nearly 2,750 patients that would be considered high utilizers due to three or greater hospital encounters. Expanding on the HSCRC definition of high utilizer to include three or greater admissions (including observation stays) or five or greater Emergency Department visits, the hospital systems estimate this number is closer to 3,500 people. Data gleaned from hospital IT systems for calendar year 2014 reveals 2,636 patients accounting for 18,056 encounters at Harford Memorial Hospital and/or Upper Chesapeake Medical Center. This cohort accounts for greater than \$67 million dollars in charges with nearly 75% of these high utilizers Medicare or Medicaid patients. At Union Hospital, 415 patients accounted for 3,600 hospital encounters and \$11 million of charges in calendar 2014. Hospital Electronic Medical Record

(EMR) Data also indicates that patients who frequently utilized the hospital were likely to have at least one of the following conditions; diabetes, hypertension and depression, with many patients having all three.

These high utilizer patients arrived at the UMUH hospitals via EMS ambulance at least 5,500 (almost a third of the total) times during this period, stressing the resources of the community emergency services. We believe that a strong regional partnership lead by UMUH and UHCC in conjunction with local stakeholders such as the Health Departments, Offices of Aging and CRISP will account for these patients and provide them with effective interventions and the ambulatory care needed to help maintain health.

The Zip Code tables below indicate the target geography for the program:

HARFORD COUNTY	ZIP CODES	CECIL COUNTY	ZIP CODES
Aberdeen*	21001	Cecilton*	21913
Aberdeen Proving Ground	21005	Charlestown*	21914
Abingdon	21009	Chesapeake City*	21915
Bel Air*	21014	Colora	21917
Bel Air*	21015	Conowingo	21918
Belcamp	21017	Earleville	21919
Churchville	21028	Elkton*	21916
Darlington	21034	Elkton*	21920
Edgewood	21040	Elkton*	21921
Fallston	21047	Elkton*	21922
Forest Hill	21050	North East*	21901
Gunpowder	21010	Perry Point	21902
Havre de Grace*	21078	Perryville*	21903
Jarrettsville	21084	Port Deposit*	21904
Joppa	21085	Rising Sun*	21911
Perryman	21130	Warwick	21912

Pylesville	21132		*Indicates Incorporated Municipality
Street	21154		
Whiteford	21160		

2. Proposed Program or Intervention

The UMUCH – UHCC partnership has included key community stakeholders including the Harford and Cecil County governments and community organizations to develop a new Care Coordination Model. The planning process has resulted in a person-centered, multi-disciplinary model of care. The model was designed to be comprehensive, use resources effectively, develop targeted initiatives and leverage community-based resources through partnerships. The proposed program includes the development of three integrated components to engage the target population of Medicare and dual-eligible persons that are high utilizers (3 or more Admissions/ Observations) and/or have multiple chronic conditions:

- Post-discharge Clinics (Comprehensive Care Center at UMUCH / Chronic Disease Center at UHCC)
- Community-based Care Management Teams with Targeted Community Partnerships
- Information Technology (CRISP Connectivity & Secure Texting, Data Warehouse, Telehealth)

Component 1: Post-discharge Clinics (PDC)

The two hospital systems in the partnership will both operate a post-discharge clinic (PDC) that addresses multiple needs. These clinics could be best described as a hybrid high risk clinic, transitional clinic, and chronic disease management clinic. Each location is or will be staffed with a physician or nurse practitioner plus nurse care managers, social workers and community health workers. The purpose is to provide an intensive evaluation of the patient’s needs immediately after discharge and to provide the needed medical and social support plan and follow-up. The engagement with the patient is expected to last approximately 30-45 days but may vary depending on patient need and response to treatment. The RP will target Medicare and dual eligible patients while hospitalized and refer them to the clinic to begin a new process of care. The PDC completes temporary, but intensive, evaluation of medical and social needs and completes care management, education and coordination activities. Patients that meet criteria will be transitioned to the CBCM teams for ongoing care management while the patient’s medical care is transitioned back to the primary care office. UMUCH and UHCC will develop and deploy common patient criteria, interventions and share best practices between organizations. The goal is to operate two PDCs using proven approaches to care.

Component 2: Community-based Care Management

The RP will jointly develop a program of community-based care management (CBCM) that includes four (4) teams of care givers working in conjunction with the respective post-discharge clinic and the primary care providers in the community. Teams will be comprised of a registered nurse with a social worker and multiple community health workers. Patients who meet the criteria, either by high utilization or

being chronically ill, will be referred to the PDC so that they can be entered into a new patient registry. A clinical team will then determine if the patient requires intensive services through the Post Discharge Clinic (PDC) or can be referred directly to the CBCM. Those working through the PDC will be transitioned to the CBCM after becoming medically stable. The goal is to extend the total length of time that these patients receive medical and care management/coordination support for up to 90 days through the integration of these two strategies. Those not requiring intense follow-up in the PDC will be engaged directly into the CBCM program with in home follow-up occurring on a scheduled basis. The teams will be supported by take-home tele-monitoring equipment and the ability to conduct a Skype consultation with the provider in the PDC as needed.

Members of the CBCM team, specifically Community Health Workers, will be embedded into four community partner agencies: Harford County Office on Aging, Cecil County Office on Aging, Harford County Health Department and Cecil County Health Department. The goal is to extend the reach of the treatment network beyond the hospital setting, strengthening the community partnerships and leveraging the treatment services already available in the community. In many cases, the target population has already received or is eligible for services from these agencies.

The RP will establish an initiative with the Harford County Department of Emergency Services/911 to develop a better coordinated system of care for the identification and follow up with citizens in the community who are vulnerable and utilize the 911/Emergency Medical System frequently. A similar partnership with Cecil County will also be explored.

Component 3: Information Technology (CRISP Connectivity & Secure Texting, Data Warehouse, Telehealth)

The RP recognizes the need to integrate health care providers and supporting organizations assisting common patients to create a more patient-centered and efficient system of care. To that end, the partnership will work closely with CRISP to foster improved ambulatory data sharing among the care continuum, including with government organizations such as the Offices on Aging and the Health Departments, to provide a more detailed picture of the patient activity. U MUCH is already piloting a new display of Encounter Notification Service (ENS) data called Prompt and has connected ambulatory practices such as Cardiology and the Diabetes Center. Providers may view this activity as well, the absence of which may indicate rising risk for a patient. CRISP Connectivity and the use of CRISP-hosted Mirth Care Management Platform are vital foundational elements of the PDC-CBCM programs. This Care Management Platform will be available to the key personnel in the PDC, the CBCM teams and partner organizations such as the Health Department and Federally Qualified Health Centers. Additionally, the RP will work with CRISP to implement a Secure Texting process that allows for timely, HIPAA compliant communication among the community givers and providers in the PDC or specialty practice. The RP will work with community partners to foster improved ambulatory data sharing and provide real-time access to support patients.

A Data Warehouse will be developed to integrate data sources from partner organizations, the hospitals, and ambulatory practices. The capabilities will be scalable to eventually allow for the inclusion of claims data and create provider specific report cards reflecting the metrics associated with population health (described below). This capability would allow the RP to participate in future alternative payment programs with greater insight into how to target interventions for patients and assist community physicians.

A suite of Telehealth programs will also be deployed to help extend the support for the target population in a more cost effective way. First, Vivify home monitoring kits will be provided to patients that meet criteria. This system will send daily vital sign values including blood pressure and weight to the program coordinator to alert the team if a value is outside of acceptable parameters. In addition to Vivify, the CBCM teams will have the ability to initiate Skype consultations with providers in the PDC while the CBCM is in the patient's home. The remote assessment will be conducted for a tightly defined set of clinical issues and allow the team to determine if the patient needs emergency care, an urgent office visit or a change in treatment plan that can be started at home based on the teleconsultation. Finally, the RP will expand the use of a LifeBot telehealth program at the Lorien Skilled Nursing Facilities in Harford County. This process allows for the remote evaluation of nursing home patients where treatment can be started or altered without the need to transport the patient to the hospital. This robust telehealth system includes three cameras, Intensive Care-capable monitoring and point of care lab testing. Union Hospital will evaluate similar partnership opportunities using Lifebot for Cecil County in 2016.

Patient Identification and Engagement

Identifying the target population of high utilizing patients and those with multiple chronic conditions and understanding the drivers of their health care utilization are vital components of this Regional Partnership. The UMUCH/ UHCC Regional Partnership will extend the time that high risk patients receive care management support and access to medical care. The hospitals in the partnership will continue to use a modified version of the LACE score to determine high risk patients outside of the volume thresholds or chronic condition criteria. The LACE algorithm scores Length of Stay (L), acuity (A), co-morbidities (C), and ED visits (E) within the previous six months and is auto calculated using the Meditech Electronic Medical Record System that both hospital systems utilize. The RP will also monitor the CRISP Query Portal for any calculation based on casemix data as this capability becomes available. The information will be reviewed at the time of the patient referral to the PDC and will assist in the clinical decision to engage the patient in the PDC or refer them directly to the CBCM teams for ongoing care management and coordination.

One of the major goals of the RP is to extend the time that patients are receiving care management and coordination assistance in the community during their vulnerable post-discharge time. Patients may be engaged in the intensive PDC program for as long as 30 days, then graduate to the CBCM for another 60. This would keep the patient activated for up to 90 days or less if the patient has shown medical stability and the ability to manage their illness. To support this elongated engagement, the RP will deploy a care management program in conjunction with CRISP that gives the PDC, the CBCM and key stakeholders in the community the ability to contribute to a single patient's care plan. Those not contributing to the care plan will still be able to access the most up-to-date version through CRISP access. The RP envisions that the PDC, CBCM teams, Health Departments and Offices of Aging will have "read/write" access to the Mirth Care Management platform during the pilot phase. Standard elements of the CRISP-hosted Mirth Care system include:

- Assigned Care Givers
- Patient Conditions
- Identifying Social Concerns
- Treatment Goals & Progress Trending
- Documentation of outreach including in-person visits and telephone calls

The entire program will work in concert with the patient's existing providers or make connections where providers are not present. In short, the model emphasizes non-hospital interventions that are more patient-friendly and less costly in the delivery system.

The CBCM program capacity is estimated to be 600 patients per team with each group managing 100 patients for 60 day periods. The total capacity is 2,400 patients covered by the four CBCM teams. The PDC at UMUCH reviews utilization data for referred patients at 90 and 180 days post intervention intervals. For the initial 612 patients, where the proper run out time period is available, nearly six of 10 had no further hospital admissions or ED visits in the 90 days post period. At the 180 day milestone, the number reduces to four of ten, still a strong reduction in hospital utilization. This new CBCM program aims to impact the post hospital utilization within the 90 day window and stop the degradation of performance moving from 90 days to 180 days.

Primary Care Providers will be financially incentivized to participate by having the ability to bill Medicare for both the transitional visit code and the chronic disease management code in accordance with the regulations. The PDC will not bill the transitional code so that the established Primary Care Provider can. The CBCM will provide the needed care planning as a community benefit within Healthy Harford (DBA Healthy Cecil) in accordance with the Chronic Care Management code available via Medicare. The care plan and ongoing care management of the patient will support the Primary Care provider's ability to bill for this new revenue at no cost to the physician. The RP envisions working collaboratively with providers in the community to care for Medicare Patients in a high quality, low cost manner that is consistent with alternative payment models such as the Medicare Shared Savings Program. If the new programs are having the desired results, the RP will consider developing a more formal organization to participate in an ACO.

Additionally, the UMUCH ED providers will be incentivized to participate through direct reimbursement for accepting the telemedicine call from the Lorien facilities in Harford County. Future expansion of this program and the payment model into Cecil in conjunction with UHCC will be evaluated and determined during calendar year 2016.

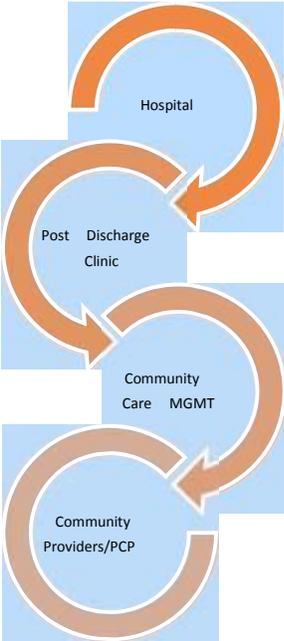
PDC Staffing Model

Post-Discharge/High Risk Clinics located in both Cecil and Harford County will be staffed by a physician or nurse practitioner, nurse case manager and social worker. A Community Health Worker will be deployed to the PDC as part of this expanded model. The UMUCH Comprehensive Care Clinic is currently operational with a full complement of staff. This is a current UMUCH infrastructure investment. The clinic at UHCC is currently being developed for early 2016 implementation.

CBCM Staffing Model

The Community-based Care Management will be managed by Healthy Harford, Inc. Healthy Harford is a private, non-profit agency located in Bel Air. Healthy Harford will begin to conduct business in Cecil County under a different name, expected to be Healthy Cecil. The CBCM staff will be hired by the hospital organizations and supervised by the Executive Director of Healthy Harford. The CBCM will be comprised of a nurse clinical coordinator (who will provide clinical oversight and supervision), and four (4) community outreach teams. Two outreach teams will include one (1) nurse, four (4) community health workers. The other two CBCM teams will include one (1) nurse, three (3) community health workers, and one (1) social worker. The teams will provide coverage in both Harford and Cecil County –

initially with 2 teams located in Harford, 1 located in Cecil and 1 “bridge” team working between Harford/Cecil (along the Susquehanna River). Four of the community health workers will be embedded in the community and located at the Harford/Cecil Office on Aging Departments and in the Harford/Cecil Health Departments. These workers will be co-supervised by their respective departmental supervisors and a CBCM nurse.

Care Coordination Model	Patient Encounter	Responsible Persons	Accountability Roles
	Hospital	Nurse Navigator	Patient assessment, determine risk stratification, patient referral to RP Care Coordination (either PDC or CCT).
	Post Discharge Clinic	Physician/ Nurse Practitioner	Oversight of patient treatment, medication management, coordination of care between specialty physicians/emergency department, illness education, support and leadership of PDC/CCT for clinical decision-making. Coordinated treatment plan with patient’s ambulatory providers.
		Clinical Coordinator	Leadership and oversight of the PDC, case collaboration for high need patients, weekly coordination with ED Nurse Care Manager, CBCM Clinical Coordinator and Physician.
		RN	Comprehensive patient assessment, establish treatment care plan & goals, monitor, evaluate the treatment plan and determine transition to CBCM and other community providers.
		Social Worker	Resource/barrier identification, advocacy, service coordination, counseling and monitoring.
		Community Health	Community outreach, motivational

		Worker	support, health screenings/monitoring, coaching, referrals, transportation, completing forms, follow up with PCP, document in CRISP/Mirth CM platform.
	Community-based Care Management	Clinical Coordinator	Leadership and oversight of the CCT, case collaboration for high need patients, coordination with ED/ Nurse Care Manager, PDC Clinical Coordinator and Physician.
		RN	Comprehensive patient assessment, establish treatment care plan & goals, monitor, evaluate the treatment plan and determine transition to community supports.
		Social Worker	Resource/barrier identification, advocacy, service coordination, and monitoring.
		Community Health Worker	Community outreach, motivational support, health screenings/monitoring, coaching, referrals, transportation, completing forms, follow up with PCP, document in CRISP/Mirth CM platform.
	Targeted Community Providers	Community Health Worker (Aging, Health Dept.), Dept. of Public Safety/911	Community outreach, program monitoring, health coaching, utilize EMR/CRISP. Increase access to preventative and chronic illness management - teach/monitor educational programs such as Stanford Self-Management Model, follow up of 911 high utilizers to dispatch Community Based Care Management Teams. Regular interface and monitoring of patient with Primary Care Providers.

	CRISP Data Monitoring	Program Coordinator	Monitor patients' goals and CRISP Reports. Support operations of data warehouse/care management platform.
	Data Warehouse	Data Warehouse Coordinator	Manage the flow of information into the Data Warehouse. Create Reports for end users.

There are important activities that will take place in year one of this program to establish the new Care Coordination Model:

- 1- Hiring and training of the Nurse Care Managers and Community Health Workers. These important resources are in high demand and may take some time to fully hire the teams. Both Hospital organizations have resources that can be maneuvered to support early implementation of the CBCM. The RP has developed job descriptions and has engaged several organizations capable of providing timely training and increasing the "speed to market" of the program.
- 2- Refinement of patient flow processes. The RP has developed referral guidelines and criteria for matriculation from the PDC to the CBCM. We will evaluate the flow of patients and information to tweak the processes as expected with new programs.
- 3- Business Intelligence Solution Report/Work Plan (BI). The BI work plan is a phased approach for reporting and analytics that includes the development of the data hosting, architecture and initial set of end-user reporting packages in year one.
- 4- Deployment of the CRISP Mirth Care Management Platform and Secure Texting. The RP will identify end users for the pilot program and work with the CRISP team to integrate systems and provide training.

Improvement of Regional Population Health through Strategic Transformation

Despite targeting high risk Medicare patients, the purpose of the Regional Partnership and New Coordination of Care Model is to improve the overall health of the populations in Cecil and Harford County while reducing health disparities. These are strategic transformation priorities established for UMUH and UHCC. In addition to addressing the needs of high risk patients, the integration of prevention principles into the care delivery system through evidence based practice programming will be critical to the overall success, health and well-being of the regional community. To that end, the Local Health Improvement Coalitions (LHIC) through the Health Departments are an integral mechanism for improving population health in the community and have been engaged as part of the planning process.

The RP has identified an innovative and collaborative health model that aligns with the State's overall improvement plan. To meet overall hospital strategic transformation plans, five population health strategies have been identified:

Partnership Hospitals - Transformation Strategies	Alignment of Population Health Goals and Resources
Value Based Reimbursement	<ul style="list-style-type: none"> ➤ Establishing Union Hospital and University of Maryland Upper Chesapeake Health as a full continuum of services across acuity levels for regional populations to improve patient care. UMUCH and UHCC are finalizing a Memo of Understanding (MOU) that will govern the use of HSCRC hospital rates and other funding for this program. The MOU outlines the responsibilities of each organization for maintaining foundational elements of the program.
Seamless Continuum of Care	<ul style="list-style-type: none"> ➤ Expansion/Creation of Post-Acute (high risk) clinics at Union Hospital and University of Maryland Upper Chesapeake Health as the central points of intake for complex, high risk patients. ➤ Creation of Community-based Care Management Teams to support seamless patient “handoffs” from the PDC to reduce readmissions and complications. The CBCM teams, comprised of multi-disciplinary staff- nursing, social workers, and community health workers, will work across county lines for integrated care, provide intensive monitoring in the community, and linkages to community-based providers (e.g. Health Department, Office on Aging programs, faith-based programs). ➤ Expansion of emergency diversion practices into a long-term care settings – Lorien Bel Air, a Skilled Nursing Facility, has deployed a telehealth process to allow for remote clinical decision making by the Emergency Department for patients at risk for readmission. ➤ Partnership with the Cecil and Harford County Departments of Emergency Services/911 to target high volume callers with linkages into the High Risk Clinics and subsequently to the Community Care Teams for intensive follow up.
Proactive and Systematic Patient Education	<ul style="list-style-type: none"> ➤ Targeted approach through Healthy Harford/HealthLink and Cecil County Health Department to embed evidence-based chronic disease management programming, Stanford Self-Management Program into the community at county senior centers and at additional community locations. ➤ Primary care physicians will be educated about the new clinical pathways (use of high risk clinics and community care teams) as an alternative to sending patients to the emergency department.

<p>Integrated, Comprehensive Health Information Technology with Real-time Accessibility</p>	<p>➤ CRISP-hosted Mirth Care Management Platform is critical in supporting the goal of shared (appropriate) patient information. Both hospital systems and selected community partners will be “senders” and “receivers” to aid in treatment planning and care management efforts. The local Health Department electronic medical records platform (Patagonia) will be linked to CRISP for additional patient data/coordination.</p>
<p>Community Partnerships for Collaboration</p>	<p>➤ The Local Health Improvement Coalitions (LHIC) will be used as the community-based framework. This framework consists of diverse partnerships between the hospitals, local service agencies, government and faith-based organization to address specific and general health needs in the community. The LHIC metrics will be used to measure health progress and overall community wellness.</p>

Local Health Improvement Coalition priorities include:

- Cecil County: 1) Prescription Drug Abuse; 2) Access to Mental/ Behavioral Health Treatment; 3) Substance Abuse Preventions; 4) Child Abuse Prevention; 5) Childhood Obesity.
- Harford County: 1) Obesity Prevention; 2) Tobacco Use Prevention; 3) Behavioral Health.

The RP and LHIC led initiatives are now aligned to address complex medical and psychosocial issues such as environmental hazards, poverty, housing and other socioeconomic factors. Rising-risk patients have health factors that include multiple health conditions (e.g. obesity, smoking, high blood pressure, behavioral health issues, and psycho-social issues). Similarly, high-risk patients present with complex disease states (CHF, COPD, diabetes, behavioral health, etc.). The Cecil and Harford County LHIC provide a diverse leadership forum that seeks to find solutions to local health problems through assessment, planning, policy/programmatic development, education and assurance of quality health services. Data is critical in tracking the overall health and wellness of residents in the region and with specifically targeted populations. The RP will continue to meet as a group and collaborate with community partners through the LHIC. The goal is to evaluate our health priorities and the outcomes of the newly established model of care. The collective goal is to change the health care system in Cecil and Harford Counties to be patient-centered, well-coordinated and well-integrated into the community.

3. Measurement and Outcome

The program will target the below metrics, consistent with the state transformation framework. This includes outcome measures that capture both utilization and cost (charges) data, as well as process measures that indicate improvement within the new delivery model. The RP will also develop a patient survey to monitor the satisfaction of patients with the CBCM program. The proposed intervention is a comprehensive version of the Preventable Admission Care Team (PACT) model developed at Mount

Sinai and funded by the Centers for Medicare and Medicaid Services and tracks many of the same metrics.

Type	Name	Description
Outcome	Readmissions	30-day all-cause readmissions
Outcome	Revisits	30-day ED revisits
Outcome	Observation	30-day readmission to observation
Outcome	SNF Readmissions	48 hour readmission from SNF
Outcome	Hospital Charges	Reduction in Hospital Charges for High Risk patients
Outcome	Hospital Utilization	90 day Pre/Post intervention utilization
Process	PDC/CBCM Consults	Percent of patients requiring meeting criteria referred to PDC/CBCM
Process	CRISP Utilization	Increase in ENS Subscribers in the Community
Process	Care Management	Percent of patients with Care Plan in new CRISP Care Management platform
Process	EMS Transport	Monitor EMS call/ response data by specific address
Process	Referral Management	Percent of Chronic & High Risk patients referred to PDC
Satisfaction	Program Satisfaction	New patient survey

The RP has developed a plan that compliments this early success and aims to extend the interventions for patients that *did* have further hospital utilization by continuing the care management process, in-home, for up to 90 days. To be truly successful from a population health perspective, the RP must identify patients prior to them crossing the high utilization threshold. As such referral metrics from the community providers will be important to track. This serves as an indication of the pool of potential high utilizers and allows the program to maintain the person's health status in a lower risk strata.

The RP will develop robust program evaluation capabilities via a RP-wide data warehouse and CRISP connectivity. In addition to the metrics outlined above, this will allow RP end users to answer the following questions:

- Are the right patients being referred to the program?
- What are the common conditions and social issues being addressed?
- Does this allow for a more predictive patient identification model?

- How is the PDC & CBCM interacting with patients (telephone, in-home, office encounter)?
- Does the method of patient engagement impact the ability to maintain health and avoid costly utilization?
- Has the intervention resulted in an overall reduction in cost of care, or are the costs being shifted among players in the care delivery continuum (for example- pushing patients from acute care hospital to skilled nursing facility)

The Data Warehouse capabilities will expand in a phased approach to incorporate data from the hospitals, ambulatory practices, skilled nursing facilities, Home Health agencies and CRISP. A phased approach will integrate these data sources and develop end-user reporting tools for more real-time analysis. Each phase will bring additional value to the program and set the stage for quality reporting that is consistent with payment incentive programs such as the Physician Quality Reporting System (PQRS) or Medicare Shared Savings Program (MSSP). Further description is available in the appendix through the UMUCH / UHCC Regional Partnership Proposed Business Intelligence (BI) Solution Report.

The RP is already piloting CRISP capabilities that will allow for better analysis of patient activity to anticipate needs. UMUCH has connected several ambulatory practices and the FQHCs in Cecil and Harford County with CRISP. This allows Admission/Discharge/Transfer (ADT) data to be incorporated as part of both the Encounter Notification Service and Prompt. As this data is also incorporated into the RP Data Warehouse, it will help indicate if patients are scheduling and completing follow-up appointments with primary and specialty providers. Failing to schedule and keep appointments can be another indicator of rising patient risk.

UMUCH and UHCC have made strides with regard to these metrics in the past two years. The UMUCH PDC called the Comprehensive Care Center (CCC) has tracked 90 and 180 day pre/post intervention data since January of 2015 with impressive results. Nearly 60% of all-payer patients receiving care management and coordination support have no further hospital utilization during the 90 days post enrollment (n=612 patients). Observed reductions in total inpatient/ observation cases, inpatient days, and ED visits are also noted for Medicare-only patients receiving services from the CCC. The below table shows the percent reduction in utilization in the 90 or 180 days after intervention compared to the rate in the months leading up to the referral.

UMUCH CCC Hospital Utilization Reduction Jan-June 2015 (Medicare Only n=152)			
90 Day Pre/Post		180 Day Pre/Post	
(51%)	IP/ Obs Cases	(47%)	IP/ Obs Cases
(48%)	Patient Days	(41%)	Patient Days
(42%)	ED Visits	(44%)	ED Visits

Additional momentum has been achieved more broadly with regard to Potentially Avoidable Utilization at the hospital organizations. The below table displays year over year reduction of UMUCH.

	UMUCH PAU Reduction vs. Prior Fiscal Year	FY 15	FY 16 *
1	Inter-Hospital Readmissions	(12.5%)	(19.5%)
2	Potentially Preventable Admissions	(6.2%)	(16.0%)
3	MHAC Cases	(26.5%)	(2.5%)
	*FY 16 July-October		
	Total	(10%)	(16.5%)

4. Return on Investment

The RP believes that there is opportunity to improve the health status of Medicare patients with multiple chronic conditions and high utilization histories. Based on the most recent HSCRC data, there are nearly 20,000 people in the two counties with two or more chronic conditions and another 1,550 patients with three or more hospital stays (inpatient or observation). The RP anticipates engaging with a high number of the high risk patients because they will have presented to the hospital. It is more likely that they can be transitioned to the PDC. A lower percentage of the chronic patients will be engaged at the outset because they may only be known to the primary care or specialty care provider in the community until they reach the utilization threshold. Overtime, the ease of the referral process from ambulatory provider to the PDC and CBCM programs will increase the number of patients from this pool.

Building from the success of the current and planned PDCs at UMUH and UHCC, the RP believes that an 8% reduction in the hospital utilization, as measured by charges, is possible within the first year of the program. This is contingent upon the program engaging 60% of the High Utilizer patients and 7% of the Multiple Chronic Condition patients as shown in the table below. The gross savings is expected to rise incrementally in year 2 by 12.5% and another 11% in year 3. This is based on a greater percentage of engagement and more targeted outreach of patients, as the data analytics from both CRISP and the RP Data Warehouse become available.

		Year 1	Year 2	Year 3
F	Annual Savings Percentage	8%	9%	10%
	Percent 3+ Visit Patients engaged	60%	65%	70%
	Percent 2+ Chronic Conditions Engaged	7%	10%	12.5%

The Return on Investment has been calculated for rate years 2017-2019 following the required process. Each additional year includes the cost associated with deploying an additional CBCM team to the program, approximately \$252,000 and the benefit of additional program capacity, 600 patients. This reduces the cost per patient amount in years 2 and 3.

	Return on Investment	Year 1	Year 2	Year 3
A	Number of Patients	4,128	4,716	5,206
B	Number of Medicare & Dual Eligible	2,309	2,975	3,543
C	Annual Intervention Cost Per Patient	\$ 1,132	\$ 990	\$ 895
D	Annual Intervention Cost(BxC)	\$ 2,615,032	\$ 2,945,193	\$ 3,170,857
E	Annual Charges (Baseline)	\$ 93,422,365	\$ 108,837,004	\$ 122,673,138.13
F	Annual Gross Savings (XX% X E)	\$ 7,473,789	\$ 9,795,330	\$ 12,267,314
G	Variable Savings (Fx 50%)	\$ 3,736,895	\$ 4,897,665	\$ 6,133,657
H	Annual Net Savings (G-D)	\$ 1,121,863	\$ 1,952,472	\$ 2,962,800
	ROI (G/D)	1.43	1.66	1.93
	ROI Percent	43%	66%	93%

The RP is proposing a sliding scale savings sharing methodology with the payers in this program. Consideration was given to establishing a raw savings percentage to be applied annually to any savings, but the RP felt this was arbitrary. Instead, the sliding scale proposed is tied to the actual ROI performance of the program each year. The target ROI calculated is the anchor point on which savings would be shared with payers via a GBR reduction. In year one, for example, the target ROI is 43% or a ratio of 1.43. The RP would establish a performance corridor that earns the payer a 10% share and a performance corridor with a 15% share. Performance exceeding the high range of the second corridor would generate a third tier of savings with 25% of these dollars returning to the payers. The dollars available to be shared at the 25% rate would not be capped in this model.

The following table uses the ROI calculated from the above and shows the potential dollars saved for the payers based on the performance relative to the corridor in the sliding scale methodology. These dollars saved would result in the reduction of the GBR/TPR from UMUCH and UHCC with the reduction based on the savings in the zip codes correlating to each hospital's market.

Sliding Scale Based on Hitting Performance Corridor (50% above/below Target ROI)						
	Performance Corridor	Target ROI	Low	High	Low Share to Payer	High Share to Payer
Year 1	10% Savings to Payer	1.43	1.215	1.43	\$ 56,133	\$ 112,186
	15% Savings to Payer	1.43	1.44	1.645	\$ 171,783	\$ 255,863
	25% Savings to Payer	1.43	1.65	No Cap	\$ 426,438	
Year 2	10% Savings to Payer	1.66	1.33	1.66	\$ 97,294	\$ 195,247
	15% Savings to Payer	1.66	1.67	1.99	\$ 296,952	\$ 435,719
	25% Savings to Payer	1.66	2.00	No Cap	\$ 733,001.21	
Year 3	10% Savings to Payer	1.93	1.47	1.93	\$ 149,072	\$ 296,280
	15% Savings to Payer	1.93	1.94	2.395	\$ 449,020	\$ 660,631
	25% Savings to Payer	1.93	2.4	No Cap	\$ 1,108,719	

Any difference between the ROI ratio of 1.00 and the low threshold (1.215 for example) would be retained by the RP and provide a cushion to address any unforeseen expenses and cover any lag between the reduction of the hospital volume and the reduction of the associated expense.

The RP would be open to reevaluating the shared savings percentage at predetermined intervals if the

data is available from the HSCRC or other sources. For example, if the ROI for the first two years significantly exceeds the projected target, the RP would be willing to increase the share percentage in each performance corridor for year 3.

The RP will deduct the cost of the incremental CBCM team and other required investments specific to this program from the Annual Net Savings and devote this amount to the program in subsequent years prior to calculating the GBR reduction amount. For example, the current plan calls for one Pharmacist to conduct patient education and medication therapy management. When the program volume steps up by order of magnitude, a second pharmacist may be required.

Additional dollars saved and earned by the RP based on the savings percentage split, will be pooled to create funding for future investments in population health. This includes expansion of the PDC clinics by geography or human resource, development of Skilled Nursing Facility Hospitalist (SNFist) programs within the community, expansion of telemedicine programs and the investment in further infrastructure needed to support the participation in alternative payment programs such as the Medicare Shared Savings Program.

5. Scalability and Sustainability

This program is a true partnership among health care providers in Cecil and Harford Counties. The hospital systems have agreed to use these grant dollars to jointly fund infrastructure that will enable more focused management of high risk patients in the community. This includes IT capabilities such as the Data Warehouse, Care Management Platforms, Secure Texting Programs and telehealth programs that are best deployed across a larger population of patients. For example, this RP spreads the approximately \$600,000 costs associated with establishing the Data Warehouse over two counties and more than 350,000 potential patients. Likewise, the monthly expense of Secure Texting per provider decreases with more users such that adding both UMUH and UHCC providers helps to make this cost more manageable for this needed component of the intervention.

The RP has worked closely with the CRISP team during the planning process to identify opportunities for pilot programs that can be scaled to other providers or regions within the state. The CRISP-hosted Care Management Platform, will enable the PDC and CBCM teams the ability to document critical information about the patients' plans of care, while integrating it with the HIE's new reporting and data sharing capabilities. Additionally, this RP will participate in the implementation of Secure Texting programs hosted by CRISP. Members of the Departments of Health and Offices of Aging that are often also engaged with the high risk patient population will also have access to these programs to foster better coordination among the key stakeholders in the delivery system.

The benefits of participating in these pilot programs is that the technology is integrated with CRISP and does not depend on a particular Electronic Medical Record (EMR) system to document and share data. Today and likely for some time, patients do not receive all of their care from providers using the same EMR. As the patient becomes more complex and requires treatment from additional specialists, this issue is compounded. Relying on a CRISP hosted program enables the information to better follow the patient across the continuum of care. The UMUH-UHCC partnership will help implement and design key functionality of the CRISP Care Management and Secure Texting programs to demonstrate value and ease implementation in other areas of the state.

The program has also been designed to stretch human resources by relying on analytical reports, including those from CRISP, that help focus CBCM teams on those with the greatest potential. Additionally the RP will deploy a home telemonitoring program, Vivify, which allows program coordinators to manage larger patient populations as the risk of hospitalization increases. This is a management by exception process which is more economical. The CBCM teams are also scalable in multiple ways. The first year calls for four teams of 5 providers including RN Care Managers, Community Health Workers, and Social Workers. Based on funding and impact, the teams can be reduced to fewer positions that work with a smaller population in a defined geography in the two counties. Alternatively, these CBCM teams may remain intact, but the hiring of all four teams may be staged or delayed based on finances. This would leave a 5-person team operating in a slightly larger geography.

Each CBCM team accounts for approximately \$250,000 dollars of annual expense. The dollars required to deploy an incremental CBCM team will come from the cost savings generated from this program in the previous year. Additional resources such as a pharmacist, or the development of a PDC elsewhere in the RP market would be funded by savings from this program and would not require additional rate increases. The projected ROI for each year is expected to exceed 1.0 indicating that the program is self-sustaining as currently composed. The breakeven point for Year 1 is a savings of 5.6% with the RP projecting a savings of 8.0%.

If the full funding is not available for the IT infrastructure or human resources, the RP has some flexibility with which to compress programs and still achieve some level of improvement. The implementation plan for the Data Warehouse, for example, has been developed in a phased approach that allows for analytical value to be realized over four sub projects. The Secure Texting is based on 200 users to start, but could launch with fewer providers if needed. Any reduction in the human resources associated with funding deficits would reduce the program capacity and lower the ROI. As a result, it may take longer to fully deploy the program and reach a savings threshold that would allow for dollars to accrue to payers.

6. Participating Partners and Decision-Making Process

The University of Maryland Upper Chesapeake Health- Union Hospital of Cecil County partnership included key stakeholders in the community. The following organizations participated in the development of this new transformation process:

- Cecil County Health Department (Health Officer)
- Harford County Health Department (Health Officer, Deputy Health Officer, Care Coordination Plus Program Representative)
- Cecil County Service and Transit (Administrative Director, Long Term Care Chief)
- Harford County Office of Aging (Director, Program Manager)
- CRISP (VP, Director of Integration)
- Lorien Health (COO, Site Administrator)
- Healthy Harford (Executive Director)
- Heart to Hart Transportation (VP& COO)
- Harford County EMS (Medical Director)
- Amedysis Home Health (Area VP, Director)

- West Cecil Health/ Beacon Health (President)
- Med Chi (Director for Private Practice)
- Union Hospital of Cecil County (Chief Medical Officer, VP of Provider Enterprise, VP IT, Director of Care Coordination, Community Benefits Coordinator)
- Behavioral Health Collaborative (Executive Director)
- University of Maryland Upper Chesapeake Health (VP Population Health, Director of Comprehensive Care Center, Director of Community Health, Medical Director of Palliative Care/ Chair Medical Executive Committee, VP IT)
- Patient and Family Advisory Councils (UMUCH & UHCC) twice annual focus groups.

These stakeholders worked diligently throughout the summer to identify gaps and duplications in the current health system in Cecil and Harford Counties and have collaborated on a new program that will positively impact the health of the community. Members of the Regional Partnership Planning Committee will continue to meet as part of an ongoing operating committee including the health departments, hospitals and CRISP. This new operating committee will meet on a monthly basis during the ramp up phase and to manage the day-to-day processes. Subcommittees of the operating committee may be created to address specific or temporary issues. For example, a smaller group may be identified to work with the local community college to help create training programs or externships for RN Care Managers.

The CBCM RN and CHW teams will be employed by the hospital organizations and assigned to Healthy Harford, which will expand its geographic reach into Cecil County with a new “Doing Business As (DBA)” name, likely to be Healthy Cecil. Healthy Harford will increase the size of its Board to include UHCC membership and the Cecil County Health Officer. Healthy Harford is a separate 501(c) (3) organization started in 1993 governed by local members of the business community, government agencies including the Health Department, and UMUCH. Earlier Healthy Harford hired its first ever Executive Director with funding support provided by UMUCH. Healthy Harford provides leadership by working across systems and with community partners to develop, support, and implement effective strategies to improve public health. Areas of focus include: healthy lifestyles and resources, community health partnerships with the Local Health Improvement Coalitions (LHIC) and Access to Care Navigation.

UMUCH and UHCC are finalizing a Memo of Understanding (MOU) that will govern the use of HSCRC hospital rates and other funding for this program. The MOU outlines the responsibilities of each organization for maintaining foundational elements of the program, such as the PDC. The hospital partners have elected to pursue an MOU as the best means for providing a balance of structure and flexibility in the early years of the partnership. UMUCH and UHCC also considered that a much more robust governance structure would be required if the organizations choose to pursue a Medicare Accountable Care program such as the Shared Saving Program. As a result, the MOU provides the structure needed for today without limiting options for governance in the future.

A steering committee to manage the MOU will be comprised of at least four representatives from each hospital organization, both clinical and administrative that will meet at least quarterly to review the defined metrics, work plans and approve future budgets. All decision regarding future expansion of the program, conversion into alternative payment programs such as Accountable Care Organizations, will be determined through the MOU steering committee. The two hospital organizations have already agreed to utilize Healthy Harford as the mechanism for “hosting” the CBCM. Any changes to this structure would come from the steering committee. This committee will also oversee the use of funds associated with the BI Solutions Development, including changes to scope or phasing approaches.

Each of the participating organizations will also be required to execute the CRISP Participation and Direct Agreement. The Regional Partnership has extended the offer for one CHW to be placed within the respective Health Departments and Offices of Aging. A Memo of Understanding will be executed with each organization outlining the expectations of the RP and the hosting organizations. This will be executed at the time in which the resource is hired and trained.

Appendix - Implementation Work Plan (Section 7)

See Work Plan in Microsoft Project Planning Documents (3 Files)

See Data Warehouse Time Line in BI Solutions Document (Section 6)

Appendix - Budget and Expenditures (Section 8)

Hospital/Applicant:	Harford Memorial & Upper Chesapeake Medical Center; Union Hospital of Cecil County
Number of Interventions:	1 Integrated Set of Post Discharge / Community-based Interventions
Total Budget Request (\$):	\$2,716,456

Workforce/Type of Staff	Amount
1. Nurse Care Managers	\$278,720
2. Community Health Workers	\$499,200
3. Social Worker	\$124,800
4. Pharmacist	\$108,160
5. Clinical Coordinator	\$160,160
6. Program Coordinator	\$44,720
7. Data Warehouse Administrator	\$69,680
8. Benefits	\$282,797
IT/Technologies	Amount
1. Data Warehouse Development Build & Hosting	Buildout \$328,000 Annual Hosting- \$156,000
2. CRISP Care Management Platform	\$240,000
3. CRISP Secure Texting Messaging	\$16,548
4. Tele Monitoring	\$77,100
5. Tele Consultation	\$16,760
Other Implementation Activities	Amount
Staff Training	\$41,500
Marketing & Outreach	\$20,000

Other Indirect costs	Amount
Provider Payments for Telemedicine	\$36,500
Rent Expense	\$73,830
Supplies	\$7,500
Continuing Education	\$7,500
Mileage	\$33,000
HR Support	\$30,000
Patient Emergent Needs	\$20,000
Community-based Performance Improvement Work Shops	\$20,000
Total Expenses/ investments	\$2,716,456

Appendix - Budget and Expenditures Narrative (Section 9)

Workforce/ Type of Staff	Description	Amount
1. Nurse Care Managers	4.0 FTE of Nurse Care Managers to lead community based care teams. These nurses will conduct the initial assessment and draft a care plan that the others on the team will execute via the CRISP Care Management Platform. The nurse will also liaise with the Primary Care Providers with whom the patients have a treatment relationship. These resources will be trained in Motivational Interviewing Techniques, Chronic Disease Management, and Mental Health First Aid.	\$278,720 (Hourly rate @\$33.00 plus benefits)
2. Community Health Workers	16.0 FTE of Community Health Workers conducting in-home and telephonic outreach for patients. These resources will be trained in Motivational Interviewing Techniques, Chronic Disease Management, and Mental Health First Aid. They will complete assessments of the patient's home circumstances and provide ongoing education about their disease state. Where needed, they will assist patient physician appointments. They will document their interactions via the CRISP Care Management Platform.	\$499,200 (Hourly rate @\$15.00 plus benefits)
3. Social Worker	2.0 FTE of Clinical Social Worker working on teams for patients with complex social needs including housing, meals, transportation, income assistance, and some medical counseling. These resources will be trained in Motivational Interviewing Techniques, Chronic Disease Management, and Mental Health First Aid. They will document in the CRISP Care Management Platform	\$124,800 (Hourly rate @\$30.00 plus benefits)
4. Pharmacist	1.0 FTE of Clinical Pharmacist to review the prescribed medications, provide patient education and medication therapy management. The pharmacist will share time between UMUH Post Discharge clinic and UHCC Post Discharge Clinic.	\$108,160 (Hourly rate @\$52.00 plus benefits)
5. Clinical Coordinator	2.0 FTE of Clinical Coordinator that will interface between the Post Discharge Clinic and the Community-based Care Management Teams. These Coordinators will assist in the assignment of new patients to the Community-based Care Management Teams, make determinations about the patient's readiness to "graduate" from the program, and interface with PDC and Primary Care Practices.	\$160,160 (Hourly rate @\$38.50 plus benefits)
6. Program Coordinator	1.0 FTE of non-clinical program coordination resource. This role will monitor CRISP reports including PaTH and the Encounter Notification Service alerts and notify the Clinical Coordinators if a patient's risk is rising to the level of outreach. The Program Coordinator will also conduct program analysis using data from the Data Warehouse to determine the effectiveness of the program and produce monthly report cards.	\$44,720 (Hourly rate @\$21.50 plus benefits)

7. Data Warehouse Administrator	1.0 FTE of Data Warehouse Administration. This stakeholder will work closely with the architect of the Data Warehouse to understand the data feeds and interfaces, and create linkages necessary to produce reports for end users.	\$69,680 (Hourly rate @\$33.50 plus benefits)
8. Benefits	Standard Benefit rate applied at 22%.	\$282,797
IT/Technologies	Description	Amount
1. Data Warehouse Development	Two year development of reporting capabilities that quickly bring analytic abilities to this new set of post discharge interventions. Reports will be available within 90 days of the start of the data warehouse development to help program leaders refine the system, target appropriate patients and better understand the readmission risks associated with the PDC and CBCM programs. (See Appendix for BI solution Detail)	Buildout \$328,000 Annual Hosting \$156,000
2. CRISP Care Management Platform	Implement the CRISP-Hosted Care Management platform (MIRTH Care) for use in the post discharge clinic, the community-based care management teams, the stakeholders in the respective Health Departments, and Offices of Aging. CRISP has agreed to cover the cost of the first two years of this pilot program.	\$240,000 Annually
3. CRISP Secure Texting Messaging	Implementation and ongoing use of a CRISP-hosted, HIPAA compliant, secure texting functionality to foster rapid communication between providers of all kinds and the Community-based Care Management resources. It is anticipated that 200 providers would be using the system during the first year.	\$16,548 Annually for 200 providers
4. Tele Monitoring	Acquisition of 50 reusable home monitoring kits from Vivify. This system allows patients to transmit vital sign information including blood pressure and weight to the CBCM. This system include the kits, the wireless data plan required to transmit the clinical values, and an interface to CRISP to have this information be available in the Care Management Platform.	\$77,100 Annually for Vivify Subscription & AT&T Data
5. Tele Consultation	The CBCM teams will have the ability to complete a Skype-based patient consultation with providers in the PDC. The members for CBCM team will be issued a MS Surface 3 tablet with appropriate software to complete these remote patient assessments and interviews.	\$16,760 for the AT&T data Plans, licenses
Other Implementation Activities	Description	Amount

1. Staff Training	The entire new Community-based Care Management teams will receive Behavioral Health/ Mental Health First Aid training and Chronic Disease Management Training. Additionally, new Community Health Workers will complete an 80 hour course via Harford Community College to prepare them to work within this new model.	\$41,500
2. Marketing & Outreach	Patient and physician communication tools will be created to increase awareness of the program. Patients will be provided with materials that detail the CBCM program, educational materials relating to their conditions and the process for contacting a member of the team. Physician practices will receive information about the program including the inclusion criteria, referral process and materials relating to the use of the Chronic Care Management billing code (CPT 9949) through Medicare.	\$20,000
Other Indirect costs	Description	Amount
Provider Payments	Payments @ \$175 per telemedicine consultation completed by a provider.	\$36,500
Rent Expense	Renting additional space adjacent to the PDCs for housing the CBCM teams when not in the field.	\$73,830
Supplies	Clinical and office supplies.	\$7,500
Continuing	Conferences and Computer-based education for the CBCM teams.	\$7,500
Mileage	Payment for 60,000 miles of travel for the CBCM teams at \$.55 per mile	\$33,000
HR Support	Covers the cost associated with posting and hiring positions each year. 0.5 FTE of HR Generalist Resource	\$30,000
Patient Emergent Needs	Establishes a fund to provide for temporary or one-time patient needs that address, home heating, food, transportation. Strict eligibility criteria will guide the use of these dollars	\$20,000
Community-based Performance Improvement Work Shops	These dollars will fund twice annual workshops to train the CBCM teams and stakeholders from the care delivery continuum, including the Health Departments, Offices of Ageing, Skilled Nursing Facilities, Home Health Agencies, on performance improvement methodologies	\$20,000
Total Expenses/ investments		\$2,716,456

Appendix – Proposal Summary (Section 10)

Hospital/Applicant:	Harford Memorial Hospital & Upper Chesapeake Medical Center, Union Hospital of Cecil County
Date of Submission:	December 21, 2015
Health System Affiliation:	University of Maryland Upper Chesapeake Health (UMMS), Union Hospital of Cecil County
Number of Interventions:	1 Integrated Set of Post Discharge / Community-based Interventions
Total Budget Request (\$):	\$2,716,456

Target Patient Population (Response limited to 300 words)

The purpose of the University of Maryland Upper Chesapeake Health (UMUCH) and Union Hospital of Cecil County (UHCC) Regional Partnership (RP) is to address the medical and social needs of high utilizer patients and those with multiple chronic conditions in Cecil and Harford Counties. The Regional Partnership will target Medicare and dual-eligible patients with either high rates of hospital utilization and/or multiple chronic conditions. High risk patients will be defined as patients with five or more ED visits or three or more admissions during the year. Also, patients with multiple chronic conditions will be identified as high risk. Of the 348,000 residents of the two county area, HSCRC data indicates that there are 1,550 patients classified as high utilizers and nearly 20,000 with two or more chronic conditions in Cecil and Harford Counties. The 2012 HSCRC data shows greater than 81,000 patients with a hospital encounter and at least one chronic condition. Cardiac related conditions such as coronary artery disease and hypertension were recorded in at least 30,000 charts for patients. Of the nearly 15,000 unique Medicare patients with at least one chronic condition, more than 50% have hypertension in Harford County and 40% in Cecil County. The initial focus of the program will require interacting with patients after they have “identified” themselves by coming back to the hospital. The RP also recognizes that a process for engaging these patients before they come to the hospital will be necessary and will allow providers in the community to refer patients to the program, even if they have not met the hospital utilization threshold. These patients may be described as moderate or rising risk that could benefit from these new interventions.

Summary of program or model for each program intervention to be implemented. Include start date, and workforce and infrastructure needs (Response limited to 300 words)

The RP aims to leverage existing investments in Post Discharge Clinics to extend the time that high risk patients are engaged with care management and coordination services. The new program creates a Community-based Care Management program that is comprised of teams of Community Health Workers or Social Workers lead by Nurse Care Managers. Patients may receive intensive medical and social support in the PDC (Day 0-30) and be transitioned to the CBCM (Day 31-90) to refine the care plan, coordinate patient appointments, provide ongoing education, and assess the patient’s home situation. This new model will create a seamless support program for the patients that meets their needs and connects them with their existing or a new primary care provider in the community. Early data shows that the PDC is able to eliminate hospital utilization in 60% of patients in the 90 days post engagement. This program would extend this success to tackle the 40% that did have additional utilization. Direct referral to the CBCM program from Primary Care will also be developed to address the needs of the rising risk patients. This program relies on IT infrastructure that fosters greater communication among providers and allows for outreach as patient risk dictates. A partnership with CRISP will allow for stakeholders across the continuum of care to use a common Care Management and Secure Texting tools. Telehealth capabilities will also be added to the region to support home vital sign monitoring and video consultations for patients at home or in SNFs. UMUCH and UHCC will share learnings and use common approaches in the care of

these patients. The RP will ramp up this activity and be ready to see patients by end of quarter 1 beginning of quarter 2 of calendar 2016.

Measurement and Outcomes Goals (Response limited to 300 words)

The program will target metrics consistent with the state transformation framework. This includes outcome measures that capture both utilization and cost (charges) data, as well as process measures that indicate improvement within the new delivery model. The RP will also develop a patient survey to monitor the satisfaction of patients with the CBCM program.

The outcome measures tracked by the RP include:

- 30-day all-cause readmissions
- 30-day ED revisits
- 30-day readmission to observation status
- 48-hour readmission from SNF
- Reduction in charges for High Risk Patients
- 90 day pre/post intervention utilization

Process Metrics to be tracked include:

- Percent of patients that meet criteria that are referred to the PDC & CBCM
- ENS Subscribers in the community
- Percent of patients with a care plan in the new CRISP-hosted Care Management System
- EMS Call/ Response data by address
- Patient experience survey

This data will be collected and analyzed through emerging CRISP reporting capabilities as well as the implementation of a RP-wide Data Warehouse that incorporates information from multiple sources including the hospital EMRs, ambulatory EMRs, CRISP and eventually claims data. Preliminary review of the data relating to high risk patients indicates a reduction in the hospital utilization for patients that receive care in the UMUCH PDC. The expanded program and related IT capabilities will allow the RP to refine these care management processes, share clinical and social information with appropriate providers and better understand which patients should be targeted. The goal is to begin to draft and share reports, by community provider, that reflect Primary Care performance within these categories.

Return on Investment. Total Cost of Care Savings. (Response limited to 300 words)

Building from the success of the current and planned PDCs at UMUCH and UHCC, the RP believes that an 8% reduction in the hospital utilization, as measured by charges, is possible within the first year of the program. This is contingent upon the program engaging 60% of the High Utilizer patients and 7% of the Multiple Chronic Condition patients. The gross savings is expected to rise incrementally in year 2 by 12.5% and another 11% in year 3. This is based on a greater percentage of engagement and more targeted outreach of patients, as the data analytics from both CRISP and the RP Data Warehouse become available. The ROI calculation results in a positive return ratio of 1.43 in year 1 with increases in the following two years (1.66, 1.93 respectively).

The RP is proposing a sliding scale savings sharing methodology with the payers in this program. The sliding scale is tied to the actual ROI performance of the program each year. The target ROI calculated is the anchor point on which savings would be shared with payers via a GBR reduction. In year one, for example, the target ROI is 43%. The RP would establish a performance corridor that earns the payer a 10% share and a performance corridor with a 15% share. Performance exceeding the high range of the second corridor would generate a third tier of savings with 25% of these dollars returning to the payers. The RP would be open to reevaluating the shared savings percentage at predetermined intervals if the data is available from the HSCRC or

other sources. For example, if the ROI for the first two years significantly exceeds the projected target, the RP would be willing to increase the share percentage in each performance corridor for year 3.

Scalability and Sustainability Plan (Response limited to 300 words)

The hospital systems have agreed to use these grant dollars to jointly fund infrastructure that assist in the management of high risk patients. This includes IT Capabilities such as the Data Warehouse, Care Management Platforms, Secure Texting Programs and telehealth programs that are best deployed across a larger populations. For example, this RP spreads the costs associated with establishing the Data Warehouse over two counties and more than 350,000 potential patients. The RP has also worked closely with the CRISP team to identify opportunities for pilot programs that can be scaled within the state. The RP will help implement and design key functionality of the CRISP Care Management and Secure Texting programs to demonstrate value and ease implementation in other areas of the state. Additionally the RP will deploy a home telemonitoring program, Vivify, which allows program coordinators to manage larger patient populations as the risk of hospitalization increases. The CBCM teams are also scalable with four teams of five providers including RN Care Managers, Community Health Workers, and Social Workers. Based on funding and impact, the teams can be reduced to fewer positions that work with a smaller population in a defined geography in the two counties. Alternatively, these CBCM teams may remain intact, but the hiring of all four teams may be staged or delayed based on finances. This would leave a 5-person team operating in a slightly larger geography. Additional resources such as pharmacists, or the development of a PDC elsewhere in the RP market would be funded by savings from this program and would not require additional rate increases. The projected ROI for each year is expected to exceed 1.0-indicating self-sustainment as currently composed. The breakeven point for Year 1 is a savings of 5.6% with the RP projecting a savings of 8.0%.

Participating Partners and Decision-making Process. Include amount allocated to each partner. (Response limited to 300 words)

The use of these grant dollars will be governed by a Steering Committee comprised of members of the two hospital organizations. A Memo of Understanding will be finalized that details the expectations for both organizations and delineates the decision-making authority. This includes approving annual budgets, determine expansion or contraction of the program, and the exploration of participating in alternative payment programs such as the Medicare Shared Savings Program. An operating committee that includes members of the hospital systems, Cecil and Harford Departments of Health and Offices of Aging, Healthy Harford as well as CRISP to manage the process on an ongoing basis. This includes the decisions on data governance, CRISP Pilot program feedback, geographic assignment of patients or other tweaks to the process flows that improve the effectiveness of the intervention. The operating committee will make recommendations to the Steering Committee about future investment and programmatic changes based on data analysis via CRISP reports or the new Data Warehouse. The Offices of Aging will house an embedded Community Health Worker (1 for each county) as will the respective Departments of Health (1 each). The operating committee will determine if a similar resource should be deployed within the two FQHCs- West Cecil and Beacon Health. Additional stakeholders, such as Amedysis Home Health, Lorien Health, Hart to Heart Transportation, and MedChi will be invited to participate in the operating committee or necessary subcommittees. These stakeholders were active participants in the Transformation Planning Process this summer and fall.

Implementation Plan (Response limited to 300 words)

The RP has developed a robust project plan to bring the implement and deploy the needed resources for the new program. The program is based on the Deming Cycle (Plan-Do-Check-Act) such that new protocols, pathways or treatment algorithms will be created, reviewed and adjusted based on the needs of the target population. The project plan is divided into four sections: 1) The PDC 2) the CBCM 3) IT – Telehealth 4) Data

Warehouse. Additional project plans for the CRISP-hosted tools, Care Management and Secure Texting, will be developed in conjunction with CRISP and the technology vendor. The PDC plan is focused mostly on developing process flows and policies that enable the smooth transition of the target population from the hospital to the PDC to CBCM and on to the Primary Care Provider. The CBMC plan relates to drafting job descriptions, hiring and training staff and conducting employee assessments. A process to deploy temporary resources, currently existing within the hospital systems is also contemplated. The IT- Telehealth Plan calls for the acquisition of the technology with testing and training also covered. The Data Warehouse plan is a four phase plan that will be managed by an outside vendor. The plan detail shows when the reporting capabilities will come on-line and the length of time each aspect of the development takes.

Budget and Expenditures: Include budget for each intervention. (Response limited to 300 words)

The Hospital organizations are requesting \$2,716,456 in funding to support this new, patient-focused program. The budget is comprised of three major components: Staffing, Information technology infrastructure and operating expenses. The staffing model calls for the addition of four (4) Nurse Care Managers, (16) Community Health Workers, two (2) social workers, and one (1) pharmacist to provide direct patient care, coordination or education to patients. Additionally two (2) clinical coordinators, one (1) program coordinator and 1 Data Warehouse administrator will be hired. The associated expense with benefits is \$1,568,237. The IT infrastructure including the CRISP-hosted programs, Telehealth capabilities, and Data Warehouse will cost \$834,408 annually. The staff training and program outreach activities will cost another \$61,500 per year. The operating costs (mileage, data plans, and continuing education) and indirect costs associated with sharing an HR resource for posting jobs/ screening candidates, rent, etc., is budgeted for \$228,330.

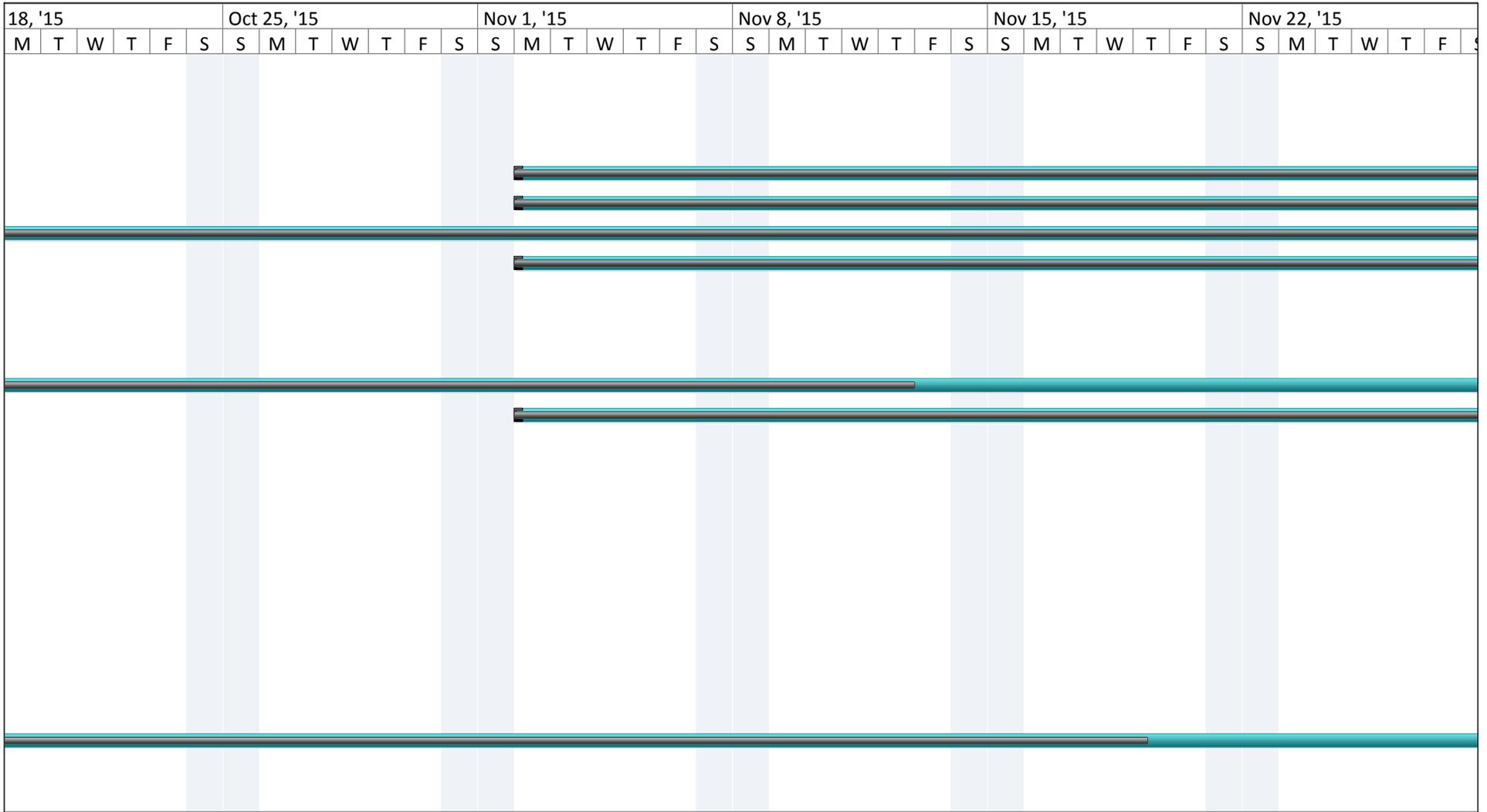
Additional Supporting Documentation

ID	Task Mode	Task Name	Duration	Start	Finish	Oct 11, '15							Oct 18			
						T	F	S	S	M	T	W	T	F	S	S
1		Objective 1: Operationalize/ Expand PDC														
2		Information Gathering (Plan)														
3		Confirm Inclusion Criteria	21 days	Mon 11/2/15	Mon 11/30/15											
4		Confirm LACE Scoring in Meditech	21 days	Mon 11/2/15	Mon 11/30/15											
5		Development Process for Patient Enrollment	35 days	Tue 10/13/15	Mon 11/30/15											
6		Develop direct to CBCM process	55 days	Mon 11/2/15	Fri 1/15/16											
7																
8		Update Operating Process (Do)														
9		Communicate updated criteria	35 days	Mon 11/30/15	Fri 1/15/16											
10		Utilize new CRISP Prompt Report	125 days	Fri 10/9/15	Thu 3/31/16											
11		Update community program referral guides	21 days	Mon 11/2/15	Mon 11/30/15											
12		Post new positions as needed	16 days	Fri 2/12/16	Fri 3/4/16											
13		Hire new resources	51 days	Mon 3/7/16	Mon 5/16/16											
14		Conduct training on new process	55 days	Mon 2/15/16	Fri 4/29/16											
15		Conduct training on IT programs (Care Management, Secure Texting, Vivify, Skype)	55 days	Mon 2/15/16	Fri 4/29/16											
16		Provide training on new Data Warehouse reports	5 days	Mon 4/18/16	Fri 4/22/16											
17																
18		Review Performance (Check)														
19		Review Dashboard	5 days	Mon 4/4/16	Fri 4/8/16											
20		Provide Feedback to CRISP on Prompt	146 days	Fri 10/9/15	Fri 4/29/16											
21		Provide Feedback to CRISP on Care Management	261 days	Fri 1/1/16	Fri 12/30/16											

Project: Project Plan - Strategy 1 - Date: Mon 12/21/15	Task		External Milestone		Manual Summary Rollup	
	Split		Inactive Task		Manual Summary	
	Milestone		Inactive Milestone		Start-only	
	Summary		Inactive Summary		Finish-only	
	Project Summary		Manual Task		Deadline	
	External Tasks		Duration-only		Progress	

ID	Task Mode	Task Name	Duration	Start	Finish	Oct 11, '15							Oct 18				
						T	F	S	S	M	T	W	T	F	S	S	M
22		Determine if " right " patients are being referred	104 days	Tue 12/1/15	Fri 4/22/16												
23																	
24		Standardize new process (Act)															
25		Finalize new policies as needed	5 days	Mon 4/25/16	Fri 4/29/16												
26		Update Criteria as needed	5 days	Mon 4/25/16	Fri 4/29/16												

Project: Project Plan - Strategy 1 - Date: Mon 12/21/15	Task		External Milestone		Manual Summary Rollup	
	Split		Inactive Task		Manual Summary	
	Milestone		Inactive Milestone		Start-only	
	Summary		Inactive Summary		Finish-only	
	Project Summary		Manual Task		Deadline	
	External Tasks		Duration-only		Progress	



Project: Project Plan - Strategy 1 -
Date: Mon 12/21/15

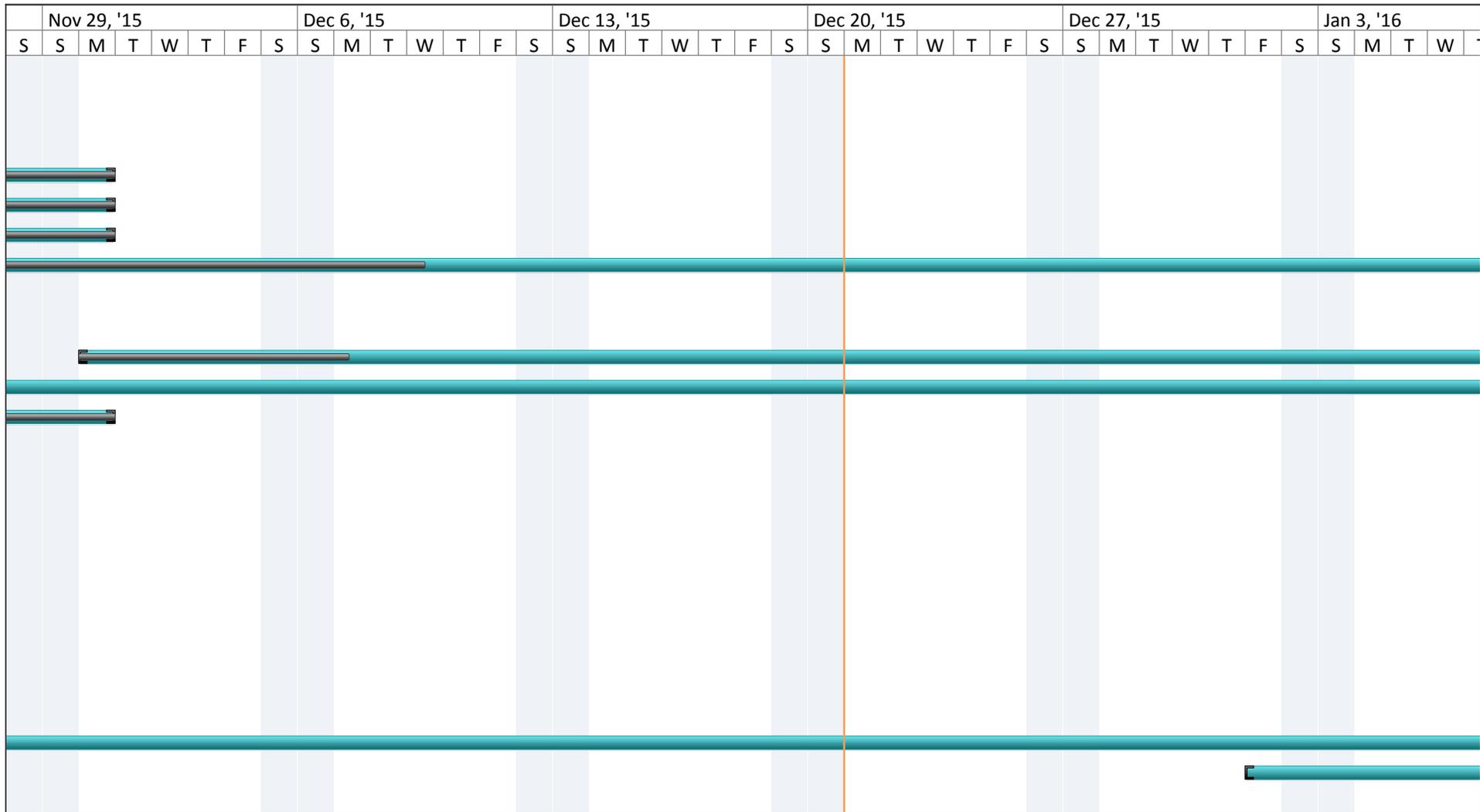
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Split		Inactive Task		Manual Summary	
Milestone		Inactive Milestone		Start-only	
Summary		Inactive Summary		Finish-only	
Project Summary		Manual Task		Deadline	
External Tasks		Duration-only		Progress	

18, '15						Oct 25, '15						Nov 1, '15						Nov 8, '15						Nov 15, '15						Nov 22, '15										
M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S

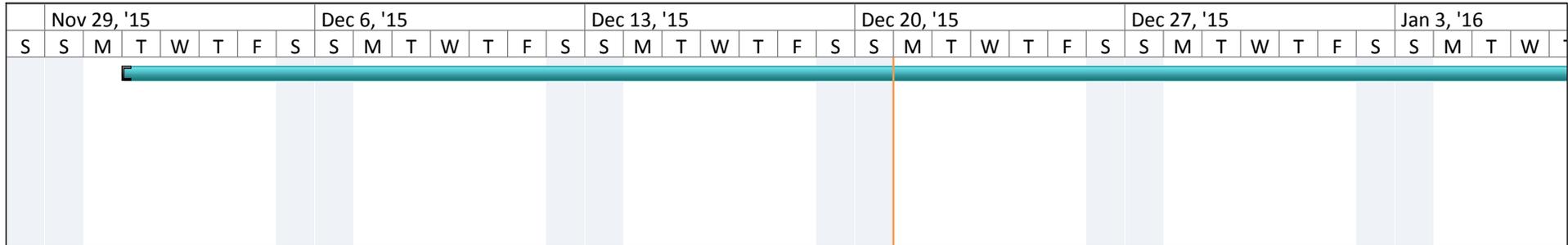


Project: Project Plan - Strategy 1 -
Date: Mon 12/21/15

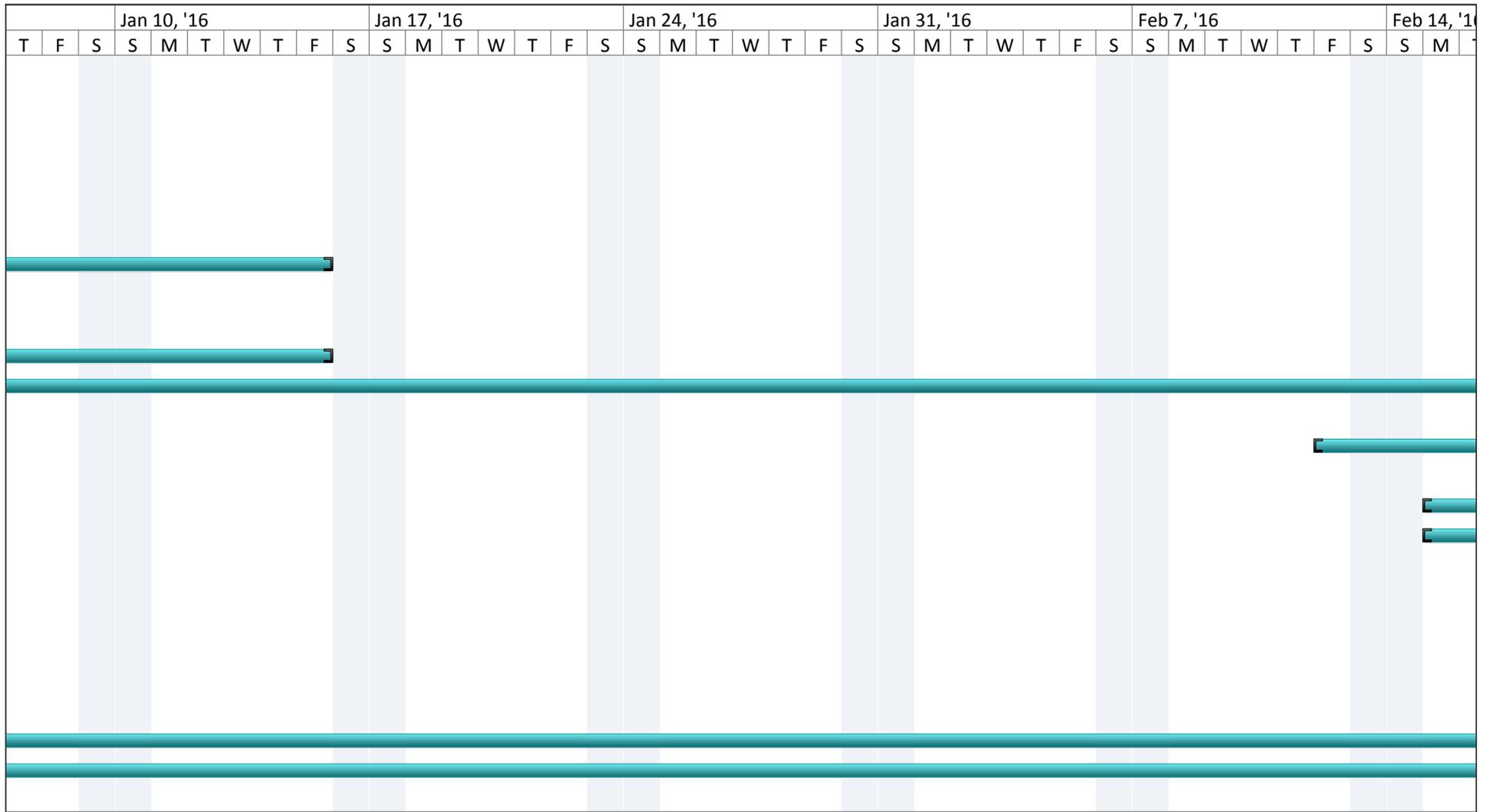
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Split		Inactive Task		Manual Summary	
Milestone		Inactive Milestone		Start-only	
Summary		Inactive Summary		Finish-only	
Project Summary		Manual Task		Deadline	
External Tasks		Duration-only		Progress	



Project: Project Plan - Strategy 1 - Date: Mon 12/21/15	Task		External Milestone		Manual Summary Rollup	
	Split		Inactive Task		Manual Summary	
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	Summary		Inactive Summary		Finish-only	
	Project Summary		Manual Task		Deadline	
	External Tasks		Duration-only		Progress	



Project: Project Plan - Strategy 1 - Date: Mon 12/21/15	Task		External Milestone		Manual Summary Rollup	
	Split		Inactive Task		Manual Summary	
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	External Tasks		Duration-only		Progress	

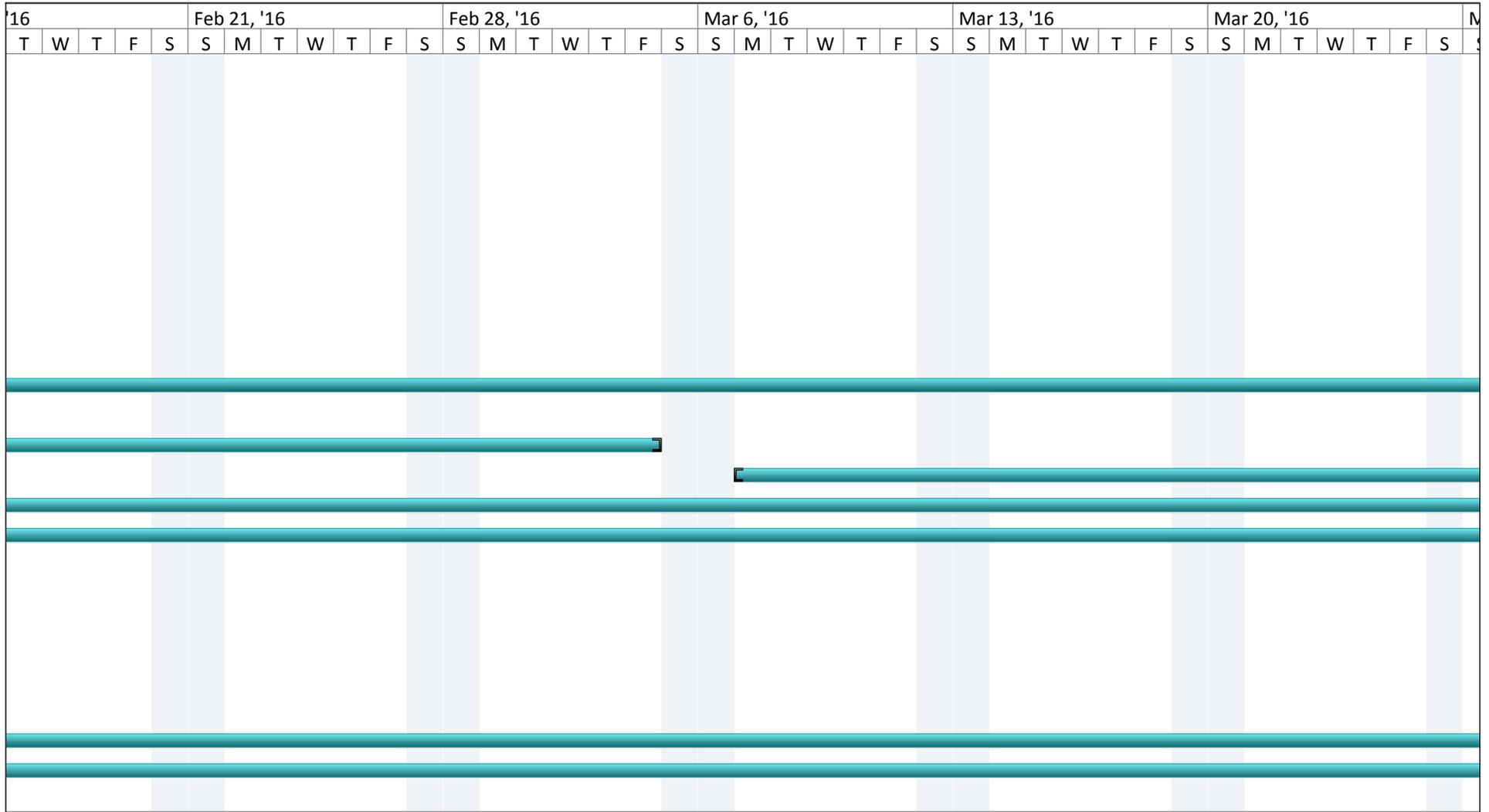


Project: Project Plan - Strategy 1 - Date: Mon 12/21/15	Task		External Milestone		Manual Summary Rollup	
	Split		Inactive Task		Manual Summary	
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	Summary		Inactive Summary		Finish-only	
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	External Tasks		Duration-only		Progress	

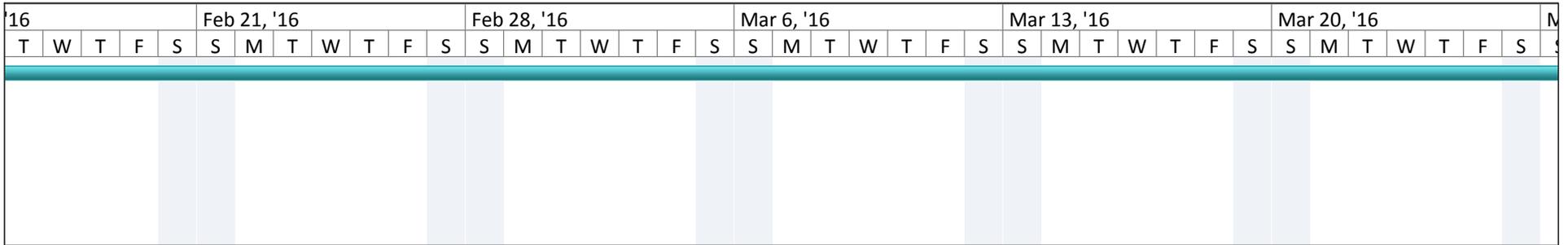
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Project: Project Plan - Strategy 1 -
Date: Mon 12/21/15

Task		External Milestone		Manual Summary Rollup	
Split		Inactive Task		Manual Summary	
Milestone		Inactive Milestone		Start-only	
Summary		Inactive Summary		Finish-only	
Project Summary		Manual Task		Deadline	
External Tasks		Duration-only		Progress	

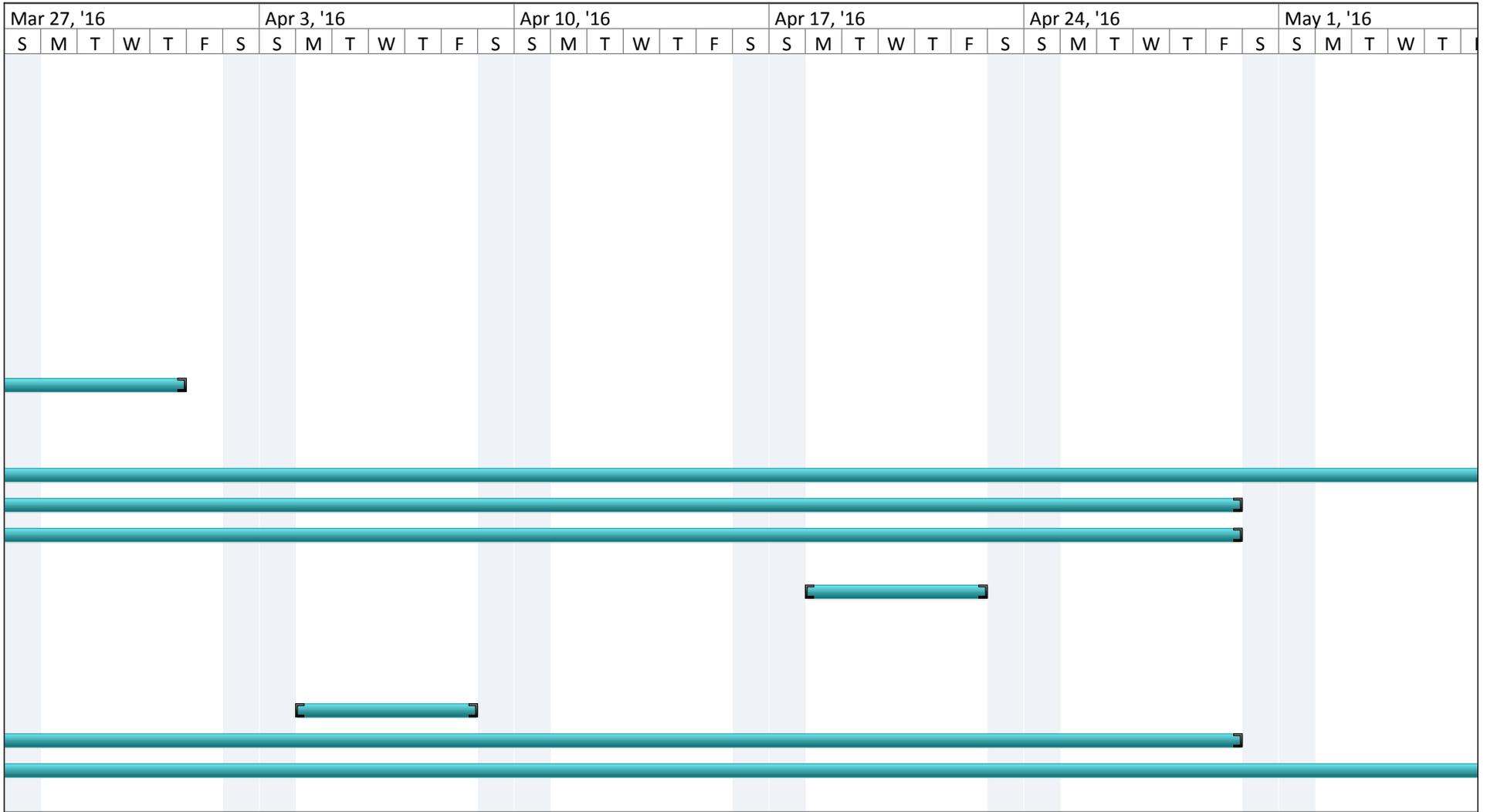


Project: Project Plan - Strategy 1 - Date: Mon 12/21/15	Task		External Milestone		Manual Summary Rollup	
	Split		Inactive Task		Manual Summary	
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	Summary		Inactive Summary		Finish-only	
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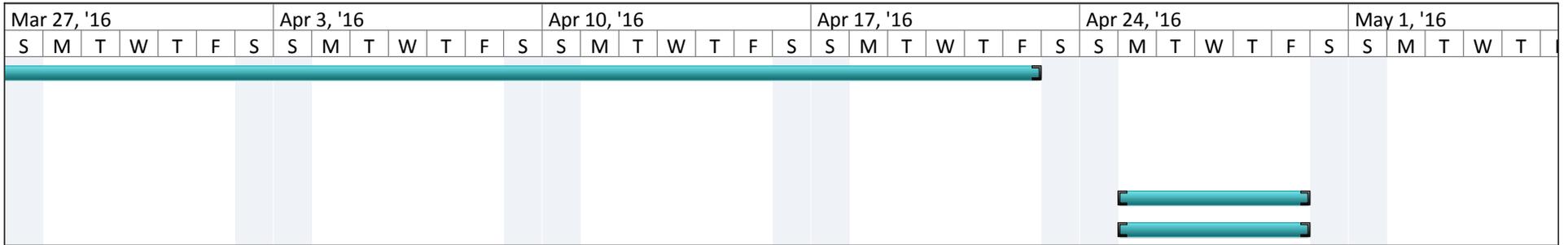


Project: Project Plan - Strategy 1 -
Date: Mon 12/21/15

Task		External Milestone		Manual Summary Rollup	
Split		Inactive Task		Manual Summary	
Milestone		Inactive Milestone		Start-only	
Summary		Inactive Summary		Finish-only	
Project Summary		Manual Task		Deadline	
External Tasks		Duration-only		Progress	

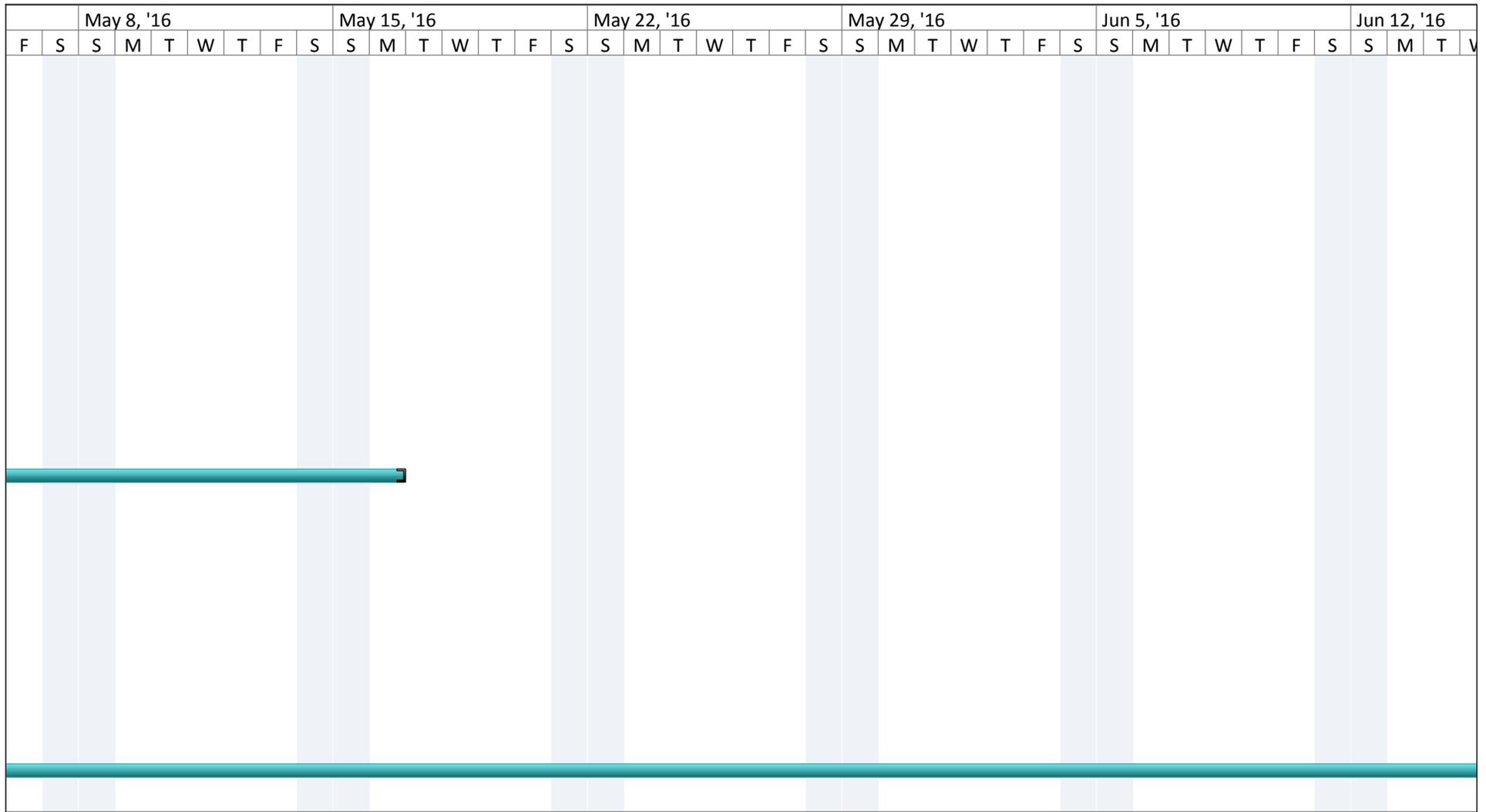


Project: Project Plan - Strategy 1 - Date: Mon 12/21/15	Task		External Milestone		Manual Summary Rollup	
	Split		Inactive Task		Manual Summary	
	Milestone		Inactive Milestone		Start-only	
	Summary		Inactive Summary		Finish-only	
	Project Summary		Manual Task		Deadline	
	External Tasks		Duration-only		Progress	



Project: Project Plan - Strategy 1 -
Date: Mon 12/21/15

Task		External Milestone		Manual Summary Rollup	
Split		Inactive Task		Manual Summary	
Milestone		Inactive Milestone		Start-only	
Summary		Inactive Summary		Finish-only	
Project Summary		Manual Task		Deadline	
External Tasks		Duration-only		Progress	

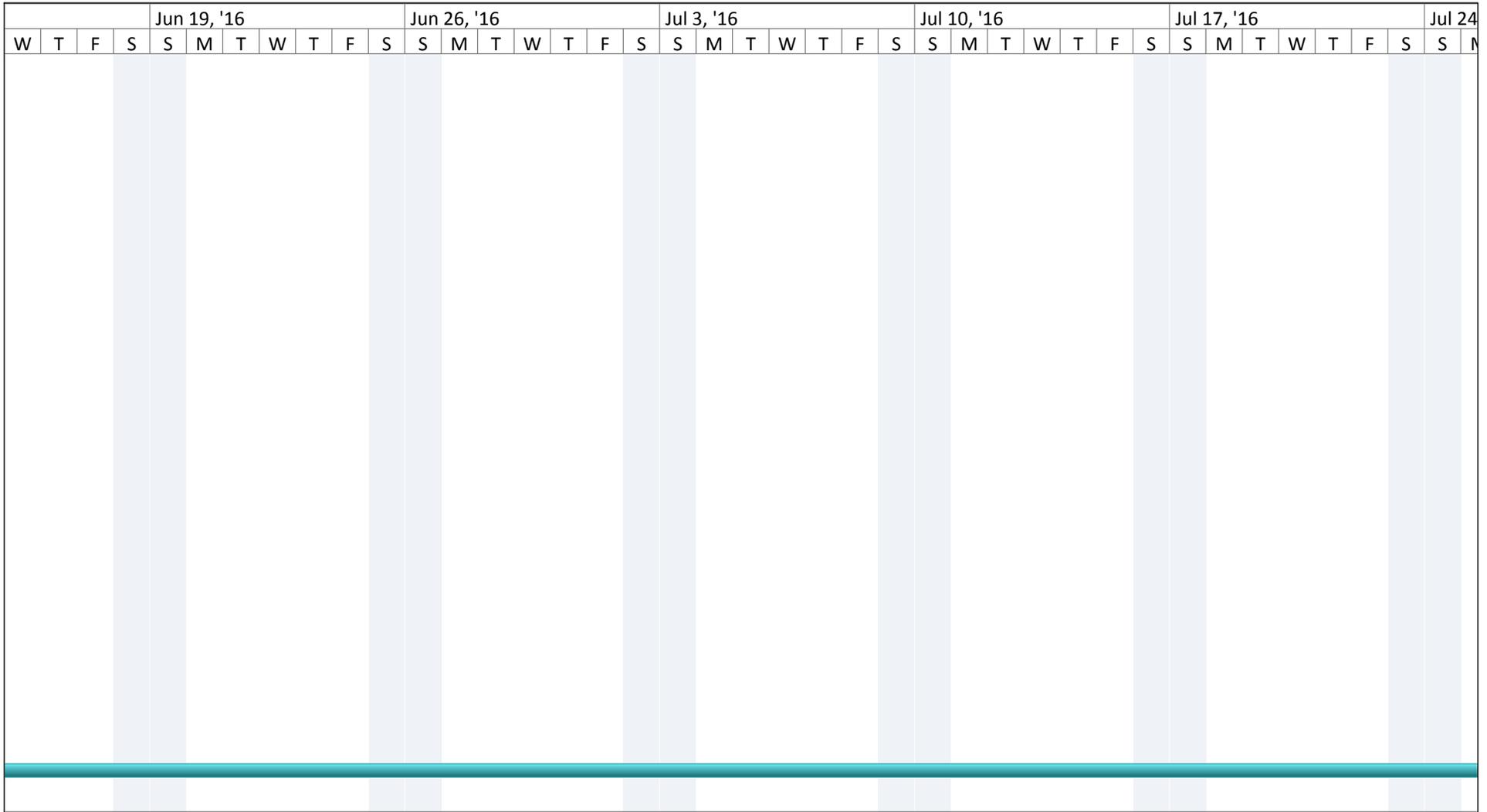


Project: Project Plan - Strategy 1 - Date: Mon 12/21/15	Task		External Milestone		Manual Summary Rollup	
	Split		Inactive Task		Manual Summary	
	Milestone		Inactive Milestone		Start-only	
	Summary		Inactive Summary		Finish-only	
	Project Summary		Manual Task		Deadline	
	External Tasks		Duration-only		Progress	

May 8, '16							May 15, '16							May 22, '16							May 29, '16							Jun 5, '16							Jun 12, '16																
F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T			



Project: Project Plan - Strategy 1 - Date: Mon 12/21/15	Task		External Milestone		Manual Summary Rollup	
	Split		Inactive Task		Manual Summary	
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	Summary		Inactive Summary		Finish-only	
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	External Tasks		Duration-only		Progress	



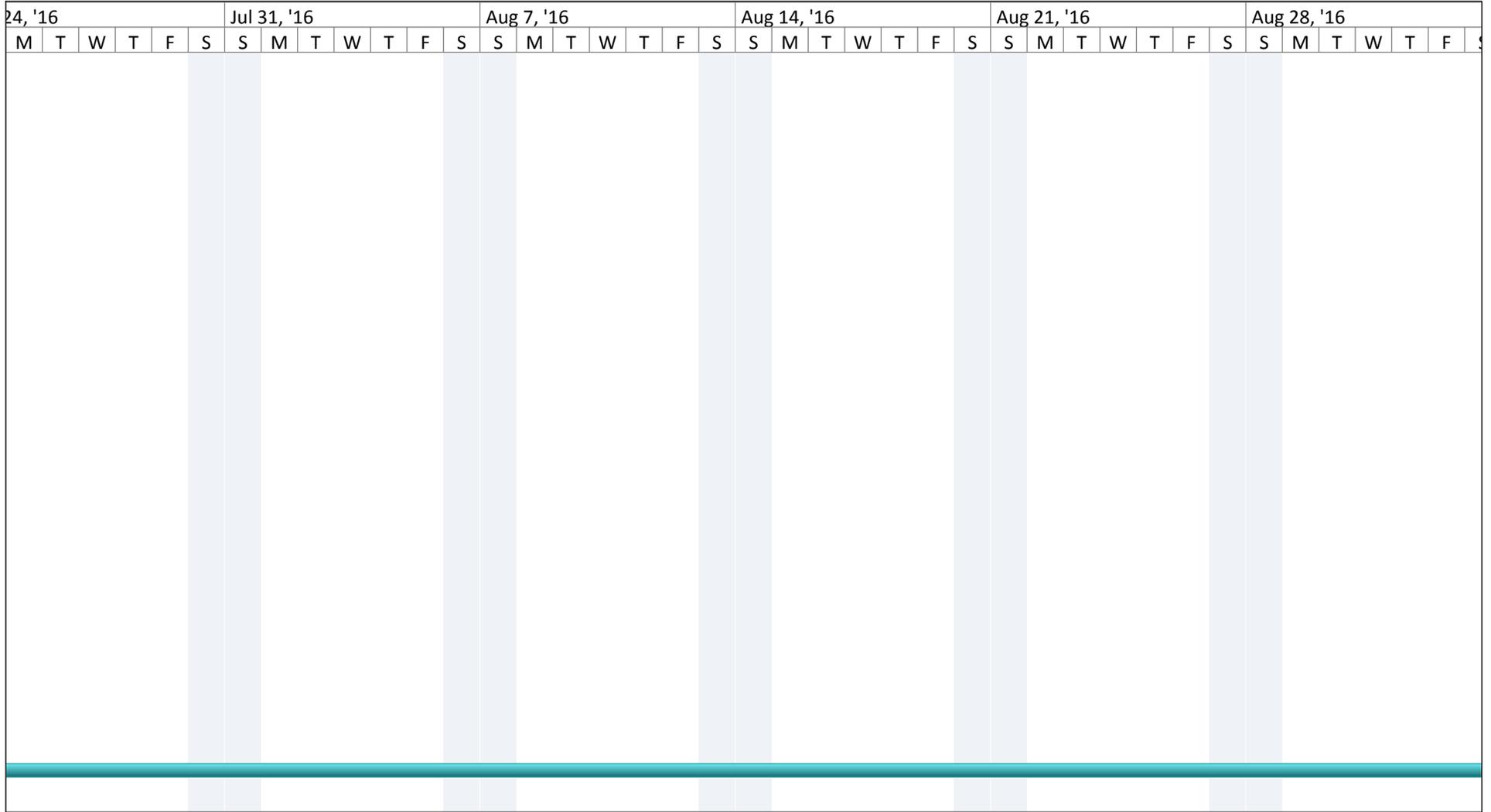
Project: Project Plan - Strategy 1 -
Date: Mon 12/21/15

Task		External Milestone		Manual Summary Rollup	
Split		Inactive Task		Manual Summary	
Milestone		Inactive Milestone		Start-only	
Summary		Inactive Summary		Finish-only	
Project Summary		Manual Task		Deadline	
External Tasks		Duration-only		Progress	

				Jun 19, '16				Jun 26, '16				Jul 3, '16				Jul 10, '16				Jul 17, '16				Jul 24										
W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	



Project: Project Plan - Strategy 1 - Date: Mon 12/21/15	Task		External Milestone		Manual Summary Rollup	
	Split		Inactive Task		Manual Summary	
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	Summary		Inactive Summary		Finish-only	
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Project: Project Plan - Strategy 1 -
Date: Mon 12/21/15

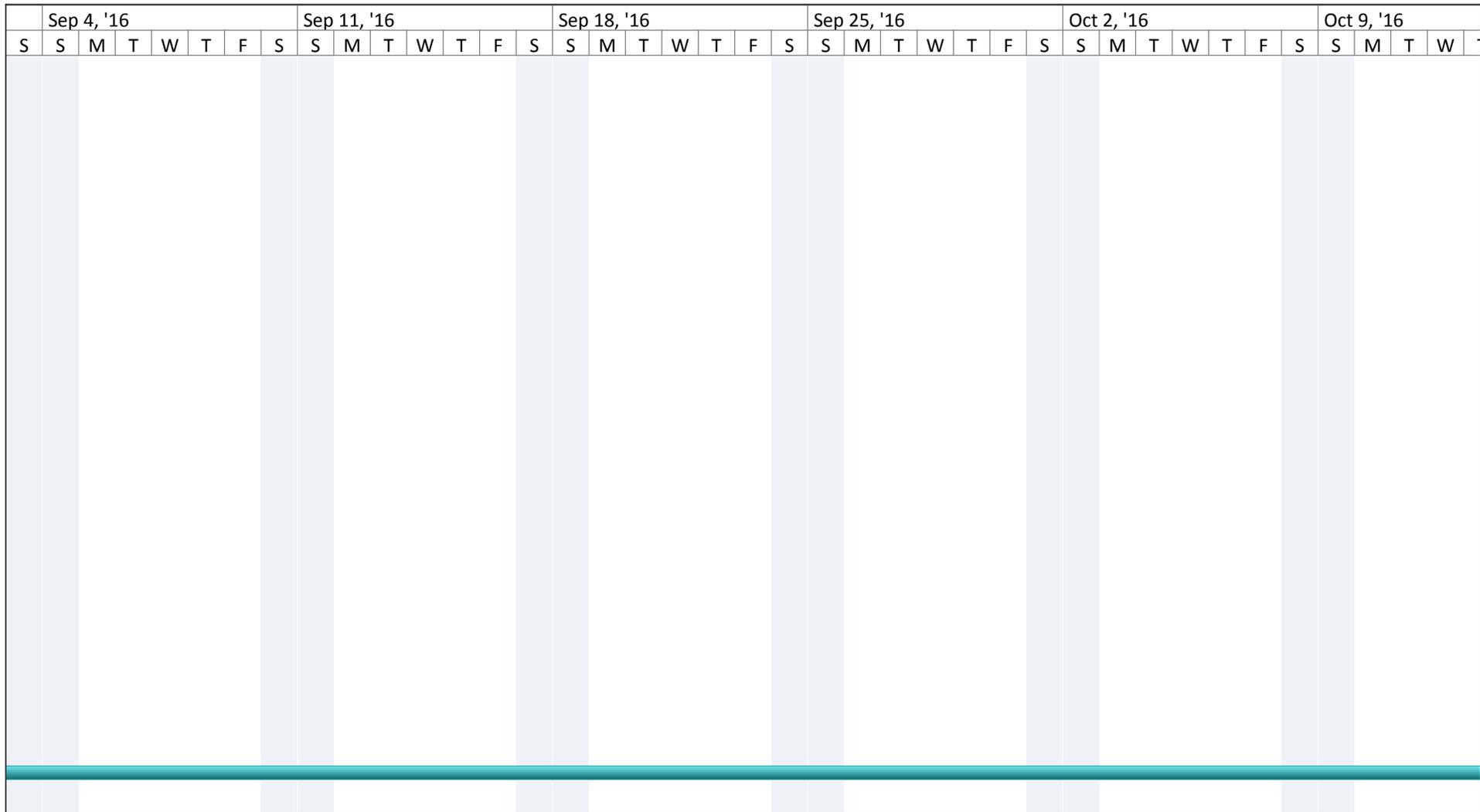
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Summary		Inactive Summary		Finish-only	
Project Summary		Manual Task		Deadline	
External Tasks		Duration-only		Progress	

24, '16					Jul 31, '16					Aug 7, '16					Aug 14, '16					Aug 21, '16					Aug 28, '16															
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Project: Project Plan - Strategy 1 -
Date: Mon 12/21/15

Task		External Milestone		Manual Summary Rollup	
Split		Inactive Task		Manual Summary	
Milestone		Inactive Milestone		Start-only	
Summary		Inactive Summary		Finish-only	
Project Summary		Manual Task		Deadline	
External Tasks		Duration-only		Progress	



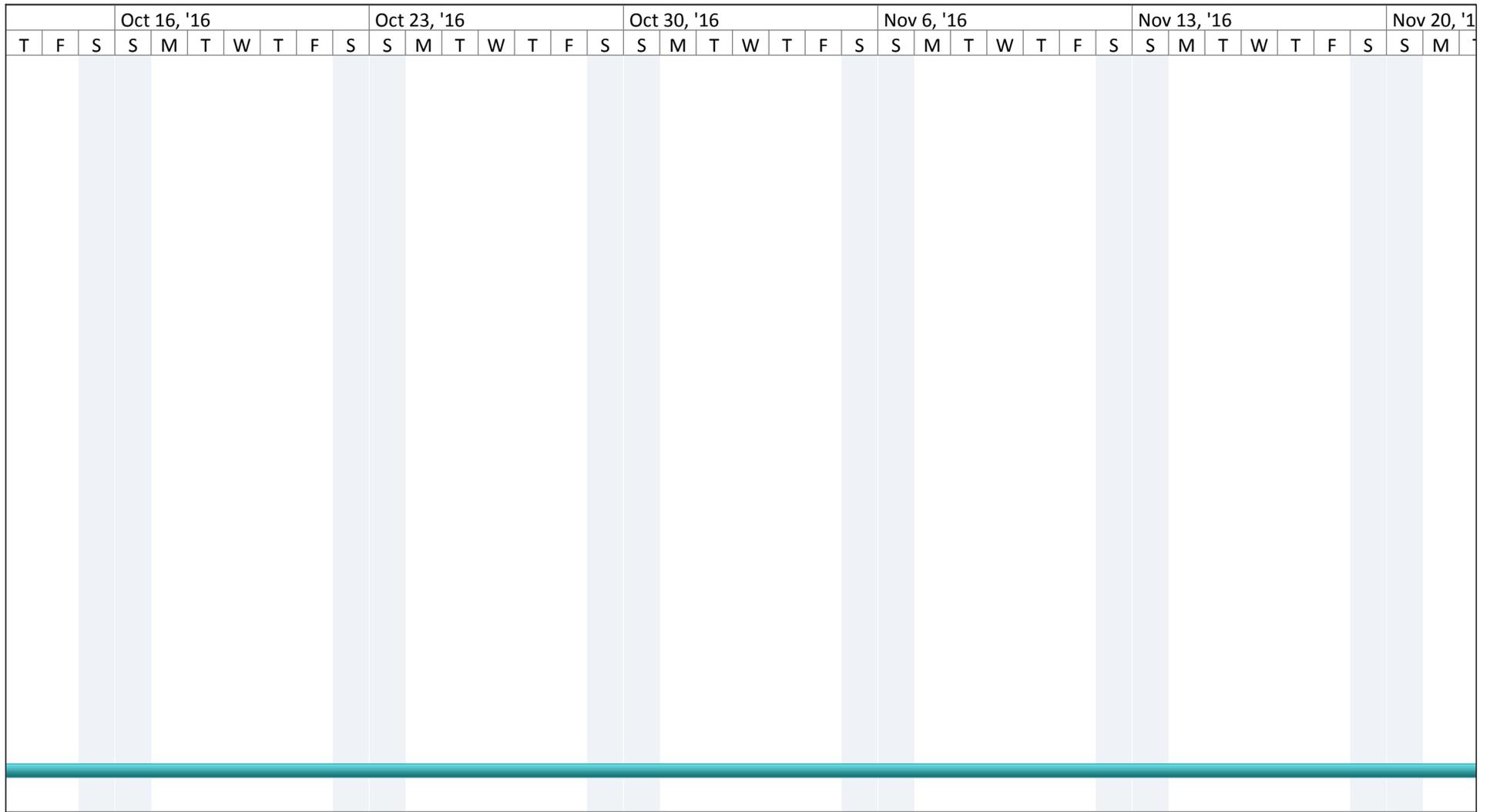
Project: Project Plan - Strategy 1 -
Date: Mon 12/21/15

Task		External Milestone		Manual Summary Rollup	
Split		Inactive Task		Manual Summary	
Milestone		Inactive Milestone		Start-only	
Summary		Inactive Summary		Finish-only	
Project Summary		Manual Task		Deadline	
External Tasks		Duration-only		Progress	

Sep 4, '16							Sep 11, '16							Sep 18, '16							Sep 25, '16							Oct 2, '16							Oct 9, '16													
S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F



Project: Project Plan - Strategy 1 - Date: Mon 12/21/15	Task		External Milestone		Manual Summary Rollup	
	Split		Inactive Task		Manual Summary	
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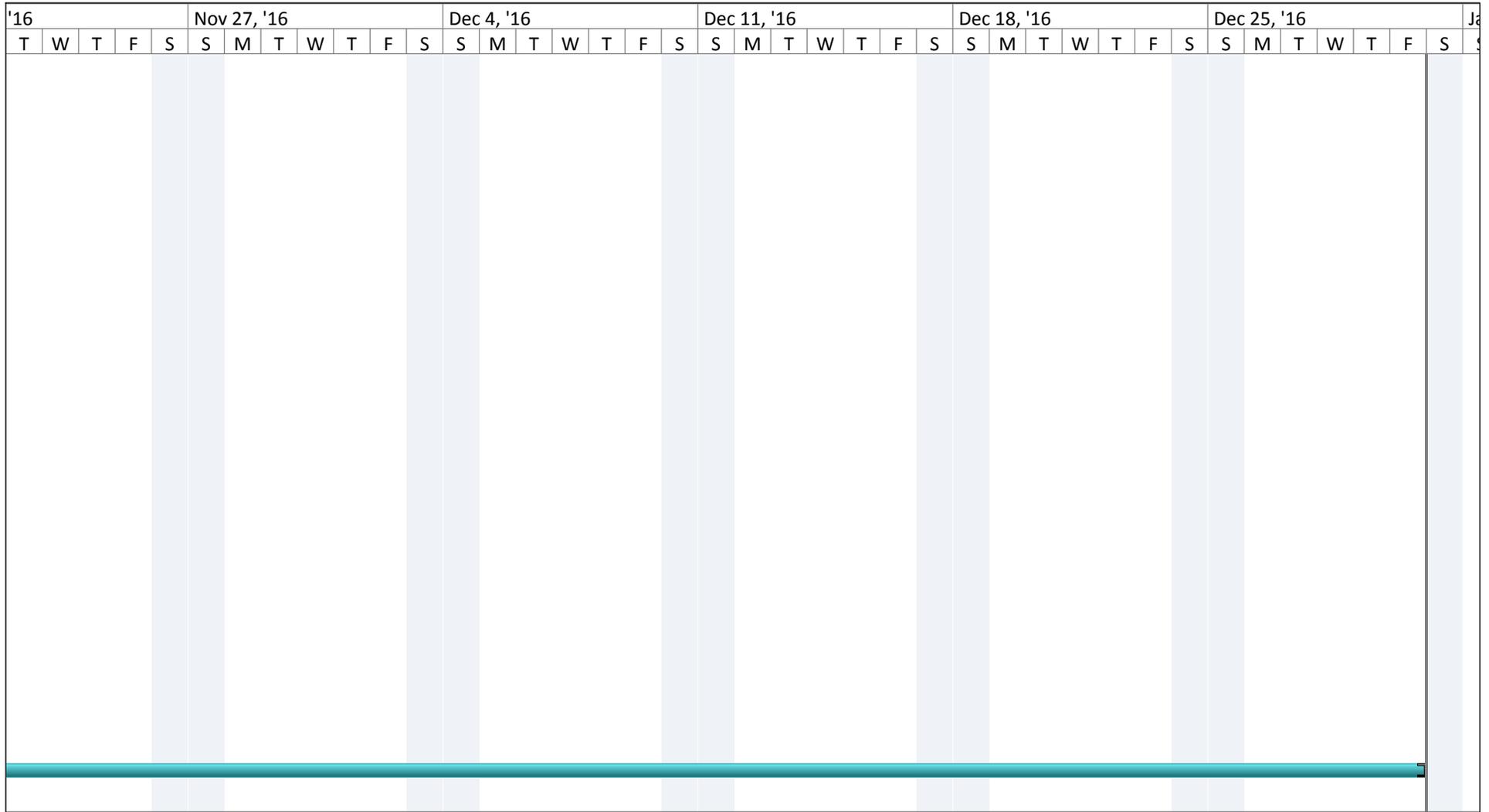
Project: Project Plan - Strategy 1 -
Date: Mon 12/21/15

Task		External Milestone		Manual Summary Rollup	
Split		Inactive Task		Manual Summary	
Milestone		Inactive Milestone		Start-only	
Summary		Inactive Summary		Finish-only	
Project Summary		Manual Task		Deadline	
External Tasks		Duration-only		Progress	

			Oct 16, '16							Oct 23, '16							Oct 30, '16							Nov 6, '16							Nov 13, '16							Nov 20, '16		
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Project: Project Plan - Strategy 1 - Date: Mon 12/21/15	Task		External Milestone		Manual Summary Rollup	
	Split		Inactive Task		Manual Summary	
	Milestone		Inactive Milestone		Start-only	
	Summary		Inactive Summary		Finish-only	
	Project Summary		Manual Task		Deadline	
	External Tasks		Duration-only		Progress	



Project: Project Plan - Strategy 1 -
Date: Mon 12/21/15

Task		External Milestone		Manual Summary Rollup	
Split		Inactive Task		Manual Summary	
Milestone		Inactive Milestone		Start-only	
Summary		Inactive Summary		Finish-only	
Project Summary		Manual Task		Deadline	
External Tasks		Duration-only		Progress	

'16					Nov 27, '16					Dec 4, '16					Dec 11, '16					Dec 18, '16					Dec 25, '16					Ja										
T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S



Project: Project Plan - Strategy 1 - Date: Mon 12/21/15	Task		External Milestone		Manual Summary Rollup	
	Split		Inactive Task		Manual Summary	
	Milestone		Inactive Milestone		Start-only	
	Summary		Inactive Summary		Finish-only	
	Project Summary		Manual Task		Deadline	
	External Tasks		Duration-only		Progress	

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Nov 1, '16		
							S	S	M
1		Objective 1: Hire CBCM Teams							
2		Information Gathering (Plan)							
3		Develop Job Descriptions	23 days	Sun 11/1/15	Tue 12/1/15				
4		Confirm start dates	24 days	Mon 6/13/16	Thu 7/14/16	12			
5		Identify temporary resources	24 days	Tue 12/1/15	Fri 1/1/16				
6		Identify office locations (including HD & OOA)	24 days	Tue 12/1/15	Fri 1/1/16				
7									
8		Acquire Resources (Do)							
9		Post Jobs	45 days	Wed 12/2/15	Tue 2/2/16	3			
10		Deploy Temporary RN/ CHWs	45 days	Tue 12/1/15	Mon 2/1/16				
11		Interview Candidates	45 days	Wed 2/3/16	Tue 4/5/16	9			
12		Extend Offers	48 days	Wed 4/6/16	Fri 6/10/16	11			
13		Acquire CBCM Team IT - Laptops/ Phones	49 days	Tue 12/1/15	Fri 2/5/16				
14		Determine team regional deployment	50 days	Tue 12/1/15	Sat 2/6/16				
15									
16		Review Performance (Check)							
17		Conduct 90-day evaluations of team	110 days	Tue 12/1/15	Sun 5/1/16				
18		Review Candidate Qualifications	110 days	Tue 12/1/15	Sun 5/1/16				
19									
20		Standardize new process (Act)							
21		Adjust Job Descriptions as needed	110 days	Tue 12/1/15	Sun 5/1/16				
22		Review regional deployment	110 days	Tue 12/1/15	Sun 5/1/16				
23									
24		Objective 2: Train CBCM Teams							
25		Information Gathering (Plan)							

Project: Project Work Plan - 12-16 Date: Mon 12/21/15	Task		External Milestone		Manual Summary Rollup	
	Split		Inactive Task		Manual Summary	
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	Summary		Inactive Summary		Finish-only	
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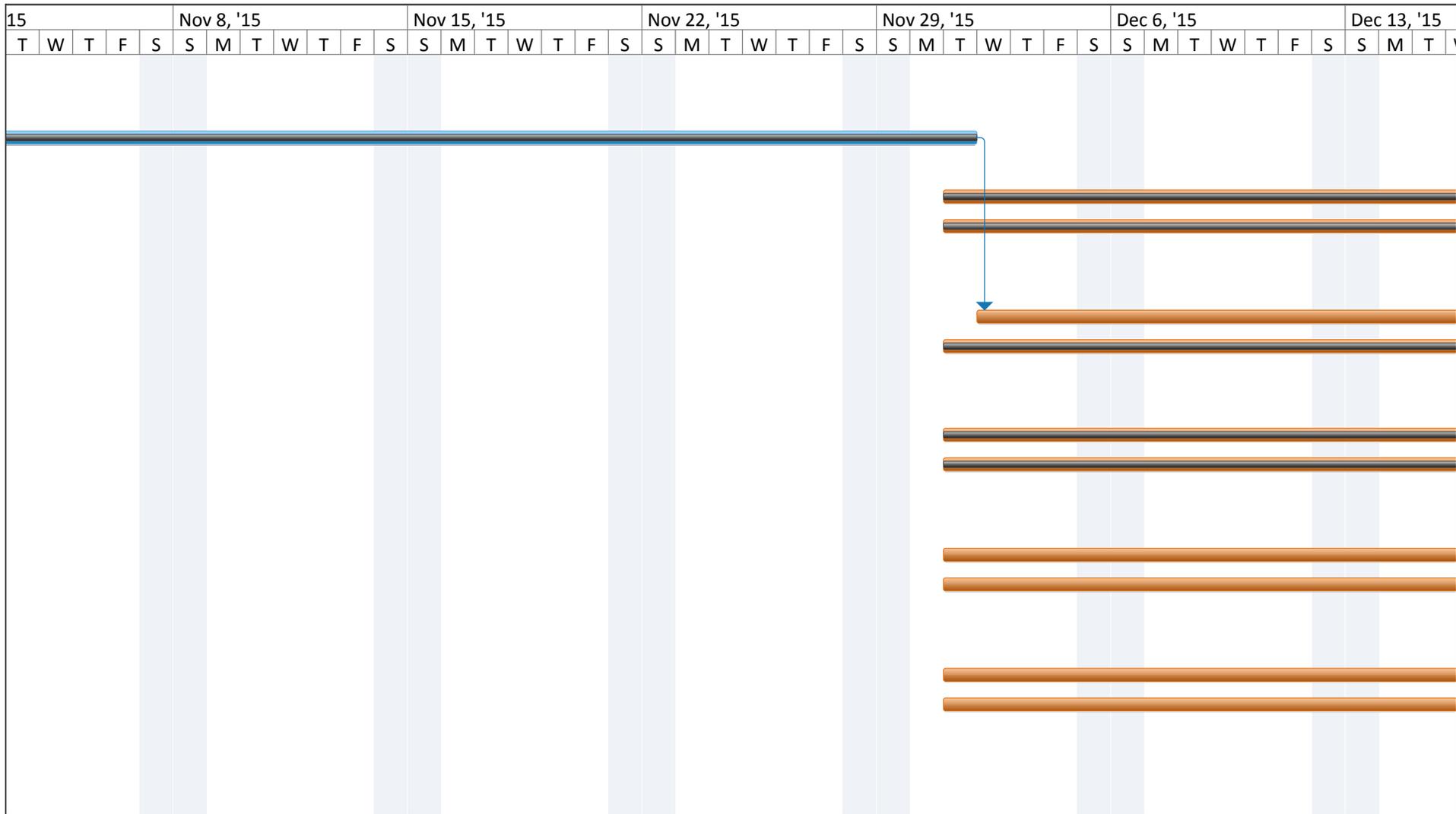
ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Nov 1, '15		
							S	S	M
26		Finalize Workflows	24 days	Tue 12/1/15	Fri 1/1/16				
27		Confirm referral processes	24 days	Tue 12/1/15	Fri 1/1/16				
28		Research Training Programs	23 days	Sun 11/1/15	Tue 12/1/15				
29		Access Budget Impact	23 days	Sun 11/1/15	Tue 12/1/15				
30		Access impact on timeline	23 days	Sun 11/1/15	Tue 12/1/15				
31		Develop Community College Training Program	14 days	Tue 12/1/15	Fri 12/18/15				
32									
33		Update Business Processes (Do)							
34		Engage CHW training Program	45 days	Tue 12/1/15	Mon 2/1/16				
35		Complete " Train the Trainer " Course	66 days	Tue 12/1/15	Tue 3/1/16				
36		Complete RN Motivation Intv. Training	66 days	Tue 12/1/15	Tue 3/1/16				
37		Shadow in PDC	66 days	Tue 12/1/15	Tue 3/1/16				
38		Conduct PCP Outreach	89 days	Tue 12/1/15	Fri 4/1/16				
39									
40		Review Performance (Check)							
41		Conduct 90-day review	110 days	Tue 12/1/15	Sun 5/1/16				
42		Review Operating Metrics	110 days	Tue 12/1/15	Sun 5/1/16				
43									
44		Standardize new process (Act)							
45		Augment Training as needed for social & Mental Health Needs							
46		Develop PCP marketing tools as needed						38	
47									
48		Objective 3: CRISP Care Management & Secure Texting							
49		Information Gathering (Plan)							
50		Draft Implementation Work Plans	34 days	Tue 12/1/15	Fri 1/15/16				

Project: Project Work Plan - 12-16
Date: Mon 12/21/15

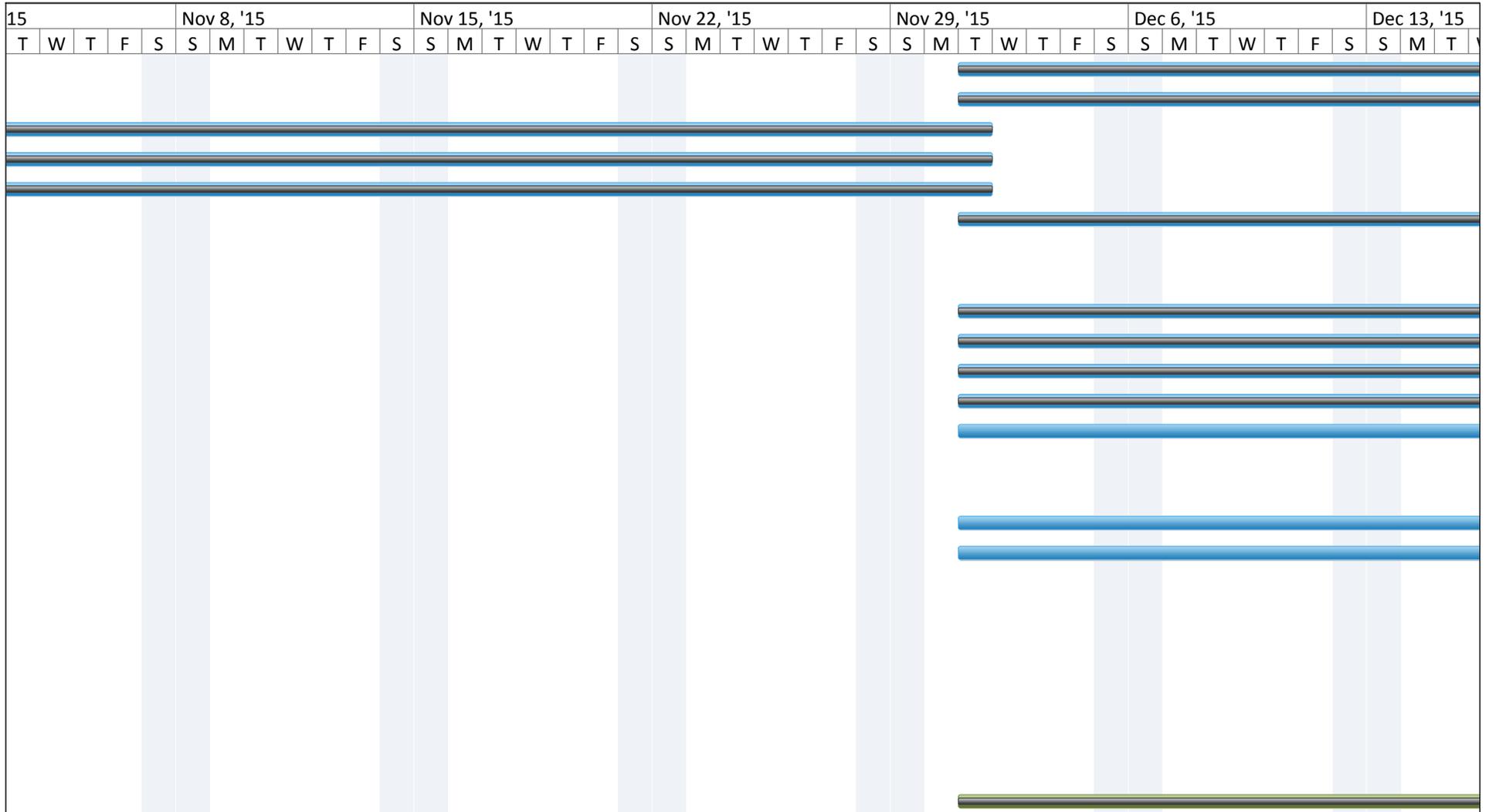
Task		External Milestone		Manual Summary Rollup	
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Milestone		Inactive Milestone		Start-only	
Summary		Inactive Summary		Finish-only	
Project Summary		Manual Task		Deadline	
External Tasks		Duration-only		Progress	

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Nov 1, '15		
							S	S	M
51									
52		Update Business Processes (Do)							
53		Deploy Mirth Care Management	89 days	Tue 12/1/15	Fri 4/1/16				
54		Provide User Access	89 days	Tue 12/1/15	Fri 4/1/16				
55		Deploy Secure texting							
56									
57		Review Performance (Check)							
58		Provide System Feedback on Templates & Display	285 days	Tue 12/1/15	Sat 12/31/16				
59									
60		Standardize new process (Act)							
61		Tweak workflows as needed	285 days	Tue 12/1/15	Sat 12/31/16				

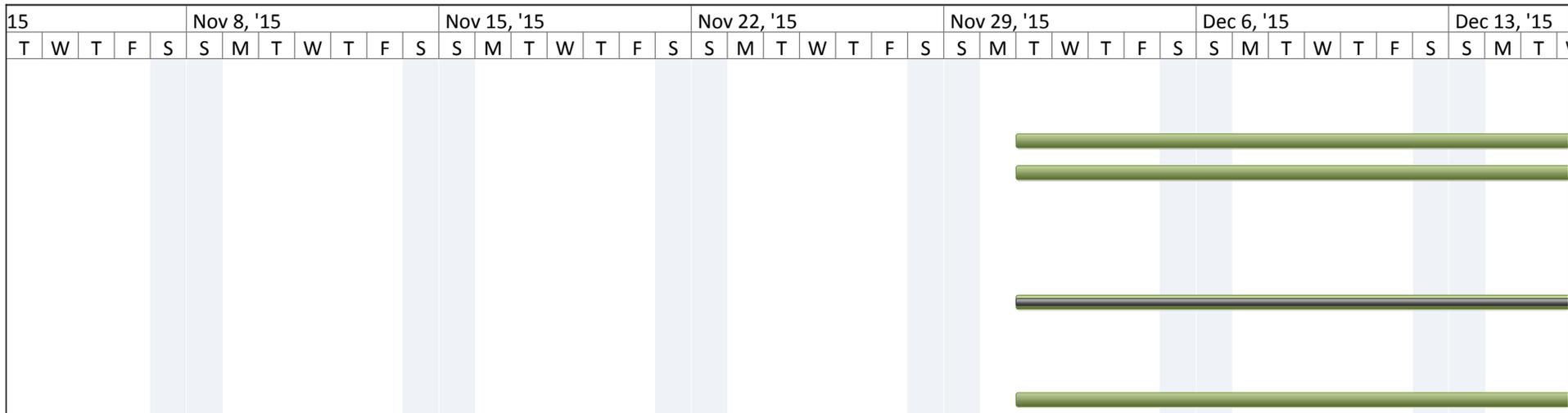
Project: Project Work Plan - 12-16 Date: Mon 12/21/15	Task		External Milestone		Manual Summary Rollup	
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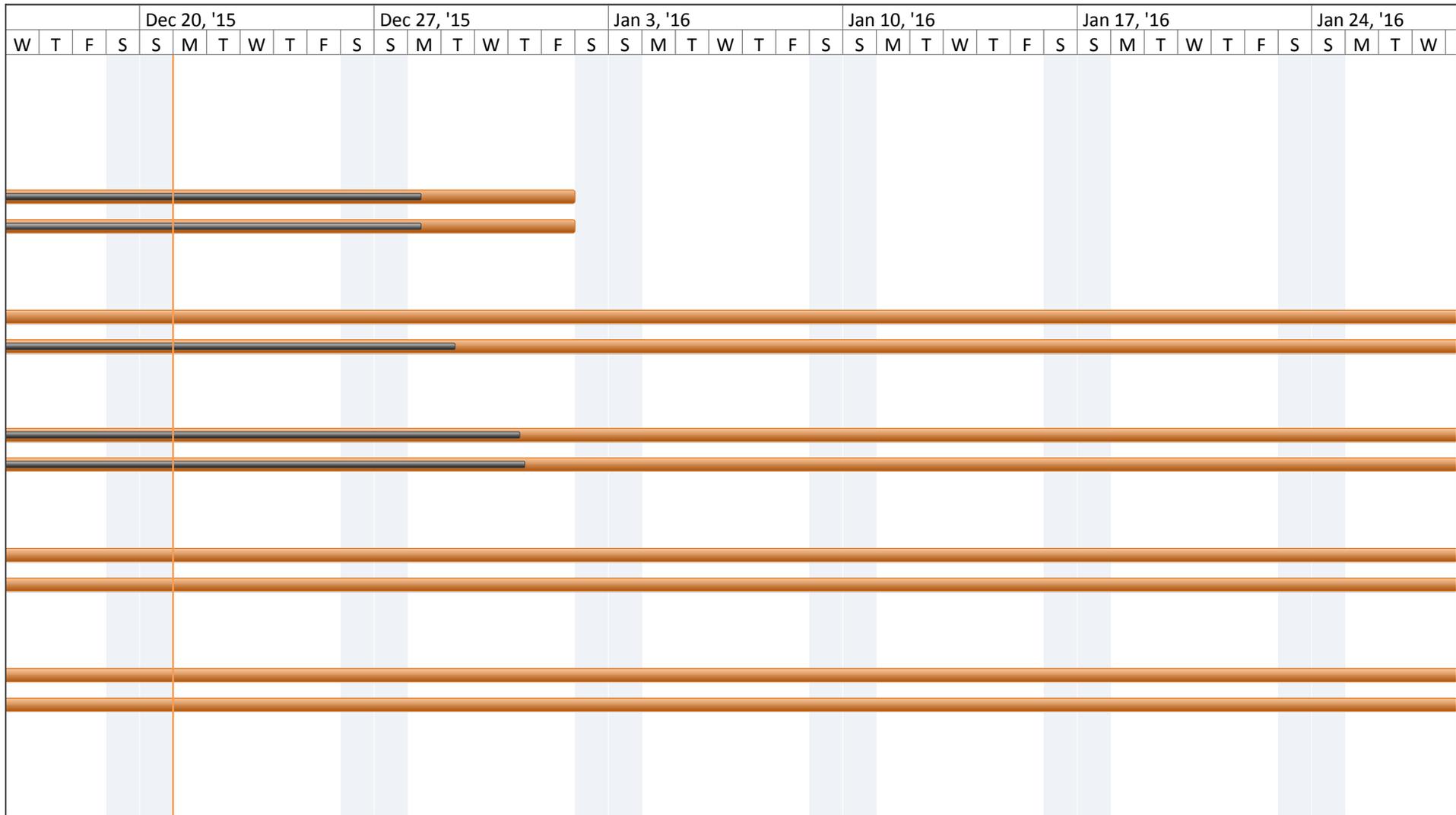
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	Summary		Inactive Summary		Finish-only	
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	External Tasks		Duration-only		Progress	



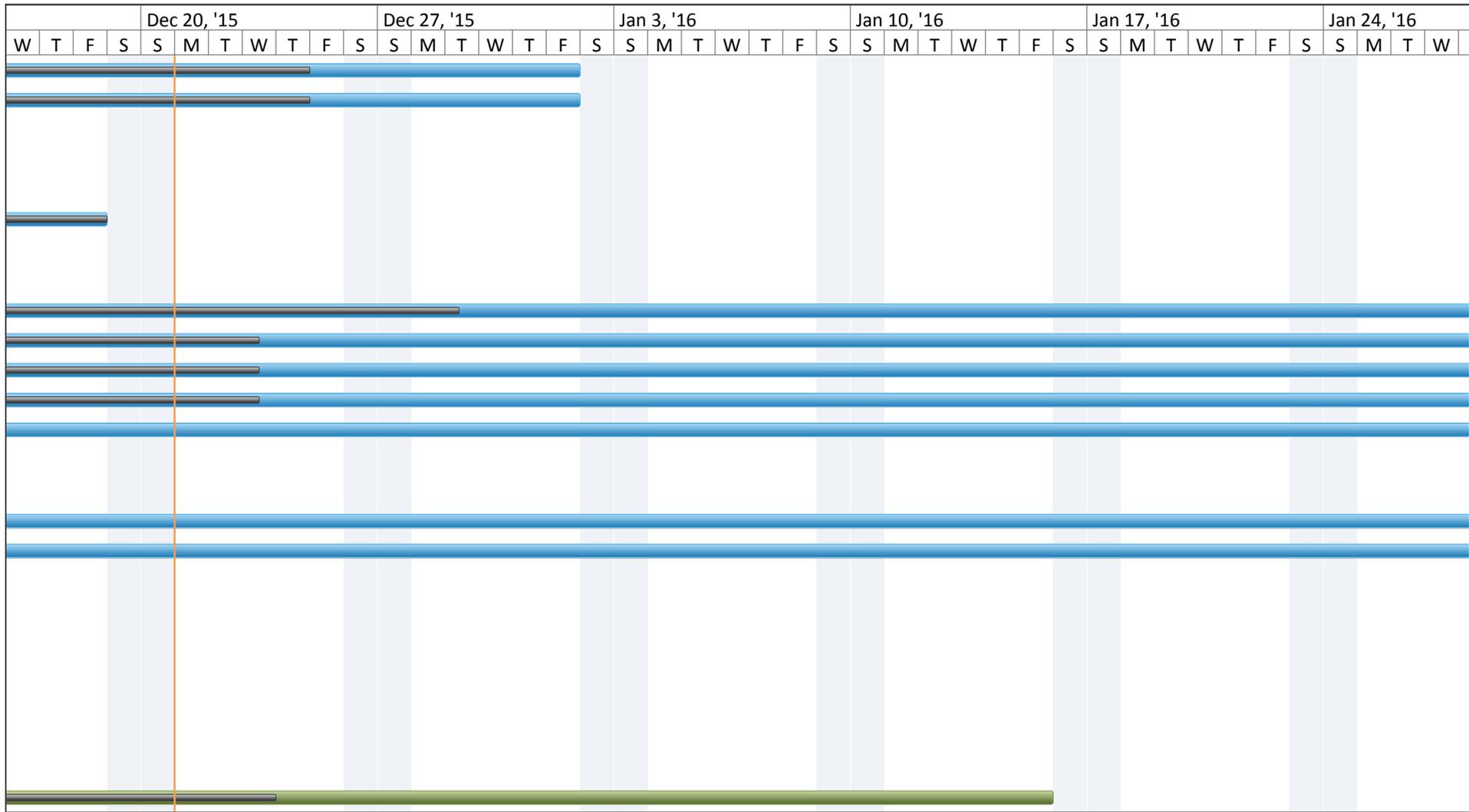
Project: Project Work Plan - 12-16 Date: Mon 12/21/15	Task		External Milestone		Manual Summary Rollup	
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	Summary		Inactive Summary		Finish-only	
	Project Summary		Manual Task		Deadline	
	External Tasks		Duration-only		Progress	



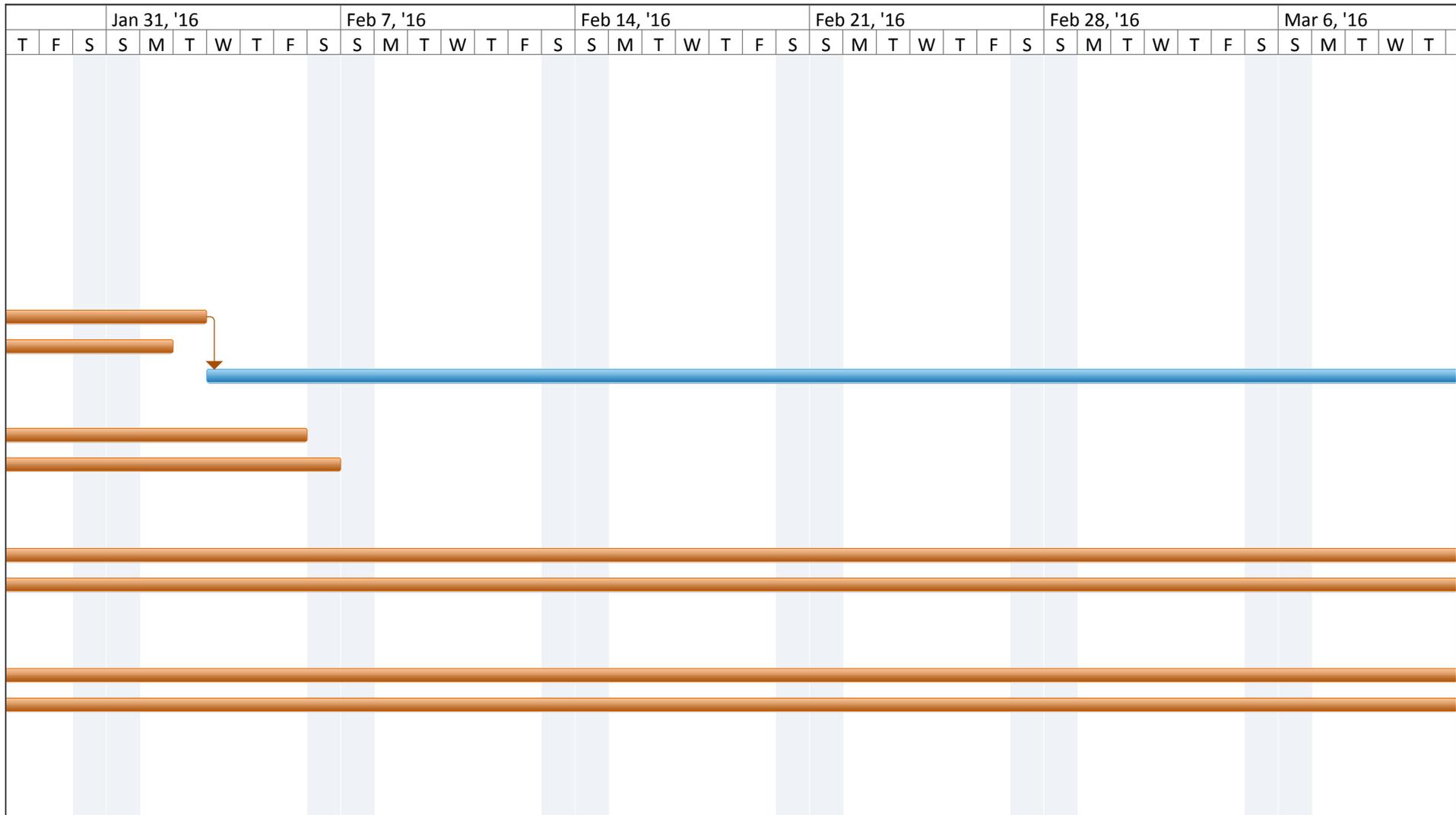
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	External Tasks		Duration-only		Progress	



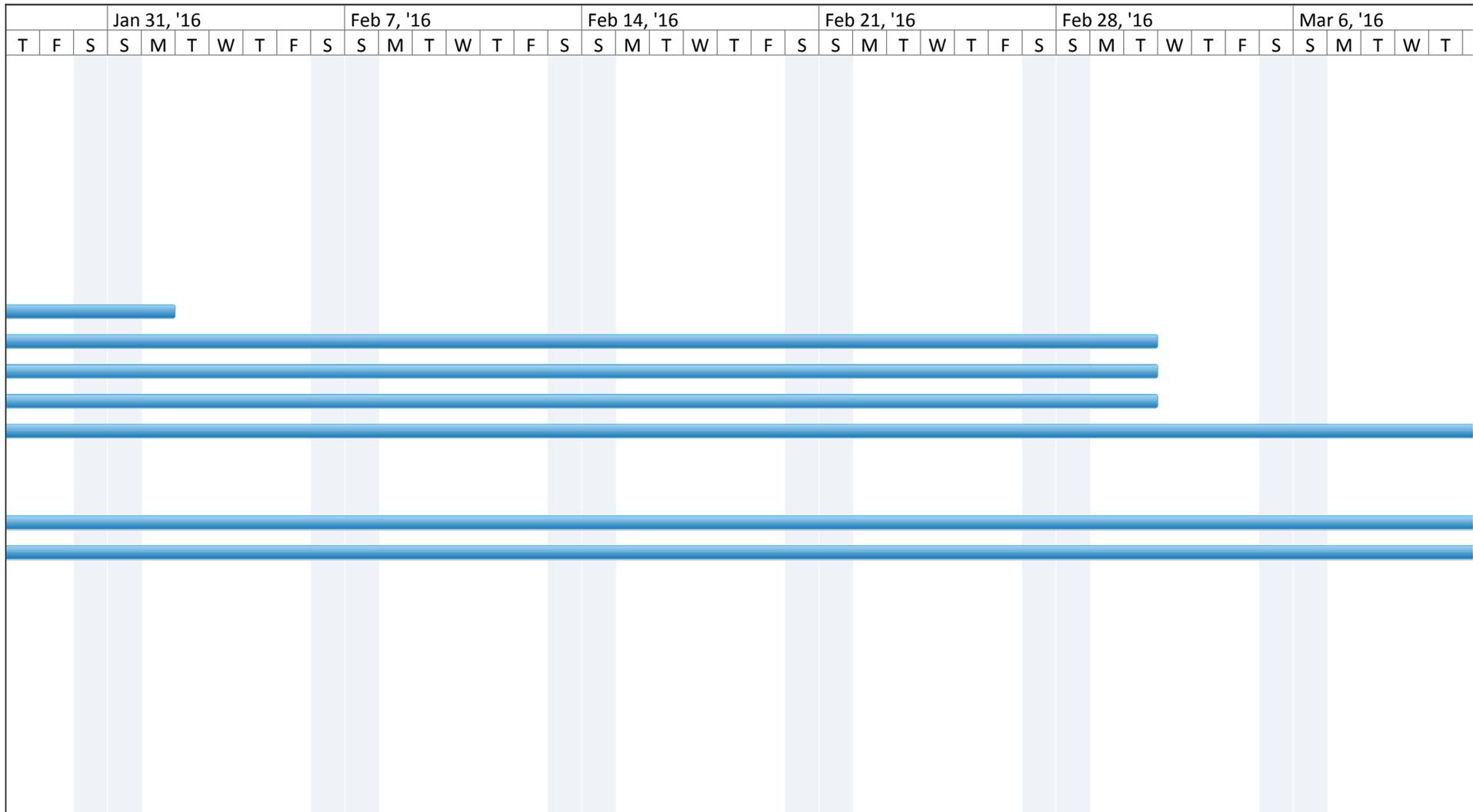
Project: Project Work Plan - 12-16 Date: Mon 12/21/15	Task		External Milestone		Manual Summary Rollup	
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	Summary		Inactive Summary		Finish-only	
	Project Summary		Manual Task		Deadline	
	External Tasks		Duration-only		Progress	



Project: Project Work Plan - 12-16 Date: Mon 12/21/15	Task		External Milestone		Manual Summary Rollup	
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	Project Summary		Manual Task		Deadline	
	External Tasks		Duration-only		Progress	

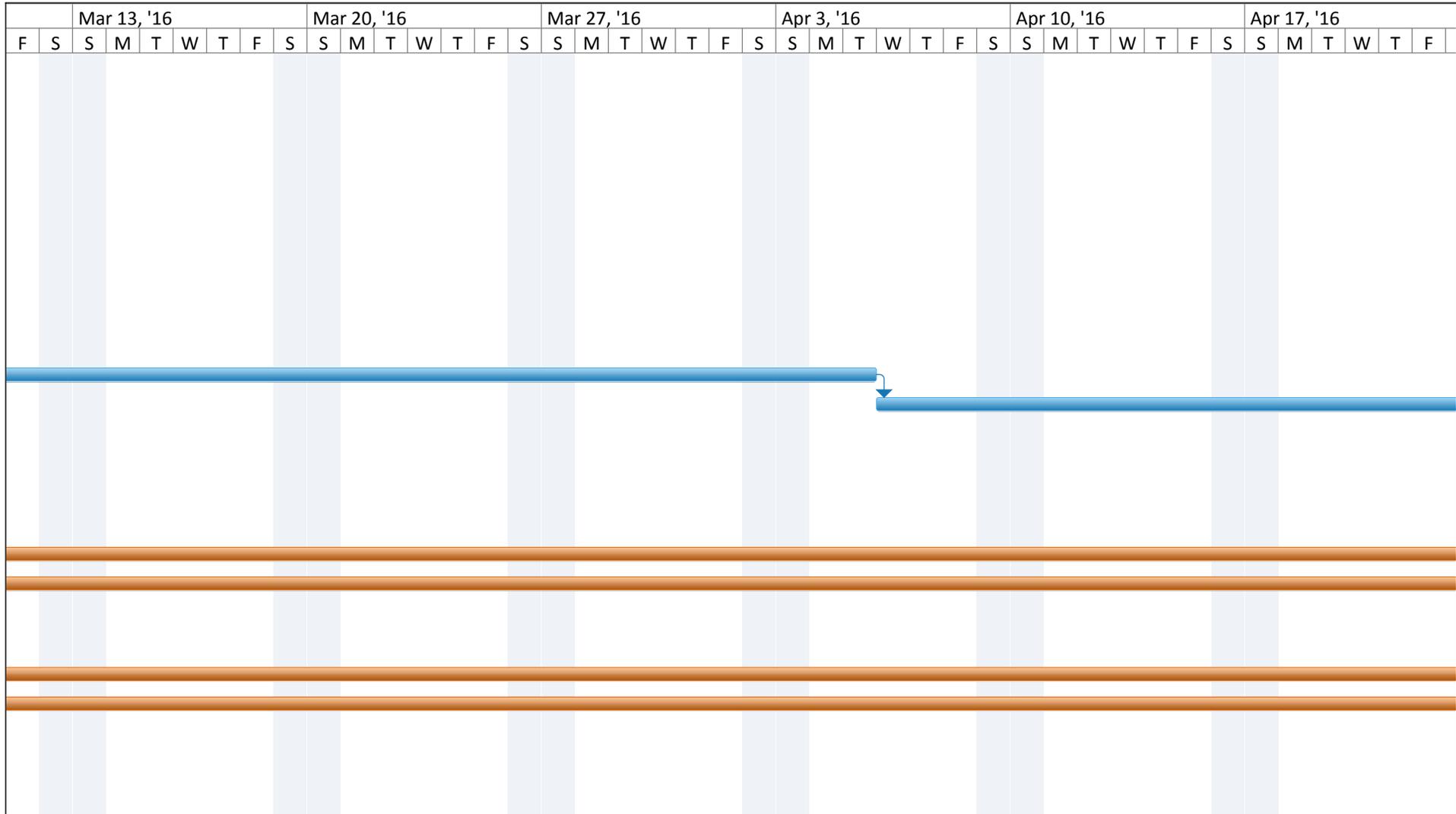


Project: Project Work Plan - 12-16 Date: Mon 12/21/15	Task		External Milestone		Manual Summary Rollup	
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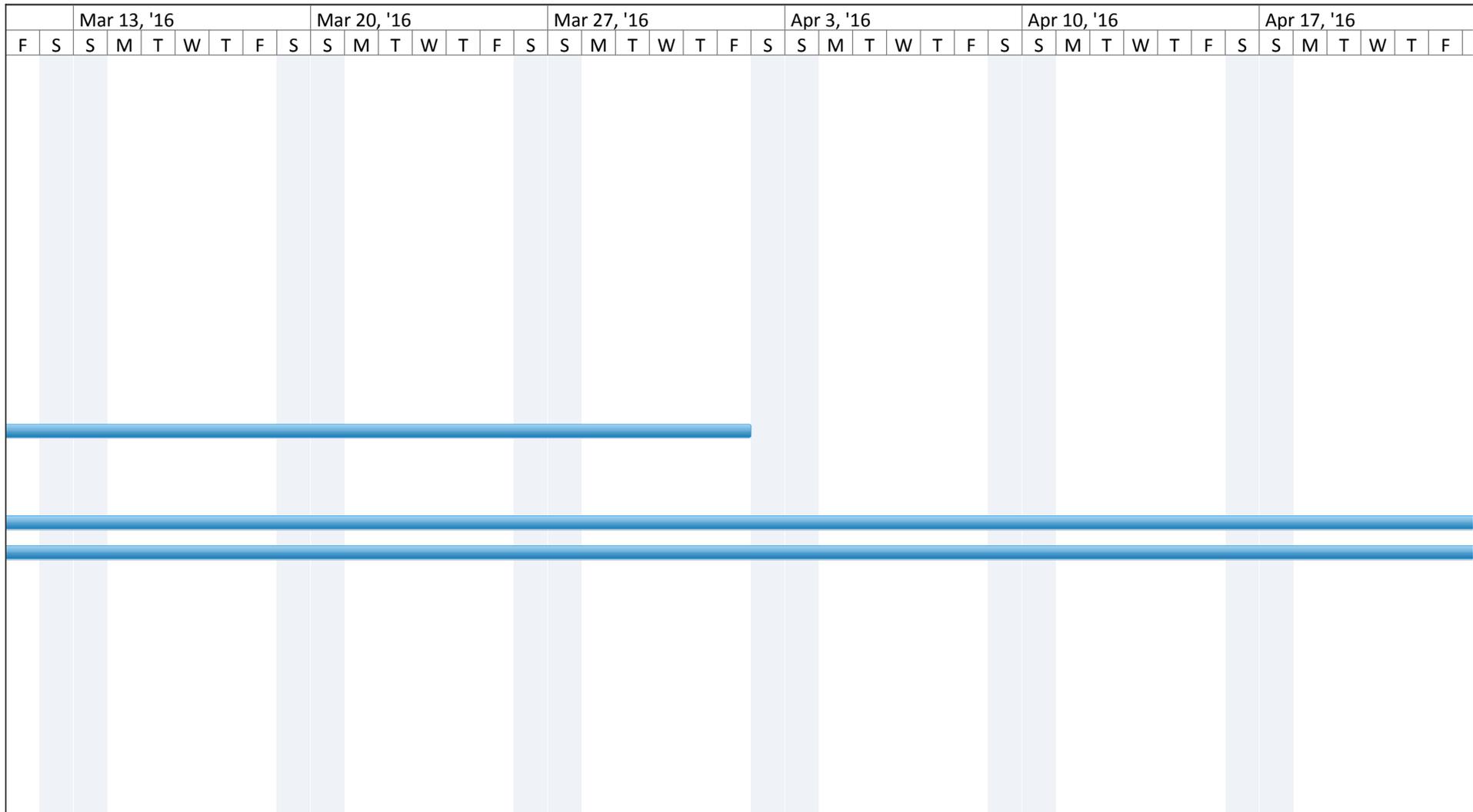


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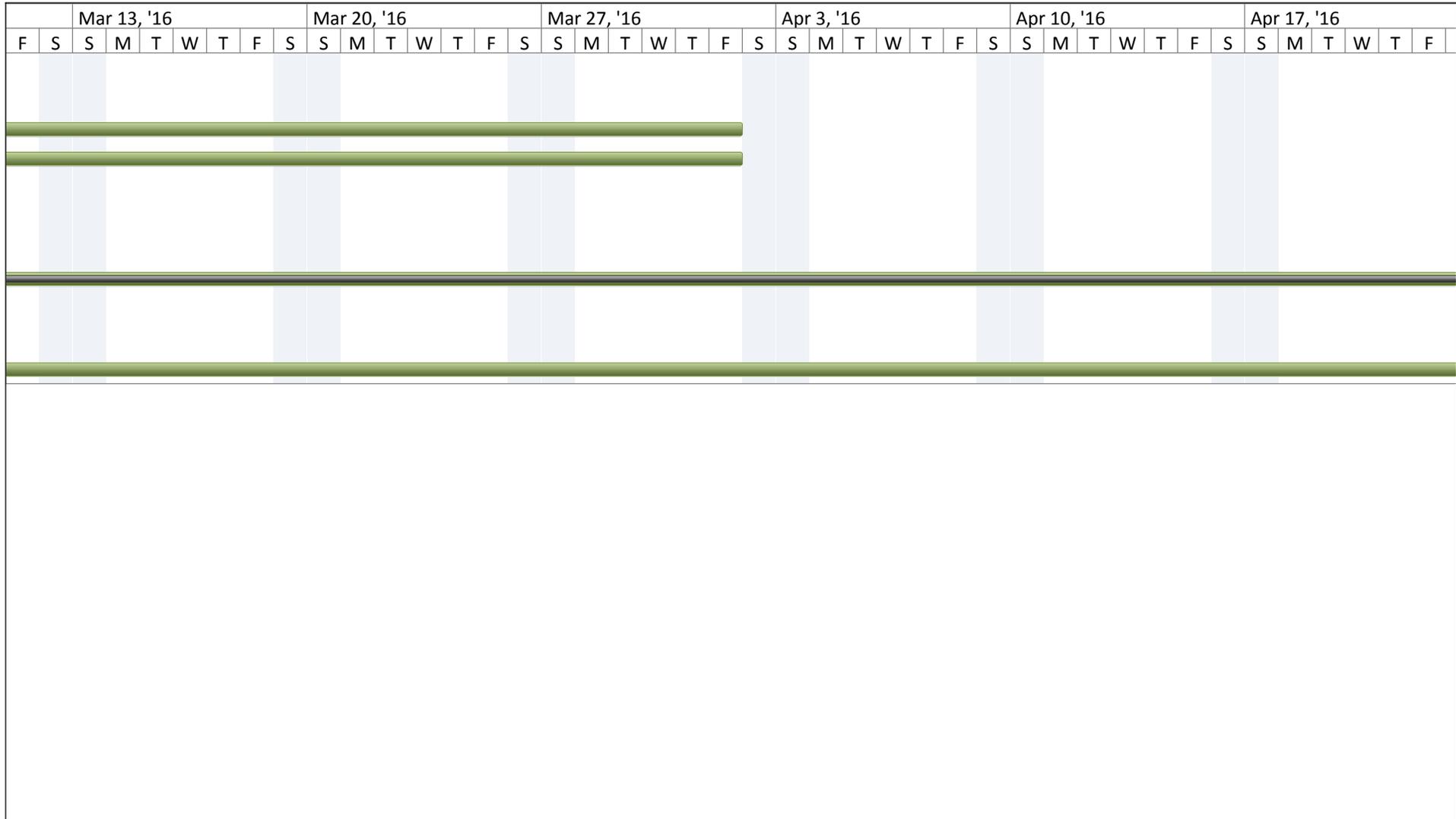
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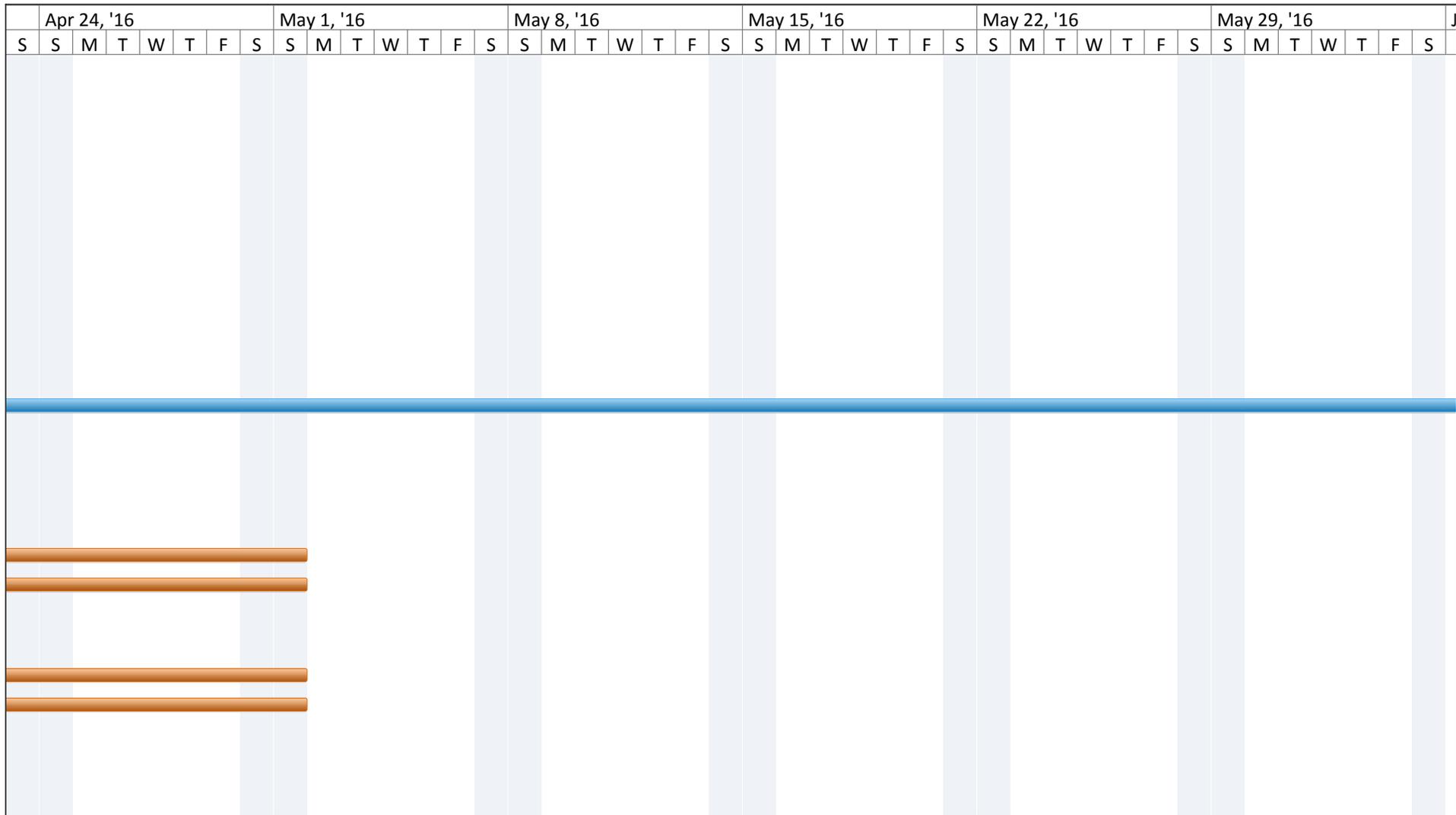


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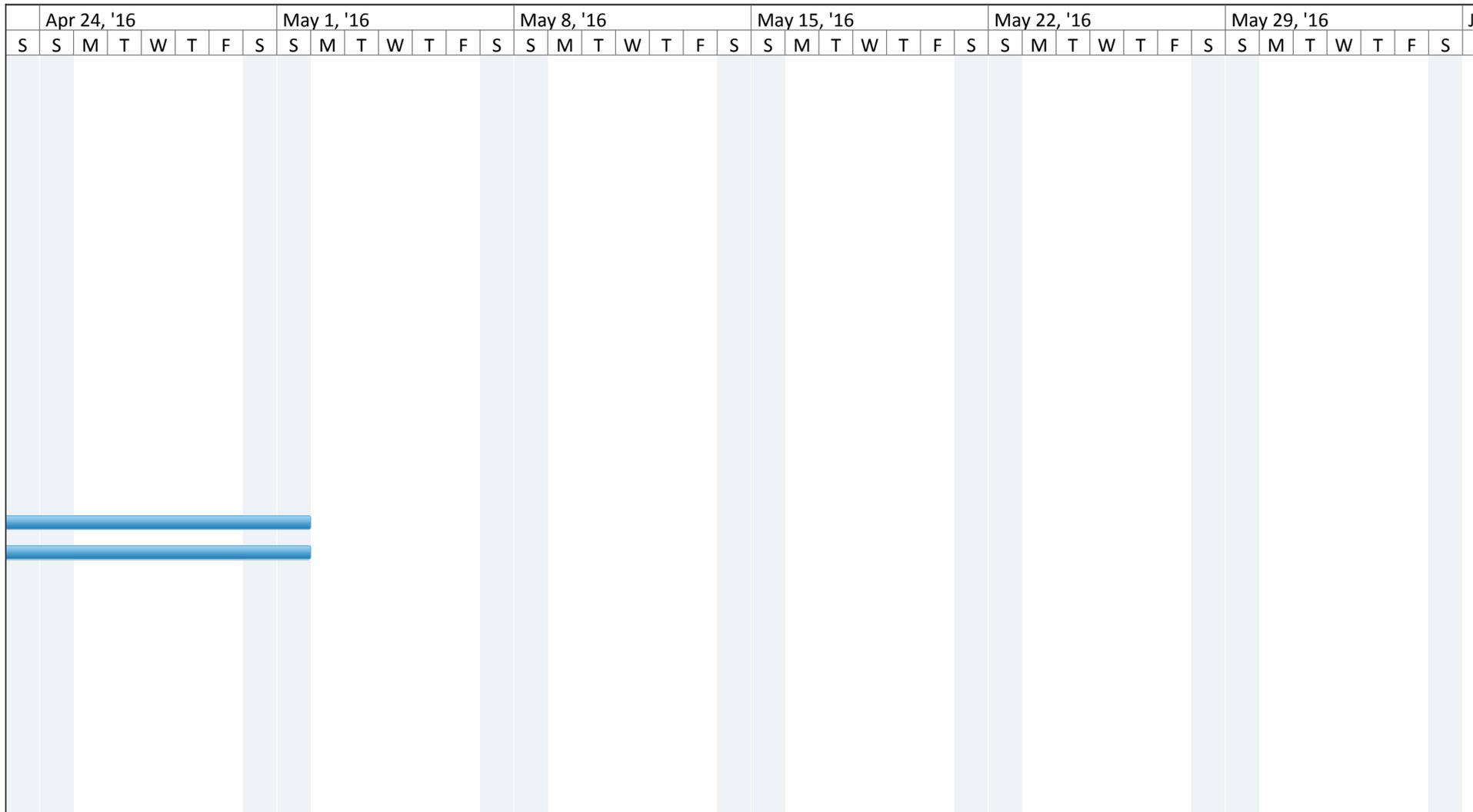


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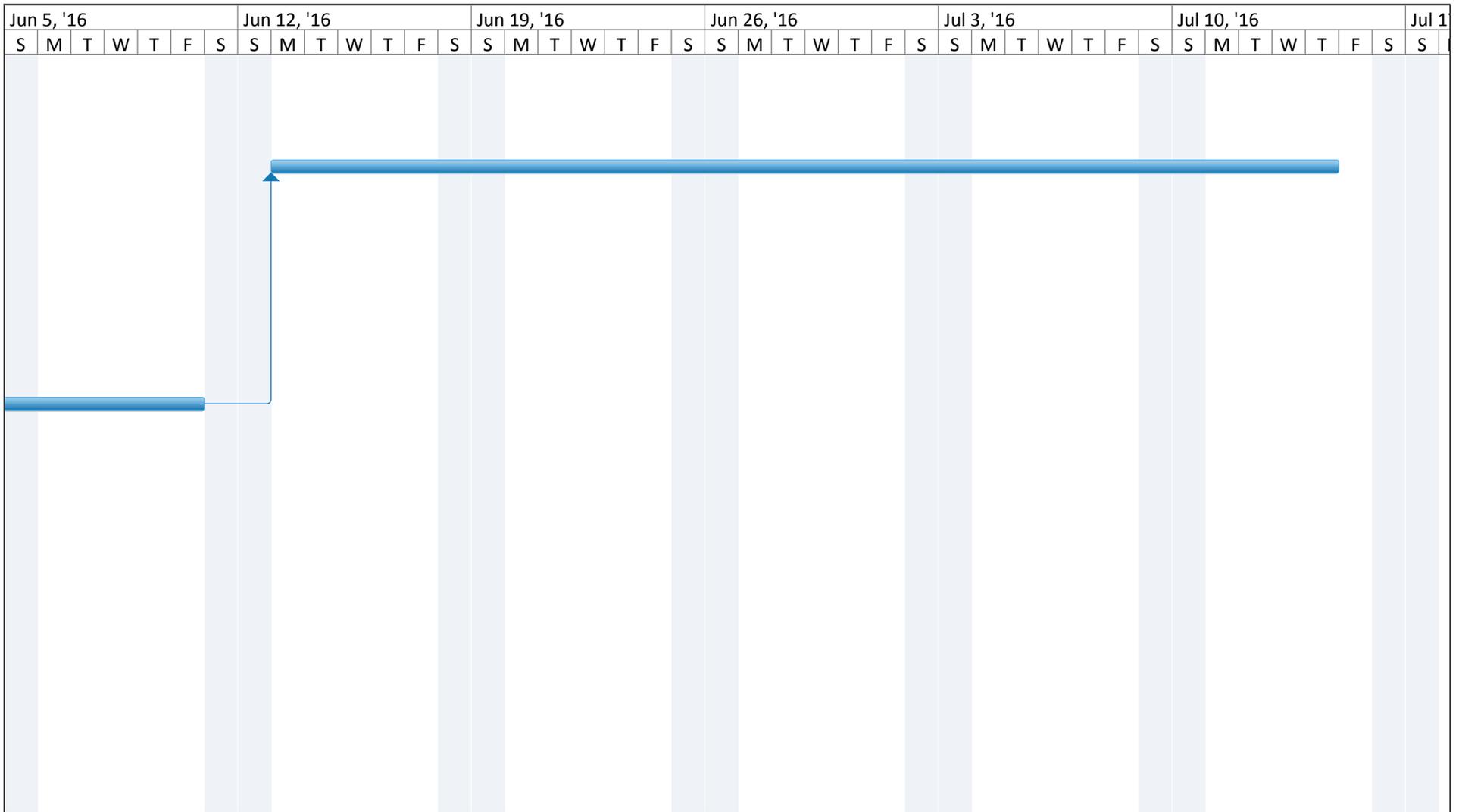
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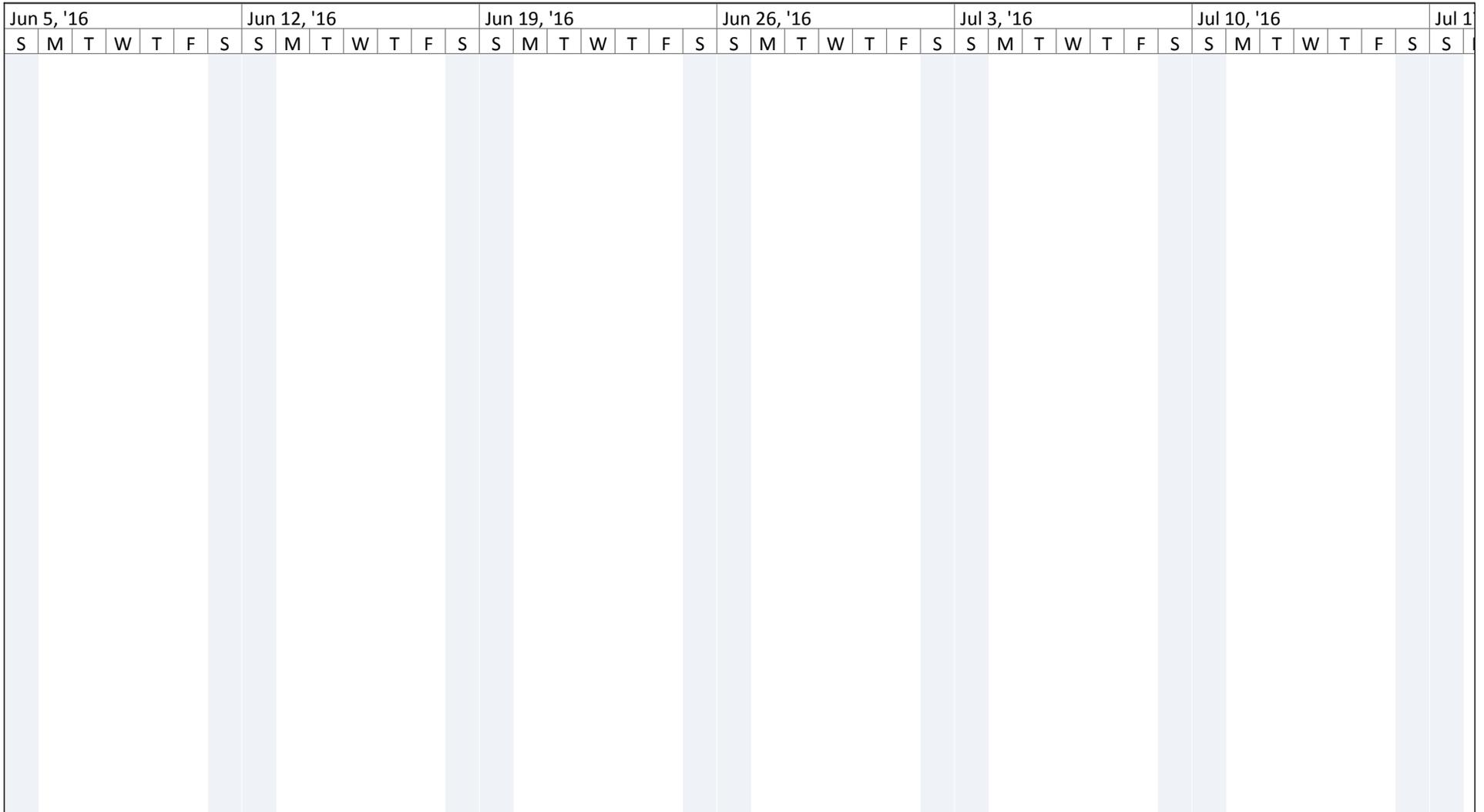
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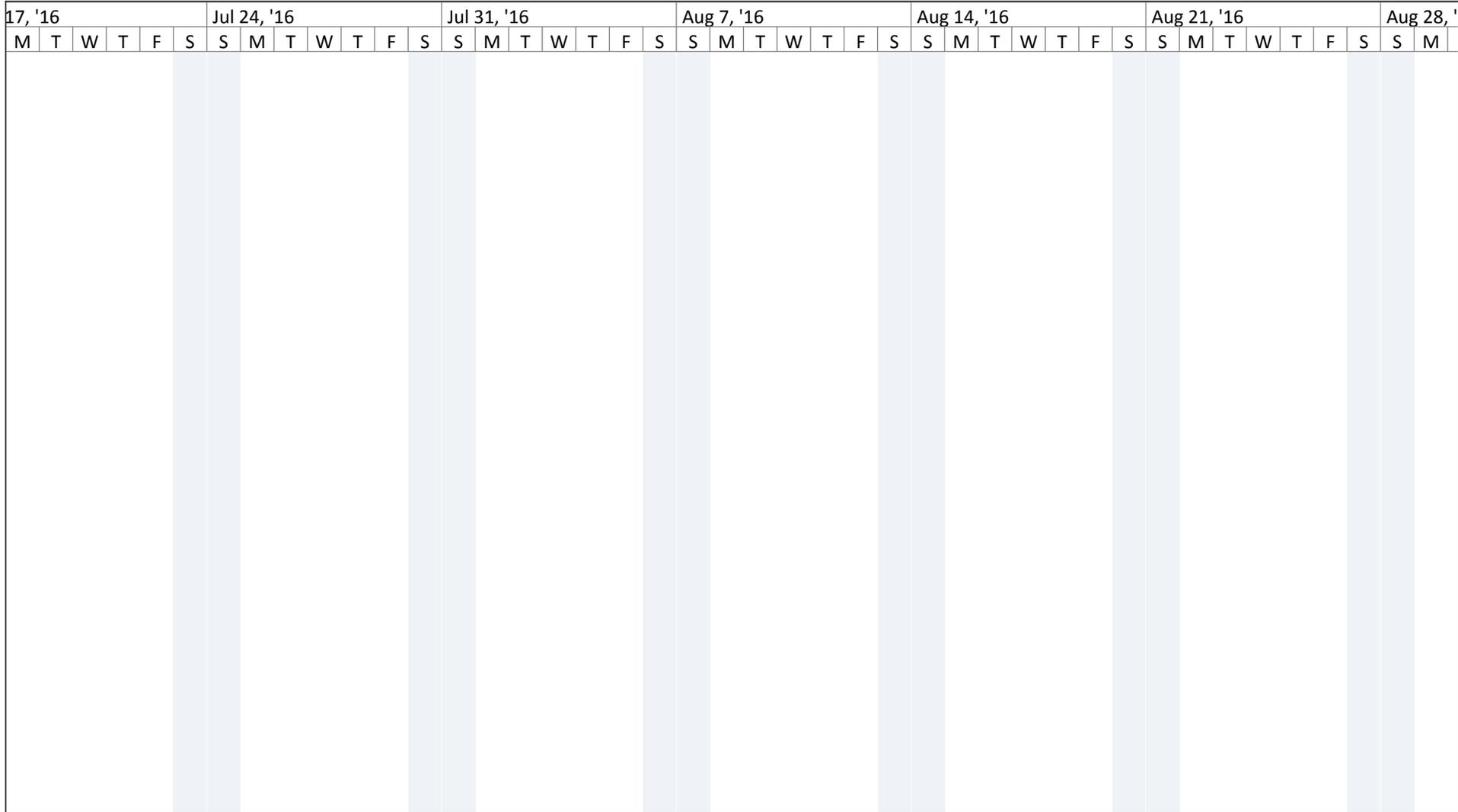
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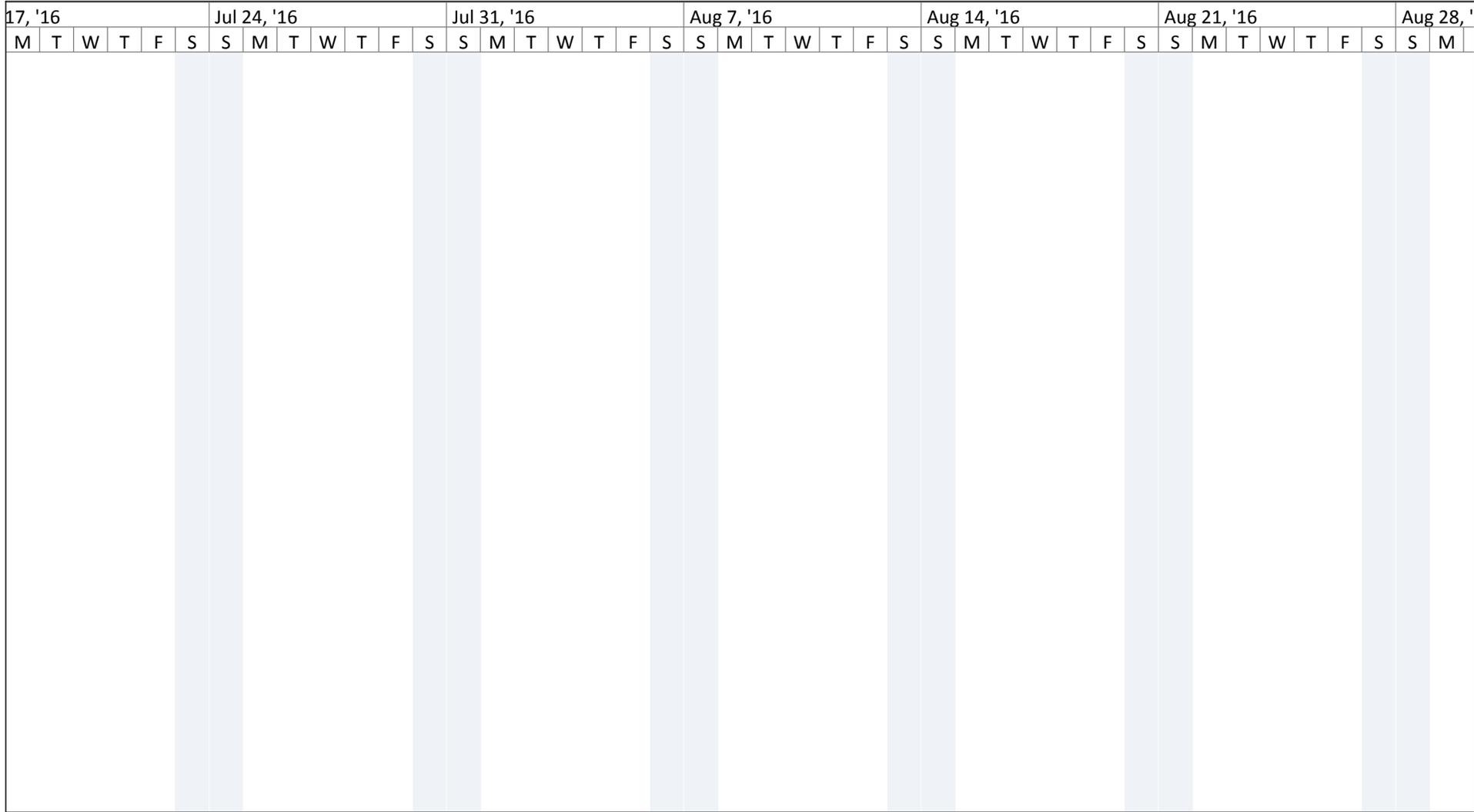
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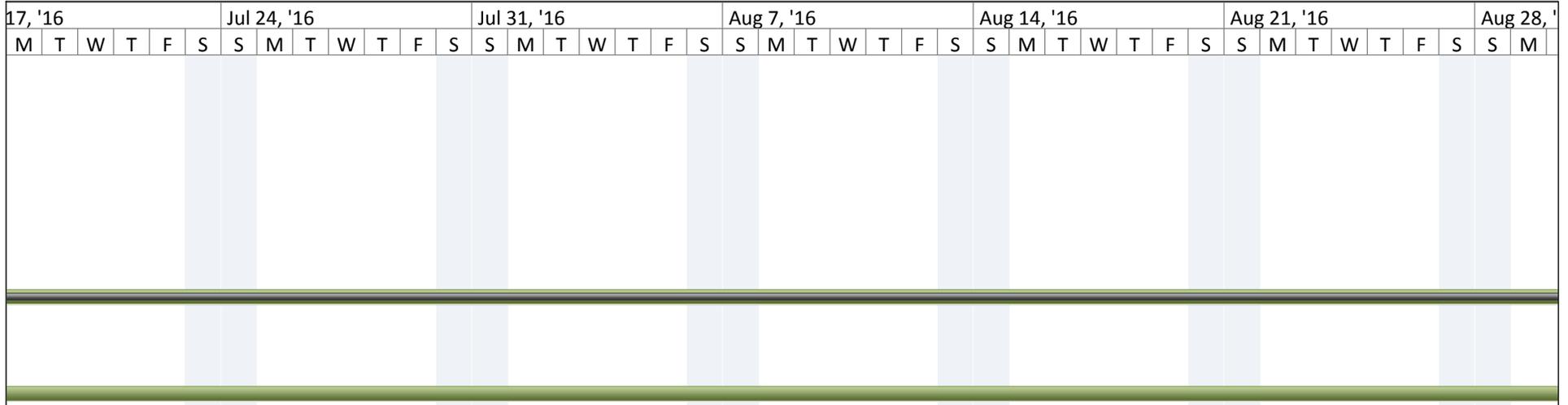
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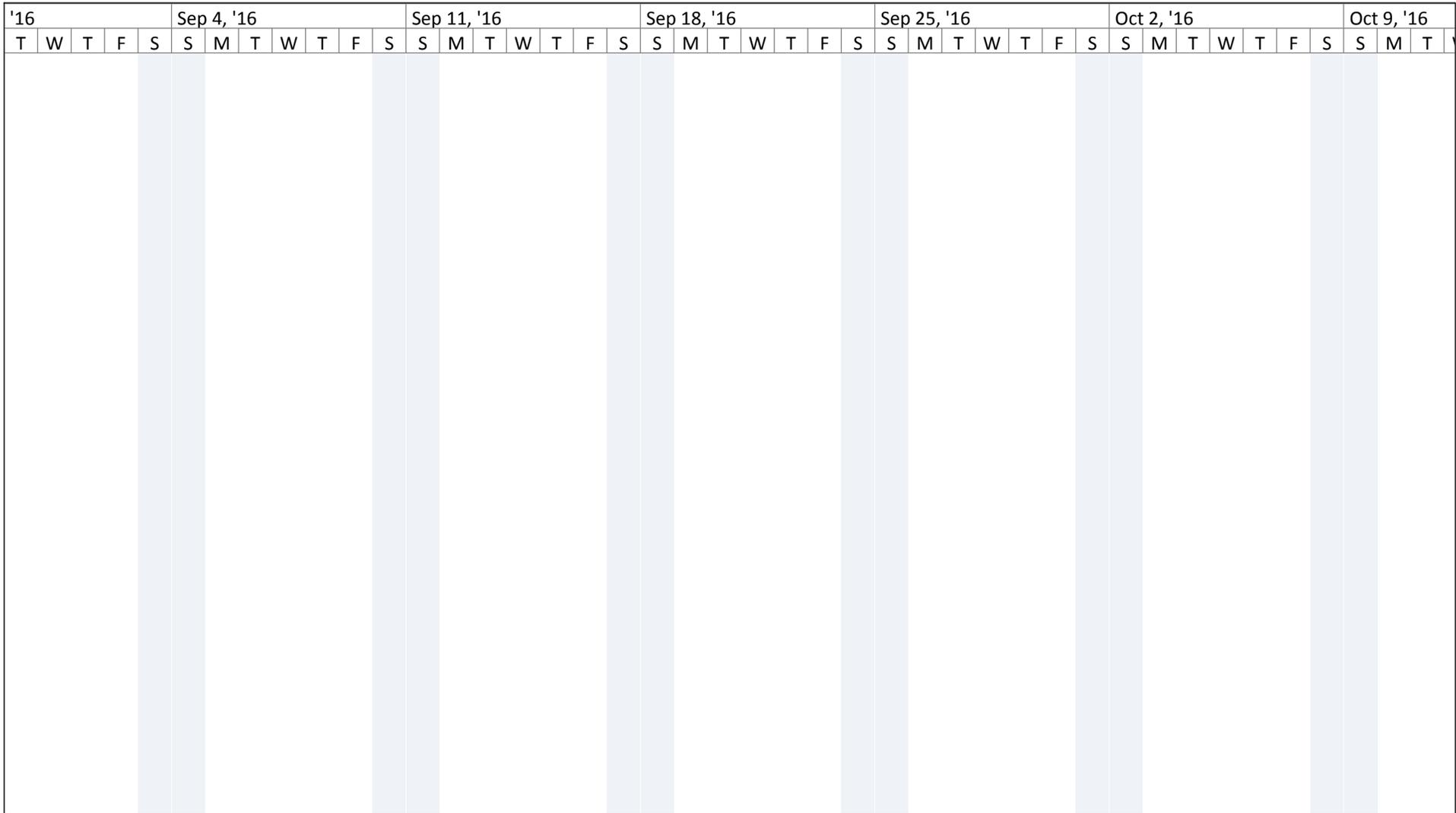


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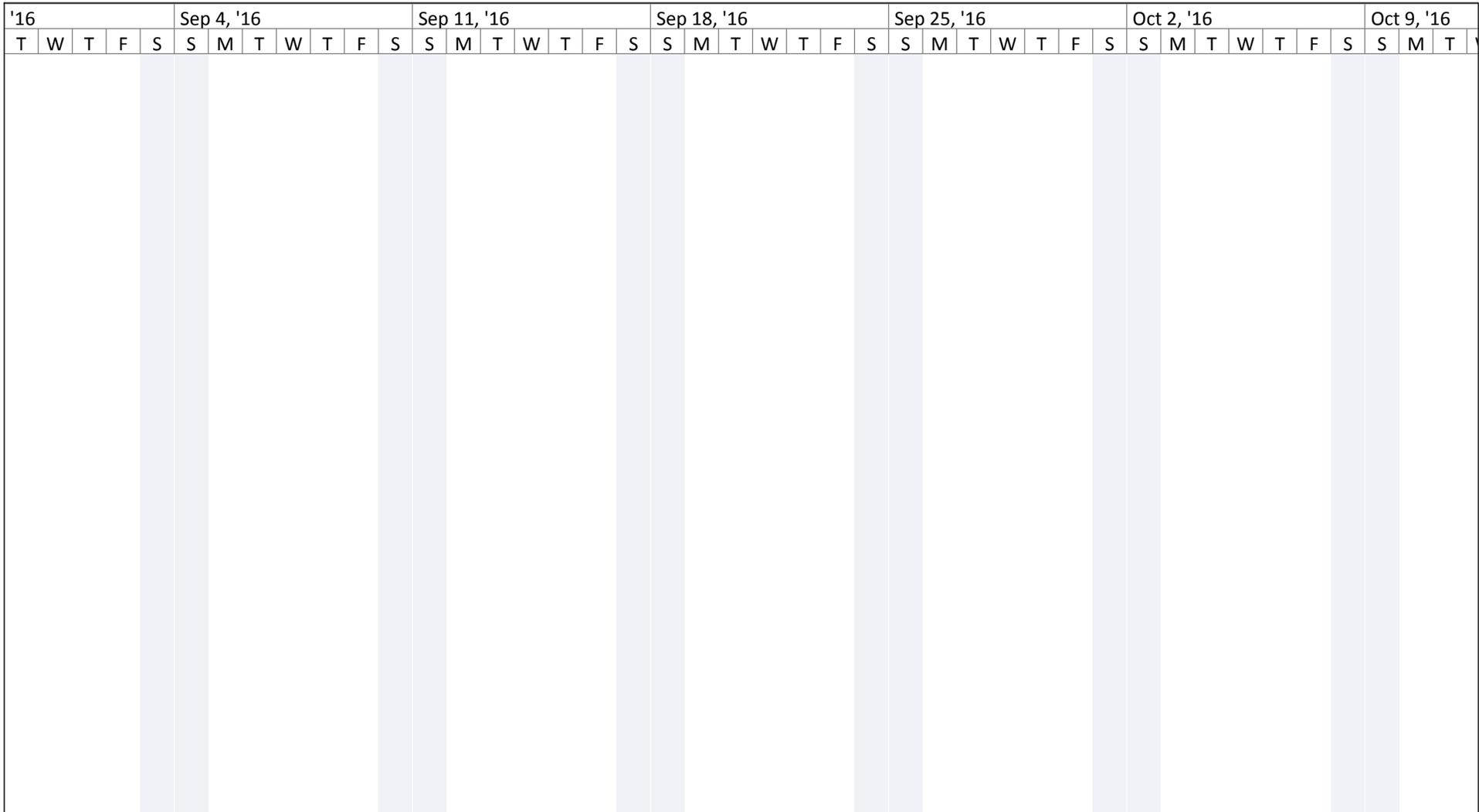


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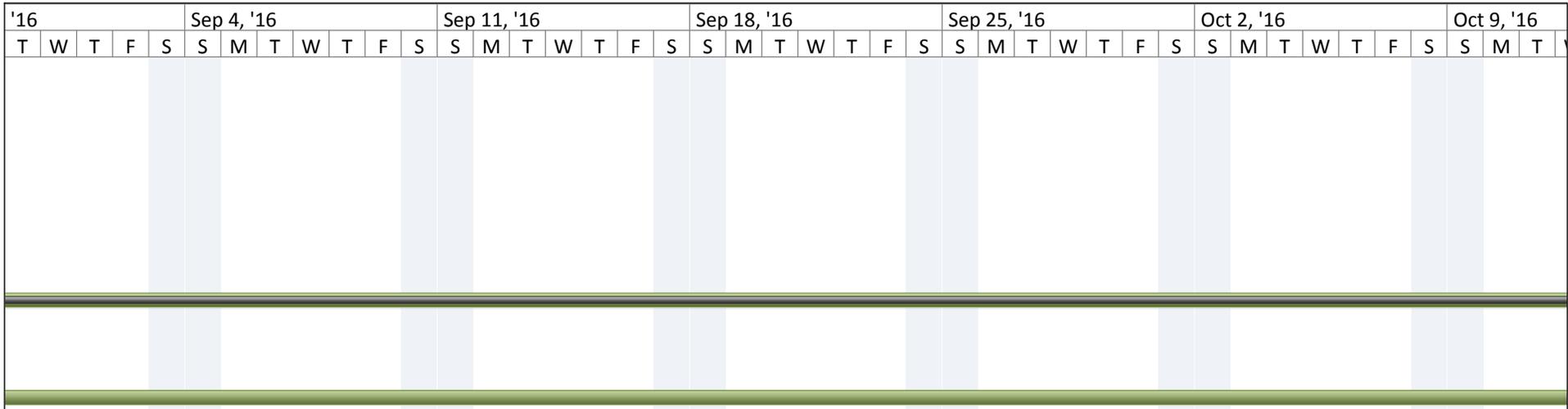
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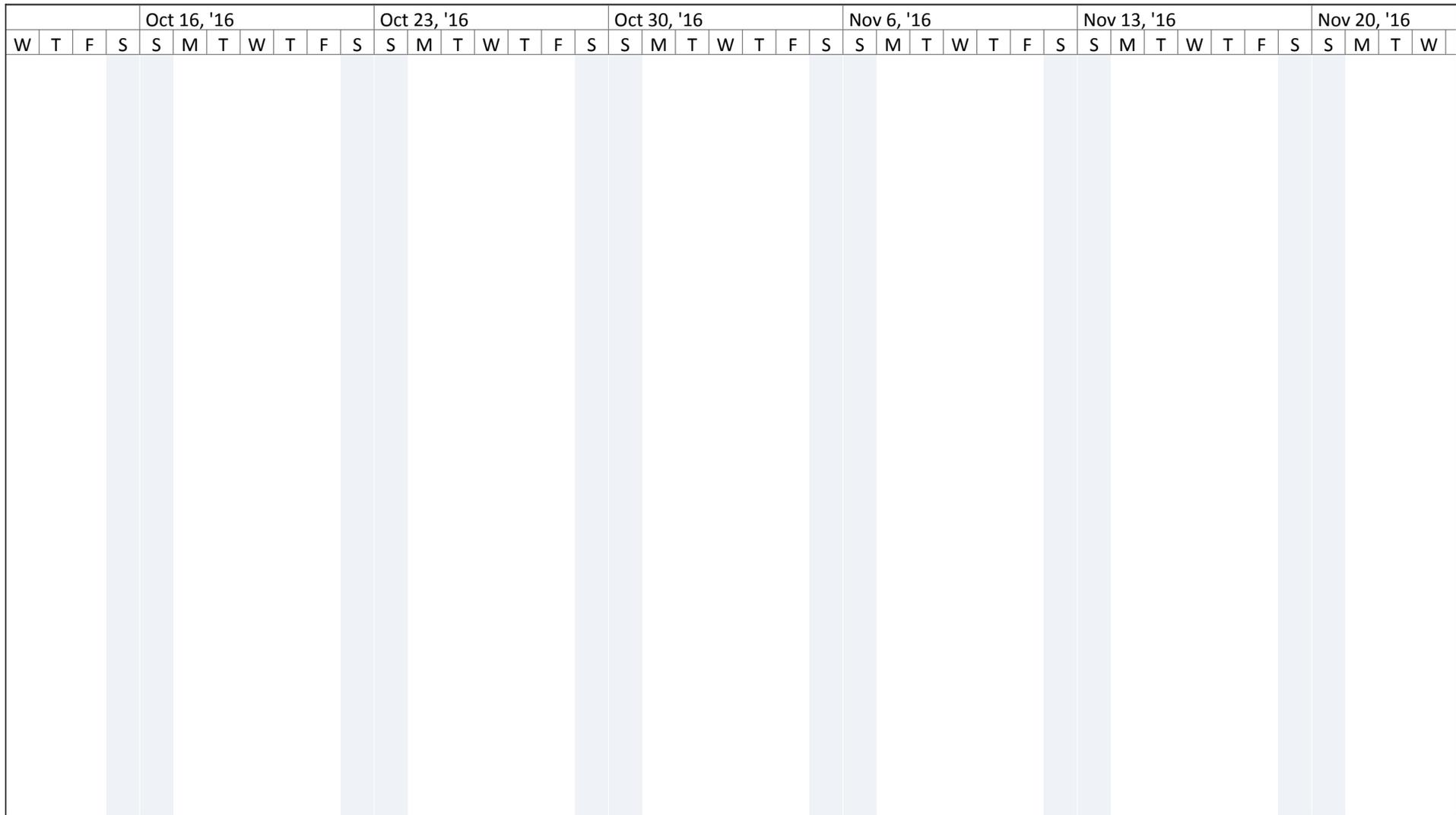


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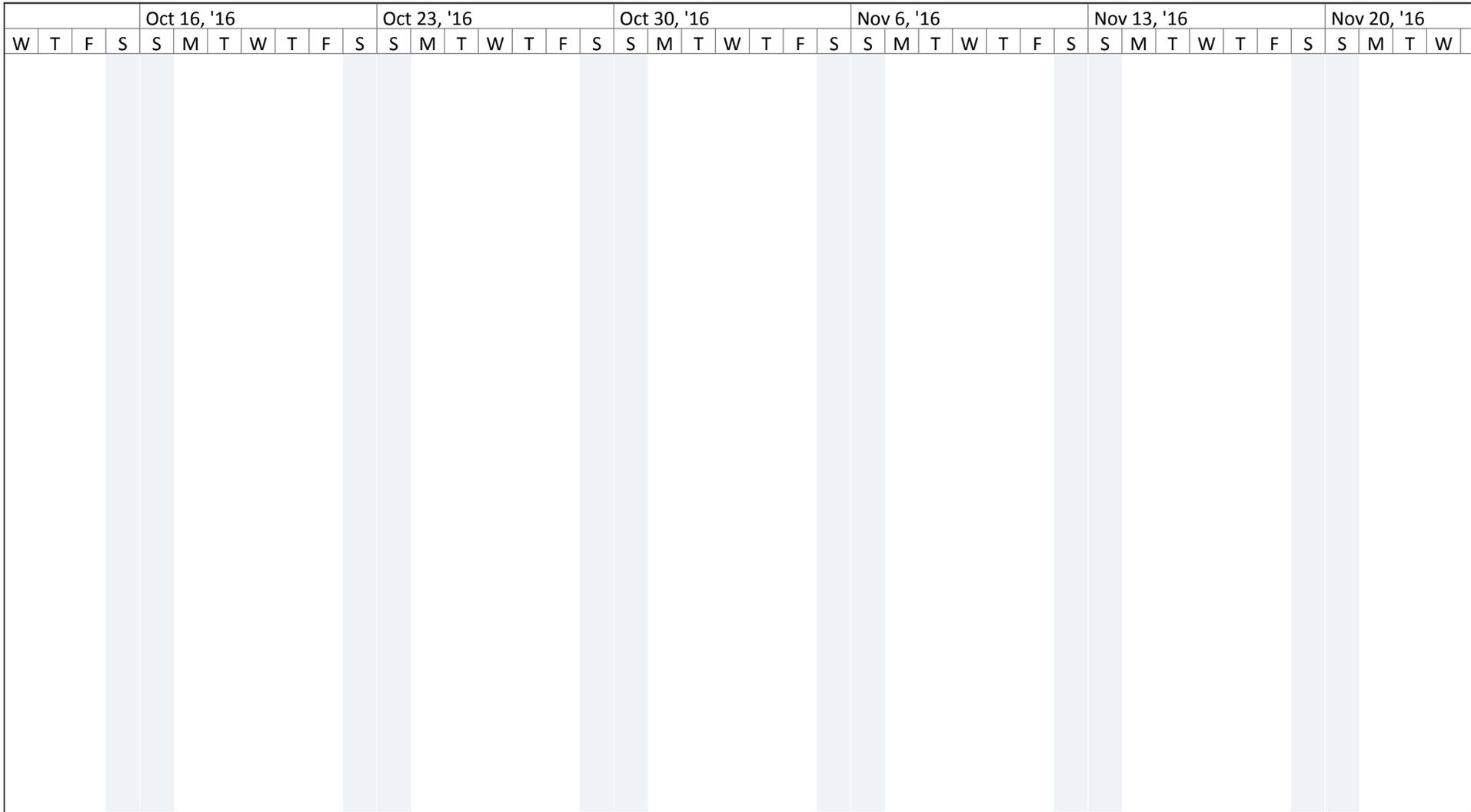
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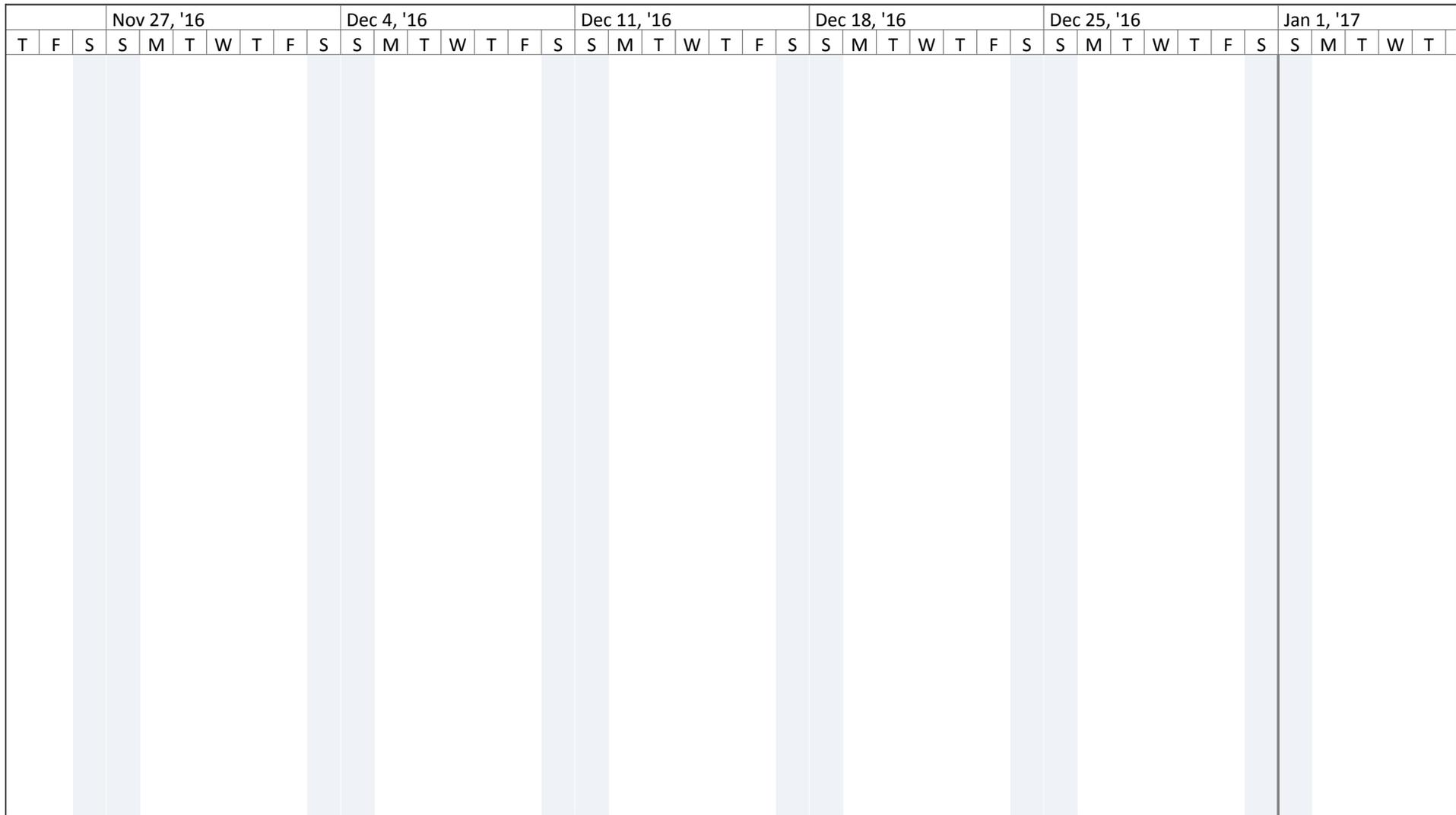
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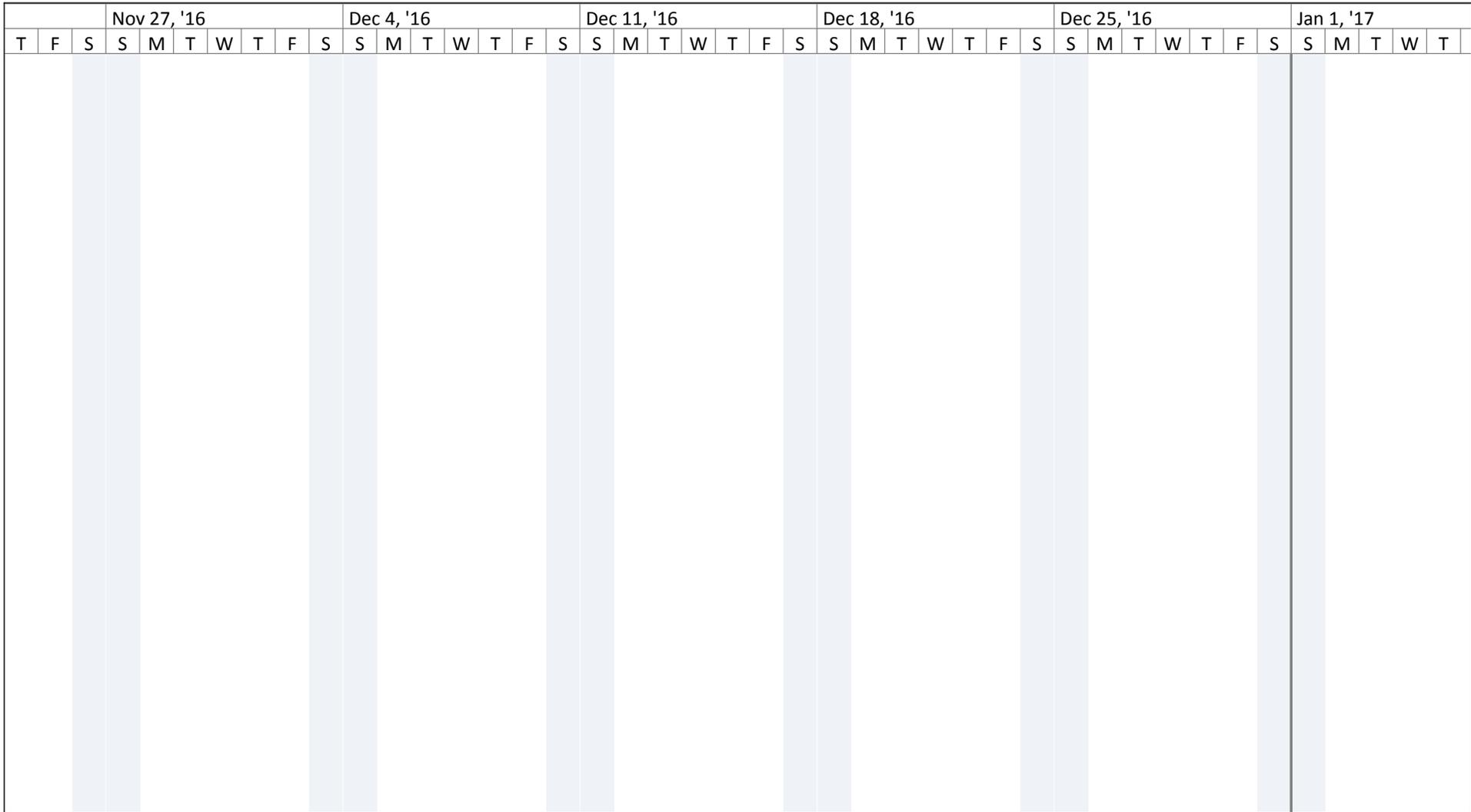


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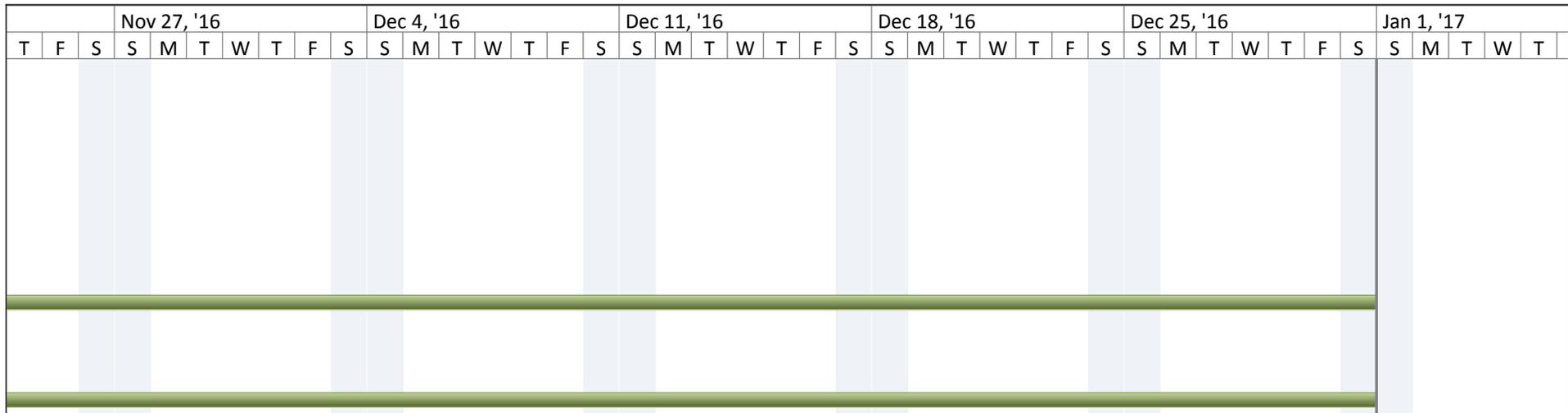
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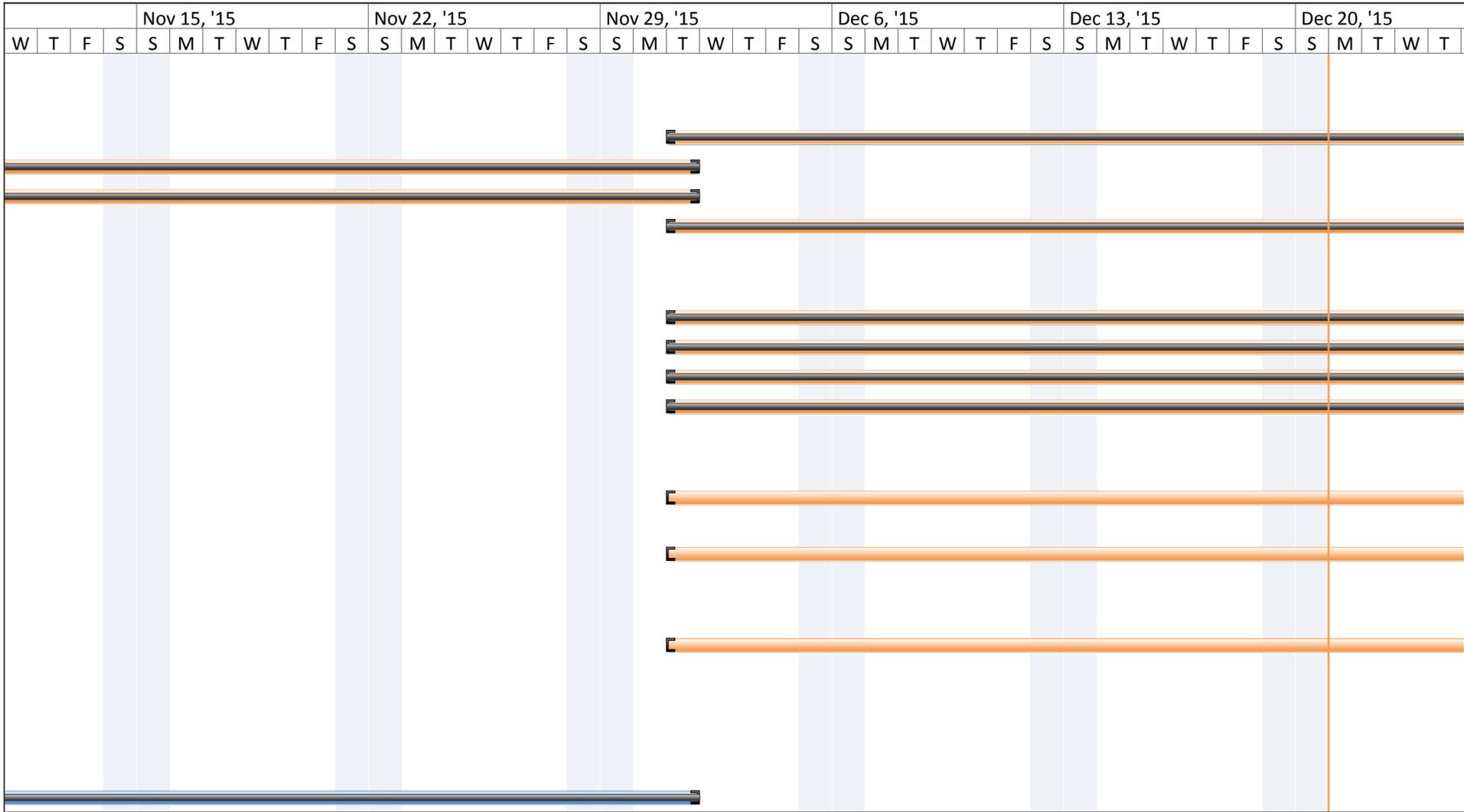
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ID	Task Mode	Task Name	Duration	Start	Finish	Nov 1, '15							Nov 8, '15				
						S	S	M	T	W	T	F	S	S	M	T	
1		Objective 1: Home Monitoring (Vivify)															
2		Information Gathering (Plan)															
3		Expand existing UHCC Contract	34 days	Tue 12/1/15	Fri 1/15/16												
4	✓	Determine Future Video Conference Capabilities	23 days	Sun 11/1/15	Tue 12/1/15												
5	✓	Develop Home Monitoring Patient Criteria	23 days	Sun 11/1/15	Tue 12/1/15												
6		Determine feasibility of connecting to CRISP	45 days	Tue 12/1/15	Mon 2/1/16												
7																	
8		Update Business Processes (Do)															
9		Acquire Vivify Kits	55 days	Tue 12/1/15	Mon 2/15/16												
10		Test Kits	66 days	Tue 12/1/15	Tue 3/1/16												
11		Deploy Kits to PDC	66 days	Tue 12/1/15	Tue 3/1/16												
12		Provide Training to CBCM Teams	66 days	Tue 12/1/15	Tue 3/1/16												
13																	
14		Review Performance (Check)															
15		Compare Quality Metrics for patients with & without home monitoring	110 days	Tue 12/1/15	Sun 5/1/16												
16		Check wireless data transfer process	110 days	Tue 12/1/15	Sun 5/1/16												
17																	
18		Standardize new process (Act)															
19		Evaluate if new populations could benefit from home monitoring	110 days	Tue 12/1/15	Sun 5/1/16												
20																	
21		Objective 2: Teleconsultation (Skype)															
22		Information Gathering (Plan)															
23	✓	Create Teleconsult Criteria	23 days	Sun 11/1/15	Tue 12/1/15												

Project: Project Plan - Strategy 3 I Date: Mon 12/21/15	Task		External Milestone		Manual Summary Rollup	
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ID	Task Mod	Task Name	Duration	Start	Finish	Nov 1, '15							Nov 8, '15					
						S	S	M	T	W	T	F	S	S	M	T		
24	✓	📌	Create Telconsult Notification Process	33 days	Sun 11/1/15	Tue 12/15/15												
25	✓	📌	Identify Tele Consult Software	23 days	Sun 11/1/15	Tue 12/1/15												
26		📌																
27		📌	Update Business Processes (Do)															
28		📌	Acquire Surface Tablets	55 days	Tue 12/1/15	Mon 2/15/16												
29		📌	Install Skype for Business	66 days	Tue 12/1/15	Tue 3/1/16												
30		📌	Acquire MiFI hot Spots	66 days	Tue 12/1/15	Tue 3/1/16												
31		📌	Test Connectivity	66 days	Tue 12/1/15	Tue 3/1/16												
32		📌	Train CBCM Teams	66 days	Tue 12/1/15	Tue 3/1/16												
33		📌																
34		📌	Review Performance (Check)															
35		📌	Track Use of Tele Consult	76 days	Tue 12/1/15	Tue 3/15/16												
36		📌	Determine Hospital Utilization post Teleconsult	76 days	Tue 12/1/15	Tue 3/15/16												
37		📌																
38		📌	Standardize new process (Act)															
39		📌	Evaluate patient critera as needed	110 days	Tue 12/1/15	Sun 5/1/16												
40		📌	Identify additional uses for telehealth	110 days	Tue 12/1/15	Sun 5/1/16												

Project: Project Plan - Strategy 3 I Date: Mon 12/21/15	Task		External Milestone		Manual Summary Rollup	
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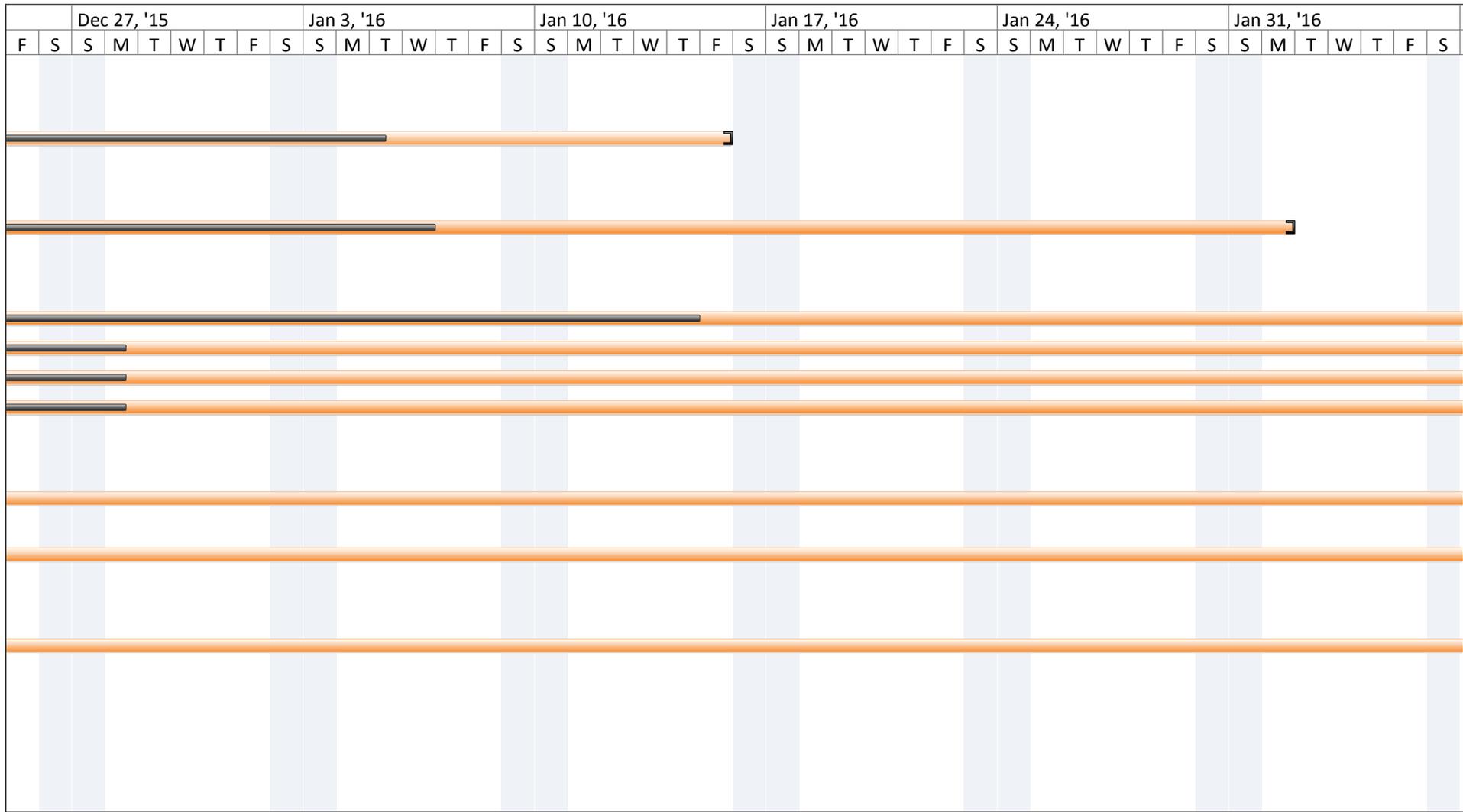
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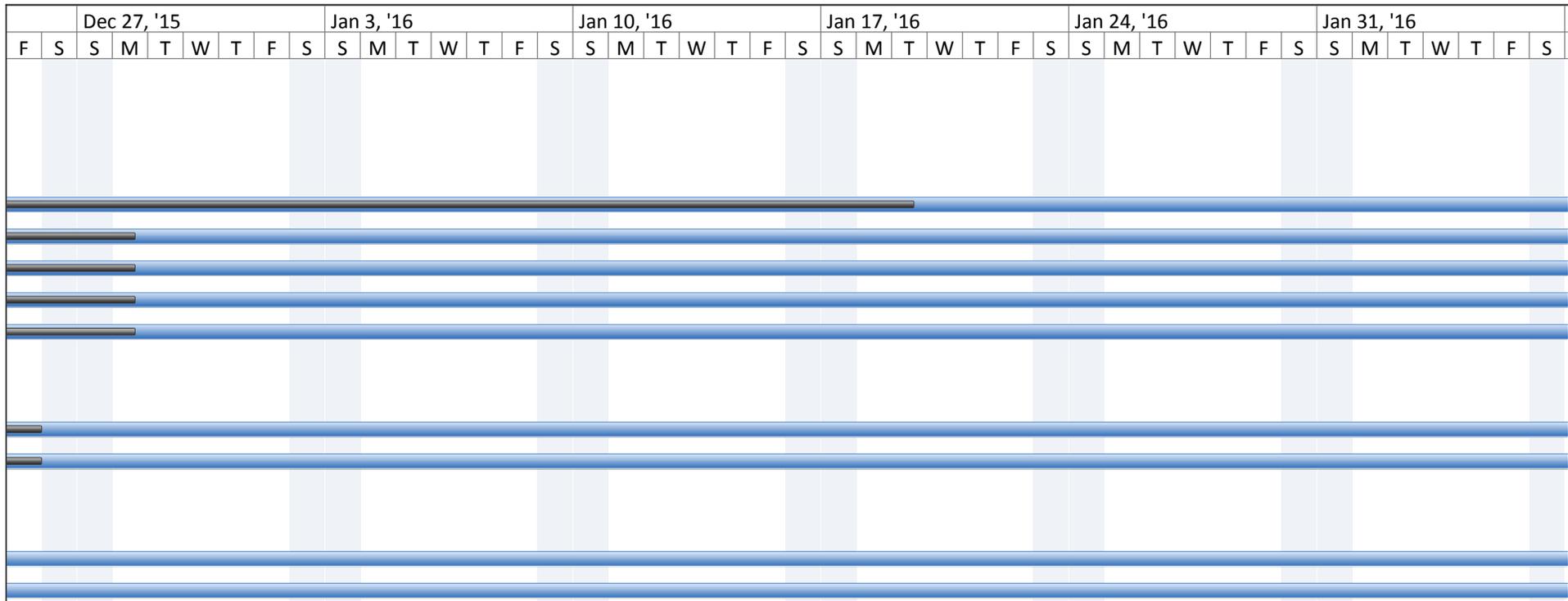


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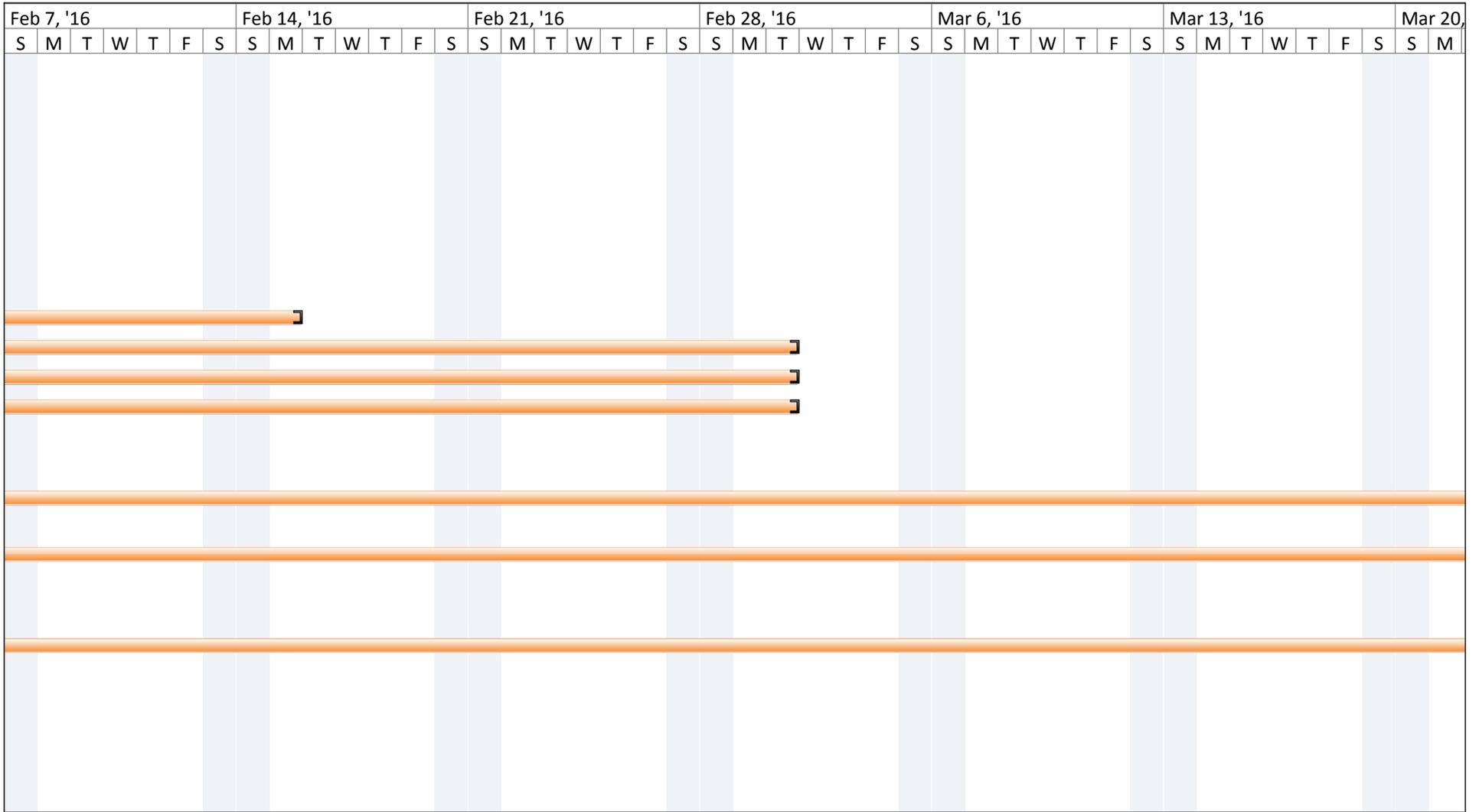
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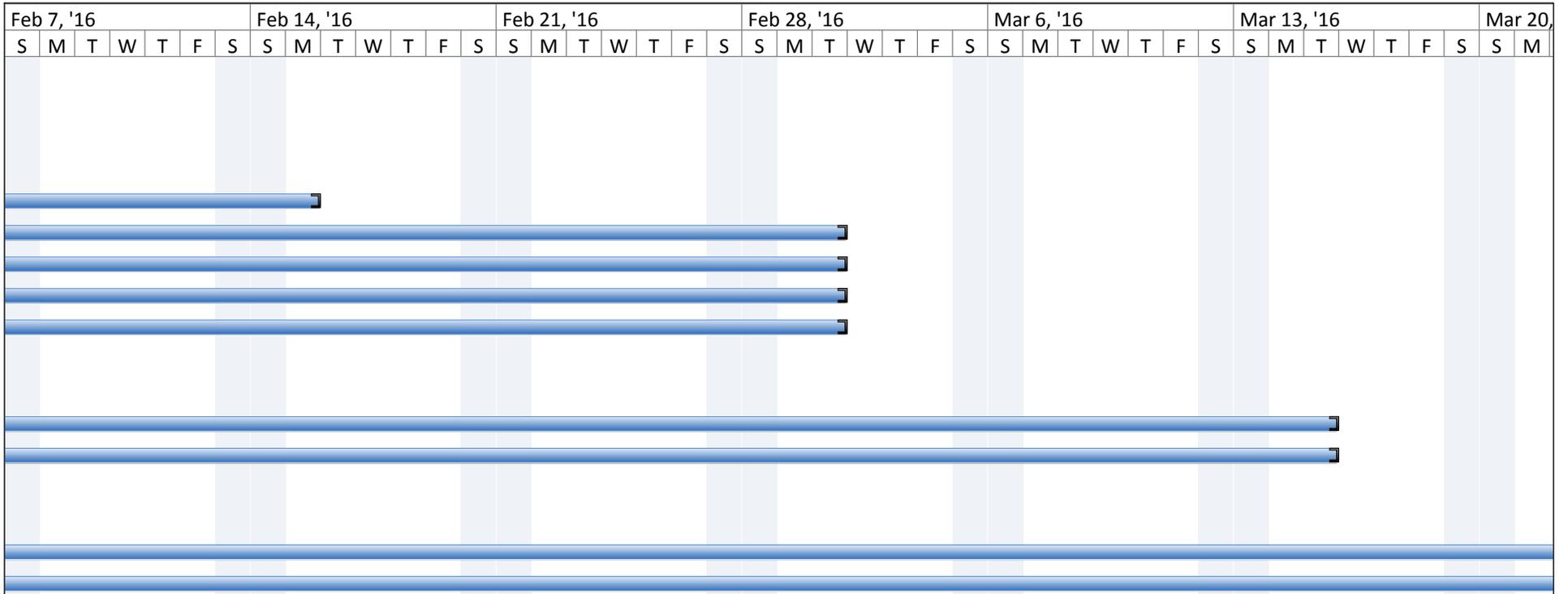
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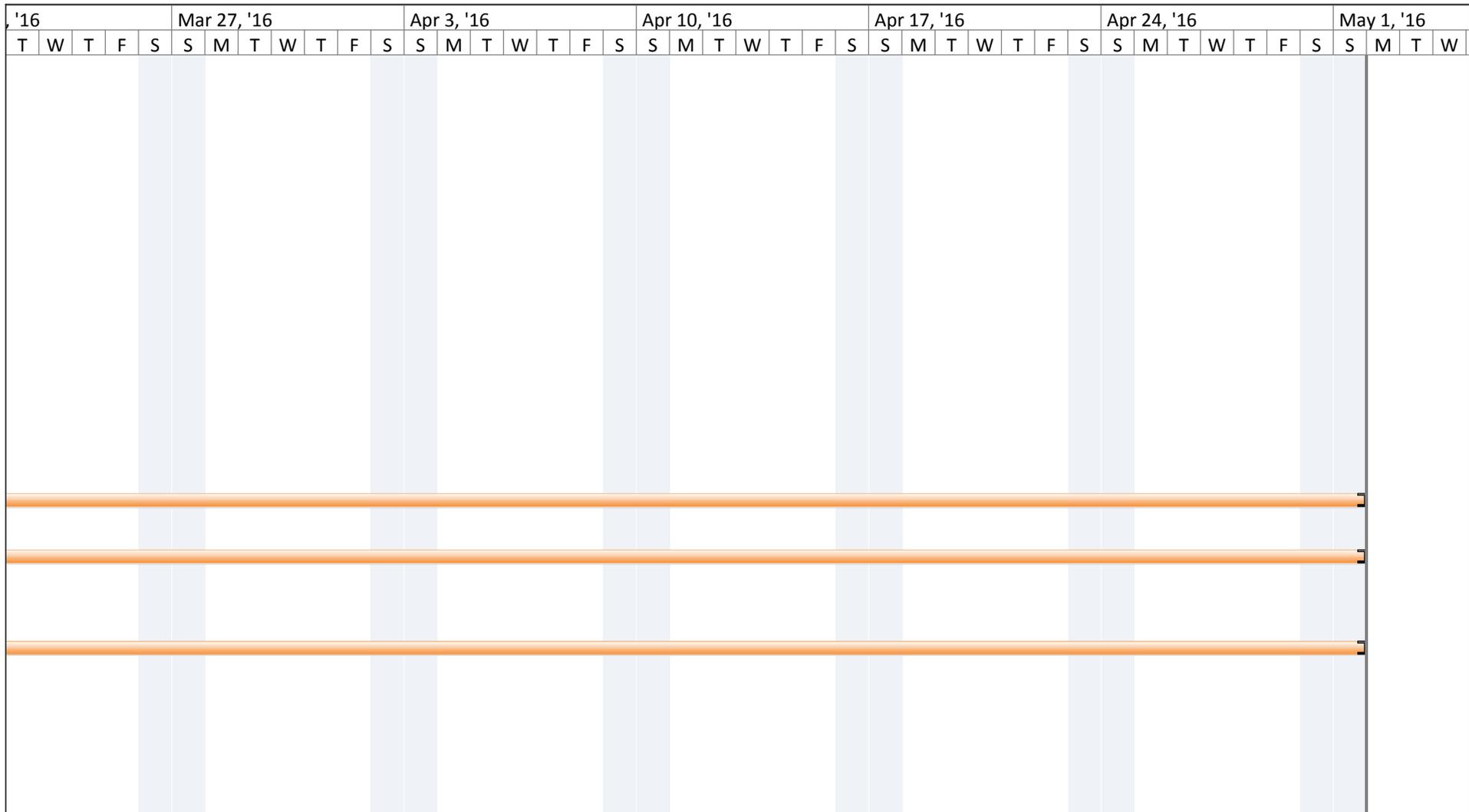
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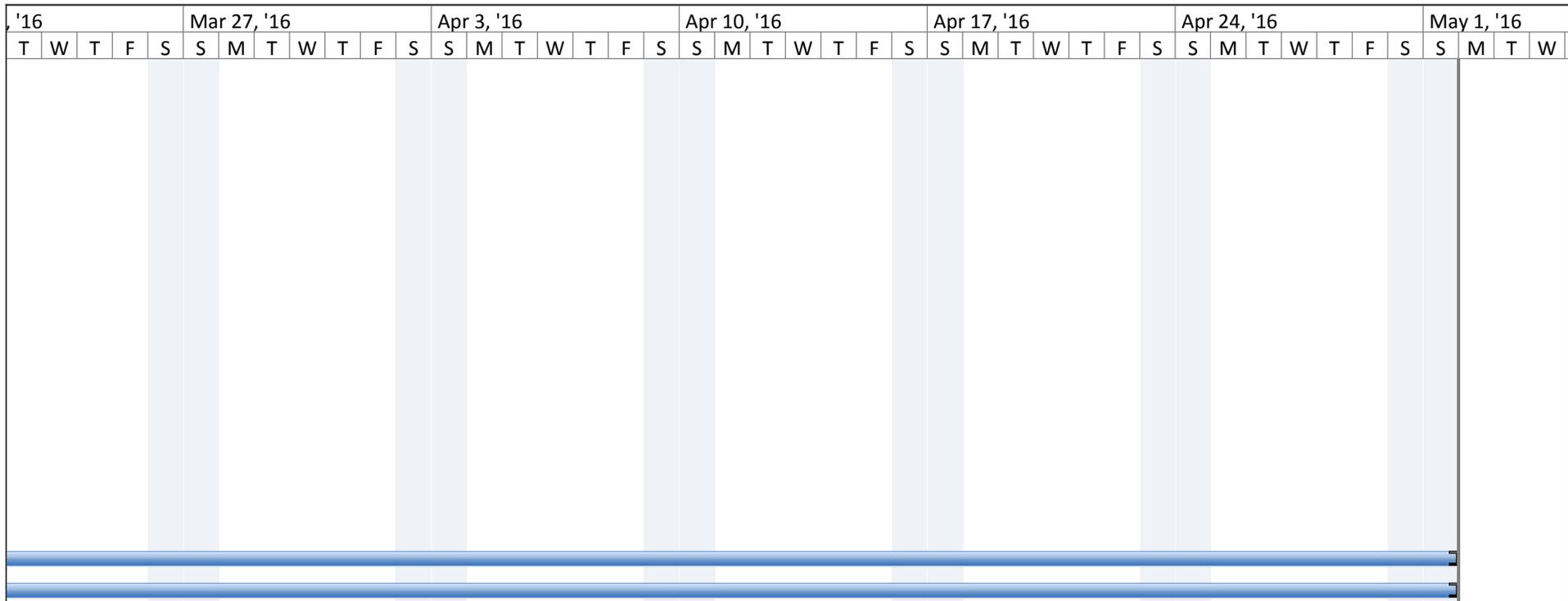
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UM UCH/UHCC Regional Partnership - Proposed BI Solution

1. Background

University of Maryland Upper Chesapeake Health (UM UCH) and Union Hospital Cecil County (UHCC) have entered into a regional partnership (RP) to better serve patients in Harford and Cecil Counties who have high hospital utilization and multiple chronic conditions. The RP will use an innovative care model that is able to coordinate care across many providers and includes two Community Care Centers (Care Centers).

The RP will require a robust Business Intelligence (BI) solution to evaluate program success and optimize care delivery. The BI solution will need to combine data from multiple sources to give an accurate picture of patient activity across the care continuum. It will need to identify the target patient population and provide actionable reporting on outcomes and efficiencies. The solution should provide quick time to value and should also serve as a solid foundation that allows the partnership to support additional population health programs in the future.

The proposed solution will build on the strong technical foundation that exists at the RP hospitals and will combine an innovative use of data sources, key partnerships, and proven best practices to deliver a cost effective solution.

This document presents a proposed BI solution including a schedule and high level estimates. The proposed solution is based on several interviews with key personnel from UM UCH, UHCC, and CRISP. It is meant as a high-level roadmap to be used by the RP in their planning. As such, it does not attempt to provide implementation details that would be defined by the broader team when the project commences.

2. Solution Summary

Providing actionable data to drive better outcomes will require three main components: gathering data, transforming and storing data, and delivering the actionable information to end users. Many BI or Data Warehouse (DW) projects start with the first component and attempt to gather as much data as possible and then figure out what to do with it. This can result in a bloated, over budget, and ultimately unsuccessful project. Since the goal of the solution is to provide actionable data, we recommend an

approach that is driven by the key organizational questions that need answers. With that in mind, the project components will be addressed in reverse order.

Actionable information must get to end users for a BI solution to bring value to the organization. Moving beyond interesting data to actionable information requires both a clear vision for what drives an organization and a capable BI platform. The RP has a clear vision for what questions will need to be answered to better serve the patient population, and will surely uncover additional questions as their BI platform matures. This will also inform the data model and the data sources needed. Representative questions are listed as part of the description of the project iterations. The BI platform should meet the specific requirements of the project, which are addressed in a later section.

For the BI platform to deliver actionable data, the source data must be transformed and stored in a data structure that is optimal for data retrieval. Generally, this is accomplished by implementing a data warehouse or group of data marts that use a dimensional data model (star or snowflake schema). The dimensional data includes both fact tables (for key measures) and related dimension tables (for grouping and filtering). The proposed solution implements a data warehouse stored in a relational database and will use an Extract, Transform, and Load (ETL) tool to transform and load the data. Based on existing RP expertise, current systems, and suitability, the proposed solution uses Microsoft SQL Server as the data warehouse platform and Microsoft SQL Server Integration Services (SSIS) as the ETL tool.

The source data will originate in multiple internal and external source systems. Data will be selectively loaded based on current and future reporting requirements. The data sources will include RP operational systems as well as external data, most notably CRISP data feeds and available Claims files.

The sections below describe the solution in greater detail. A diagram is provided at the end of the document that shows the proposed data flow.

2.1 Data Sources

The primary internal RP data sources will be the hospital and ambulatory Electronic Health Record (EHR) systems. The hospital EHR systems are used for hospital and Care Center registration, while the ambulatory EHRs are used for Care Center and Primary Care Physician (PCP) patient documentation. In addition, the ambulatory EHRs will have patient documentation for patients seen by an RP employed PCP or specialist.

The other key internal data source will be the care management system used to support the patients served by the RP Care Centers. Care Manager documentation for all Care Center patients will be provided by Mirth Care, an application that will be hosted by the Chesapeake Regional Information System for our Patients (CRISP).

The following table includes RP systems that are currently in place or that will be in place when work on the proposed solution begins:

	UCH	UHCC
Hospital HER	Meditech 6.07 (upgrade to 6.1 planned)	Meditech 6.1
Ambulatory HER	NextGen	Allscripts
Care Center registration	Meditech	Meditech
Care Management	Mirth Care	Mirth Care
Reporting	Medisolv, other SQL-based solutions using Meditech DR	ePortal (SQL-based reporting tool) using Meditech DR

To get a complete picture of Care Center patient activity, it will be necessary to load data from multiple external sources. This will be addressed by partnering with CRISP, which is described in the following section.

2.2 Use of CRISP

CRISP will occupy a central role in the solution. The RP intends to leverage data currently available from CRISP, including admission, discharge, and transfer (ADT) data for activity at all Maryland hospitals and some Washington, DC and Delaware hospitals. This data will be provided by CRISP using a standard electronic format. In addition, CRISP will provide C-CDA data from Hospitals (currently, 13 hospitals participate, including UCH and Union). This will allow the RP to capture data such as Diagnosis codes, Labs, and Radiology reports.

As part of an existing memorandum of understanding (MOU), CRISP will work to acquire data from community providers based on a prioritized list provided by the RP. The list will include ambulatory practices, long-term care/post-acute facilities, local health departments, and other relevant community health providers.

As additional data sources feed CRISP, these data sources will also be sent to the RP using the CRISP “router”. Future data sources are expected to include electronic clearinghouse (RelayHealth, Emdeon, etc) data and data from the CRISP-hosted Mirth Care platform. The following data is also expected to be available from CRISP:

- Alert subscribers for a given patient.
- The existence of a Care Plan in CRISP
- Case Mix
- Risk Score
- Care Alerts

While CRISP plans to expose much of this data through APIs, they will also work with the RP to provide a feed that includes data for all patients in the Care Center roster.

CRISP will also provide the unique patient identifier and associated medical record numbers generated by their Enterprise Matching Patient Index (EMPI) process. This will enable the RP to better track patients across care providers.

2.2 ETL and Data Warehouse Architecture

The source data will be extracted, transformed, and loaded into the Data Warehouse (DW) platform. The planned DW architecture will build on the strong technology foundation that exists at both UM UCH and UHCC. It will include the addition of a Data Warehouse and associated processes to load and transform data and a BI platform that will present actionable data to end users.

The Data Warehouse will be on a MS SQL Server platform and will follow accepted dimensional data modeling practices and include several dimension and fact tables. The solution will include three types of databases: Staging, the Operational Data Store (ODS), and the Data Warehouse database. Staging will be refreshed daily with a copy of the source tables as they appear in the source system. ODS will have the same group of tables as Staging and will be updated daily with data that has changed in the source tables. The Data Warehouse will store the transformed data in dimension and fact tables, providing a format that is both flexible and efficient for reporting. It is also updated daily with changes.

There will be separate Staging and ODS databases for UM UCH and UHCC. The integration point for data will be the DW database. Dimensional data will be integrated into dimension tables when possible. For example, there will likely be master patient and provider dimension tables. However, the source of the data will always be maintained. A similar approach will be taken when loading fact tables, such that it will be possible to track patients across hospital and ambulatory visits. The CRISP-provided Enterprise Master Patient Index (EMPI) will be stored along with the source system and source system Medical Record Number (MRN). This will facilitate reporting on patients across source systems when required. The final state should be a Data Warehouse that contains a set of dimension and fact tables that support reporting on Care Center patients across UM UCH, UHCC, and community providers.

SQL Server Integration Services (SSIS) will be used as the Extract, Transform, and Load (ETL) tool and will drive the daily update process. The ETL design will reflect the separation of databases into Stage, ODS, and DW in that there will be separate top-level packages for each database. Each top-level package will contain multiple child packages. In the case of Stage and ODS there will be a child package for each source table. For the DW, there will be a child package for each target dimension and fact table.

2.3 Business Intelligence (BI) Platform

End users will consume the DW data through the BI platform. The RP currently uses multiple SQL-based tools for reporting but it is recommended that they standardize on a single platform. Selecting the right

platform will be a key activity in the early part of the project and, as such, the decision will be made by a group appointed by the RP.

The selected tool should provide the following features:

- Data visualization and discovery
- Short time-to-value
- Tabular reports
- Data export
- Role-based security
- Data access limited by organization or role

It should also have the following characteristics:

- Scalability
- SQL-based development platform
- Agile UI design and development

3. Development Approach

Several guiding principles will guide the development approach: the leveraging of existing internal and external tools and systems, a process driven by the end-user requirements, an iterative development approach, and, where possible, the use of standard data formats for data transfer.

As mentioned earlier, a key to the technical solution will be integration with the Chesapeake Regional Information System for our Patients (CRISP). Leveraging CRISP will enable the RP to get a more complete picture of the patient across the continuum of care and will also enable the RP to take advantage of future CRISP enhancements.

In addition, the existing technical infrastructure and reporting platforms will be leveraged to enable the project to move forward quickly and efficiently. The RP will also draw upon the experience and expertise of existing employees when developing the solution. Both hospital systems have data platforms that support extensive reporting out of their respective Meditech Data Repositories (DR). In addition, each hospital has a team of analysts in place that include subject matter experts (SMEs) and report writers. They have expertise in the Meditech DR and SQL-based reporting tools. Each hospital also has SMEs for their ambulatory systems. It should be noted that the goal of solution is not to replace or duplicate existing operational reporting that already serves the RP health systems well, but rather to focus on the additional reporting and innovations needed by the Care Center model. However, it is anticipated that the current staff will benefit from the new data and tools as they become available.

As mentioned earlier, the solution will be driven by the end-user data requirements, focusing on providing actionable metrics that answer key questions. The focus on end-user requirements will lend

itself to an iterative development approach. The iterations will line up with the overall program iterations and will ensure that the actionable information needed for program success is available in a way that end users can easily consume. The proposed iterations will be described in the following section.

Standard data formats will be considered for transferring data from source systems to the data warehouse whenever possible. For example, instead of connecting directly to the ambulatory EHRs it may be possible to use CCD files. This has the potential to limit development effort and to minimize the impact in the event that the RP changes one or more of the ambulatory EHRs.

4. Solution Iterations

The solution will be implemented using an iterative approach. This approach will allow the RP to realize value quickly and will also reduce overall risk by demonstrating the ability to execute early in the project. The iteration details may change based on future RP decisions and additional analysis.

4.1 Iteration 1 – Call Center monitoring

The initial iteration will focus on tracking the patients that have been admitted to the Care Centers to confirm that the Care Centers are having a positive impact on patient outcomes. It is expected that Care Center patients will have less hospital admission and ED visits than those with similar profiles who were not treated in the Care Center.

Because the focus of this iteration is on foundational monitoring, it is important that this functionality is in place as soon as possible. With that in mind, the goal is to have this iteration complete within 90 days of receiving the grant.

Work during this iteration will cover each component of the project. There will be analysis and planning as the project starts which will include program considerations as well as technical details. That will lead to a cycle of data modeling, ETL work, and BI development. The BI tool evaluation and selection process will occur during this phase.

Representative Iteration 1 questions that the solution will answer are the following:

- Who is in the Care Center?
 - When were they admitted?
- Are the right patients in the Care Center?
 - What are the readmission rates?
 - By condition
 - Time from discharge
 - By provider
 - By zip code
 - Which patients have been in the ED?
 - By condition

- Time from discharge
 - By provider
 - By zip code
- How are patients being seen?
 - Types of encounters (office, phone, web)

The following data sources are considered in scope for Iteration 1:

- Care Center registry data
- Physician documentation
- Care Manager documentation
- CRISP - ADT, EMPI, and C-CDA data from participating hospitals

Reporting for this iteration will include registration data since program inception.

4.2 Iteration 2 – Care Center optimization

The second iteration will seek to determine the impact that Skilled Nursing Facilities (SNFs), home health care, and other community care providers have on Care Center patients. It is also expected that RP hospital EMR data and/or RP ambulatory data will be loaded as part of this iteration in preparation for later iterations. The project schedule will determine the timing and order of this work.

Again, this stage will include analysis as the Iteration reporting requirements are determined. These requirements will be informed by ongoing evaluation of Iteration 1 functionality. This iteration will also include extending and improving Iteration 1 functionality.

In addition to the analysis work, this iteration will also see extensive data modeling, ETL work, and BI development.

The following are representative questions that this iteration will address:

- Skilled Nursing Facilities (SNF)
 - What is the length of stay in a SNF?
 - What are the ADTs?
 - What is readmissions rate after discharge from SNF?
 - What is rate of ED visits after discharge from SNF?
- Home health - same as above

The following data sources are required to answer the questions:

- CRISP – ADT data for community care providers including SNFs and home health care, Care Plan data, and possibly ENS alert subscribers
- Telehealth (either direct or from CRISP)
- Meditech (“Adm” and “Bar” tables)
- NextGen and Allscripts ambulatory data

4.3 Iteration 3 - Predicting high utilizers

The third iteration will attempt to identify leading indicators for high hospital utilization and will also seek to identify appropriate interventions that will limit future utilization for these patients. As part of these leading indicators, this iteration will identify and calculate a limited number of key quality measures to analyze their impact on utilization.

Regarding the key quality measures, one potential approach is to identify one measure for each of the three or four chronic conditions that are most commonly present in high utilizers. The ambulatory data required to calculate these measures will be loaded in the DW. It is possible that a composite measure for these measures will be created. This iteration will only calculate these measures for patients with a Primary Care Physician (PCP) in an employed provider group, unless adequate data is available through CRISP for external providers. The measures will then be analyzed and modified to provide an indicator of how management of chronic conditions impacts outcomes (admissions, ED visits). It could also help the RP better understand who should be enrolled in the Care Center; for example, do patients not meeting the measure(s) have less utilization if they are handled by the Care Center? These measures will also serve as preparation for CMS shared savings or other such arrangements, both from an organizational and technical standpoint.

If these measure have the expected predictive capacity, the measures will also form a basic physician scorecard that can be pushed out to the employed physician groups. In addition, the underlying data will be provided so providers can take action on patients who aren't meeting the measure(s).

The following are representative Iteration 3 questions:

- Do patients meet key quality measures for certain chronic conditions
 - Care Center patients
 - Other patients
- Is a patient a high utilizer or at risk for becoming a high utilizer?
 - How many Hospital visits? (3 or more)
 - How many ED visits? (5 or more)
 - Is the patient taking high risk medication?
 - Is the patient taking More or less than 7 meds?
 - What chronic conditions does the patient have?
 - Is the "Boost" tool in Meditech correctly predicting whether a patient will be high utilizer?
 - Is the predicted data of discharge accurate in Meditech?
 - Referrals
 - Was a patient referred to another provider?
 - Did patients attend referral appointments?

The following data sources will be required for the third iteration:

- Ambulatory data to satisfy quality measures
- CRISP – Additional community care provider data, including behavioral health, external PCPs and specialists, Health Dept.
- Meditech referrals

- Ambulatory referrals

The third iteration will also include enhancements to Iteration 1 and 2 functionality. The goal of the first three iterations is to provide a foundation upon which to build analytics that support local or statewide payment innovations, including ACO Shared Savings or an all payer model.

4.4 Iteration 4 - Quality measures for Physician Scorecards/Shared Savings

The final planned iteration will provide the necessary quality metrics to support ACO Shared Savings or other statewide payment innovations. This iteration will largely be informed by what is learned during the first three iterations.

It is anticipated that there will be an appetite for additional quality measure reporting. If that aligns with the creation of an ACO, then at a minimum the CMS quality measures defined by CMS will be in scope. These would be likely be addressed with an iterative approach and would include the following domains:

- Diabetes
- Hypertension
- Ischemic Vascular Disease
- Heart Failure
- Coronary Artery Disease
- Depression
- Preventive Care

In addition, it is likely that during this iteration CMS Claims or all payer claims files would be loaded to provide additional intelligence into how best to manage high risk patients and lower costs. Additional CRISP data would once again be part of the iteration, as would enhancements to previous iteration functionality.

The following data sources will be required for this iteration:

- Ambulatory - Meds, Labs, Vitals, Radiology
- CMS Claims/All payer claims
- CRISP – clearinghouse data (Relay Health, Emdeon), additional community care provider data

4.5 Future iterations

Future iterations will build on the capabilities provided in the first four iterations and will provide value beyond the current Care Center population including regional or statewide populations.

5. Data Governance and Security

A key to success in any project of this type is an appropriate data governance strategy. That will ensure that stakeholders agree on key definitions and measures. It also will ensure that sensitive data is only viewed by authorized parties.

While the intention is to develop a lasting partnership, the solution considers the possibility that data will need to be uncoupled at some point in the future. All data will include source information, allowing the flexibility to interrupt or remove data access or data loads at any point.

The solution will be built with security in mind from the beginning, and will include both infrastructure security and end-user access control.

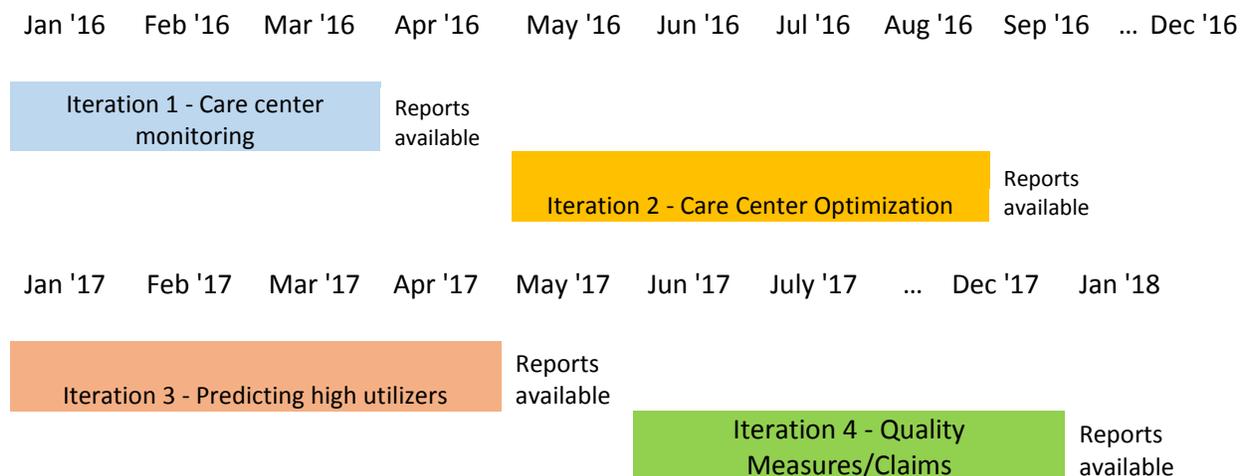
The BI platform selected will include functionality to allow role-based user access. This will allow data to be viewed only by authorized users. It is likely that there will be high level RP data that is viewable by end-users across the RP. There will also be the ability to partition data access based on facility.

Data that is transferred or stored within the RP network will be protected by the security standards and protocols that are already in place, including industry accepted firewall and network security configurations. CRISP data transfers will leverage the standards and protocols that are already in place at the RP locations for data exchange with CRISP. Any additional connectivity required will adhere to industry recognized security standards.

6. Schedule

The goal of the schedule is to execute the project efficiently and successfully. The proposed roadmap prioritizes delivery of functionality based on overall RP goals.

The following timeline shows the major milestones and proposed schedule.



7. Cost Estimates

7.1 Architecture and Development

The following identifies key milestones and estimated hours. The cost is based on a blended consulting rate.

Description	Consulting Hours	Consulting Cost
Iteration 1 (Year 1)		
Key questions/measures	80	\$ 14,000
Data Source analysis	80	\$ 14,000
Data model	80	\$ 14,000
Staging/ODS ETL - UM UCH	80	\$ 14,000
Staging/ODS ETL - UHCC	80	\$ 14,000
Staging/ODS - CRISP	80	\$ 14,000
DW ETL - UM UCH	80	\$ 14,000
DW ETL - UHCC	64	\$ 11,200
DW ETL - CRISP	64	\$ 11,200
BI design	80	\$ 14,000
Reports	80	\$ 14,000
Testing	40	\$ 7,000
Project Management	133.2	\$ 23,310
Iteration 1 subtotal	1021	\$ 178,710.00
Iteration 2 (Year 1)		
Key questions/measures	80	\$ 14,000
Data Source analysis	64	\$ 11,200
Data model	64	\$ 11,200
Staging/ODS ETL - UM UCH	64	\$ 9,600
Staging/ODS ETL - UHCC	64	\$ 9,600
Staging/ODS - CRISP	40	\$ 6,000
DW ETL - UM UCH	64	\$ 9,600
DW ETL - UHCC	64	\$ 9,600
DW ETL - CRISP	40	\$ 6,000
BI design	80	\$ 14,000
Reports	80	\$ 12,000
Testing	40	\$ 6,000
Iteration 1 enhancements	80	\$ 12,000
Project Management	124	\$ 18,540
Iteration 2 subtotal	948	\$ 149,340

Year 1 (Iterations 1-2) subtotal	1969	\$ 328,050
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Iteration 3 (Year 2)

Key questions/measures	80	\$ 14,000
Data Source analysis	80	\$ 7,000
Data model	80	\$ 7,000
Staging/ODS ETL - UM UCH	80	\$ 6,000
Staging/ODS ETL - UHCC	80	\$ 6,000
Staging/ODS - CRISP	40	\$ 3,600
DW ETL - UM UCH	80	\$ 12,000
DW ETL - UHCC	80	\$ 12,000
DW ETL - CRISP	24	\$ 3,600
BI design	80	\$ 14,000
Reports	80	\$ 12,000
Testing	40	\$ 6,000
Iteration 1 and 2 enhancements	120	\$ 18,000
Project Management	115	\$ 17,280
Iteration 3 subtotal	1059	\$ 138,480

Iteration 4 (Year 2)

Key questions/measures	80	\$ 14,000
Data Source analysis	80	\$ 14,000
Data model	80	\$ 14,000
Staging/ODS ETL - UM UCH	40	\$ 6,000
Staging/ODS ETL - UHCC	40	\$ 6,000
Staging/ODS - Claims	80	\$ 12,000
DW ETL - UM UCH	80	\$ 12,000
DW ETL - UHCC	80	\$ 12,000
DW ETL - CRISP	80	\$ 12,000
BI design	80	\$ 14,000
Reports	80	\$ 12,000
Testing	40	\$ 6,000
Iteration 1, 2, and 3 enhancements	160	\$ 24,000
Project Management	150	\$ 22,500
Iteration 4 subtotal	1150	\$ 180,500

Year 2 (Iteration 1-2) subtotal	2209	\$ 318,980.00
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7.2 BI Tool

Based on the BI Tool recommendations made earlier in this document, it is recommended that the RP budget 35k in Year 1 costs and 35k in Year 2 costs. The Year 1 investment will include the initial purchase and the licensing necessary to deploy the tool to key users. The Year 2 investment will include additional licensing and the potential for infrastructure costs as the solution scales.

After Year 2, the RP should budget for a software maintenance fee and potentially additional license purchases. It is recommended that the RP plan for an annual cost after Year 2 of 20k/yr.

The estimates for BI Tool cost are for budgetary purposes only and don't represent the actual cost of the tool that is ultimately selected. While they are made with a good knowledge of the leading tools that are likely to meet the requirements of the RP, they are meant as an entry level cost and will escalate as the demand for data grows.

7.3 Hosting and Connectivity

The RP plans to have a third party host the solution. It is expected that hosting costs will be \$8-11k/month and that connectivity will cost \$1-3k/month.

It is anticipated that the solution will require a single Windows-based server at the hosting facility with adequate processors, RAM, and storage for the data warehouse and associated processes. The location of the BI platform will be determined as part of the tool selection process.

7.5 Monitoring and Maintenance

The partner that develops the solution will also likely provide monitoring and maintenance in years 1 and 2. The RP should budget \$2k/month for this support, which would total approximately 18k in year 1 and \$24k in Year 2. Actual cost for this will depend on the details of the Service Level Agreement (SLA).

It is recommended that this be done in partnership with a technical resource from the RP to facilitate knowledge transfer. The cost for this can then be shifted to the RP after year 2.

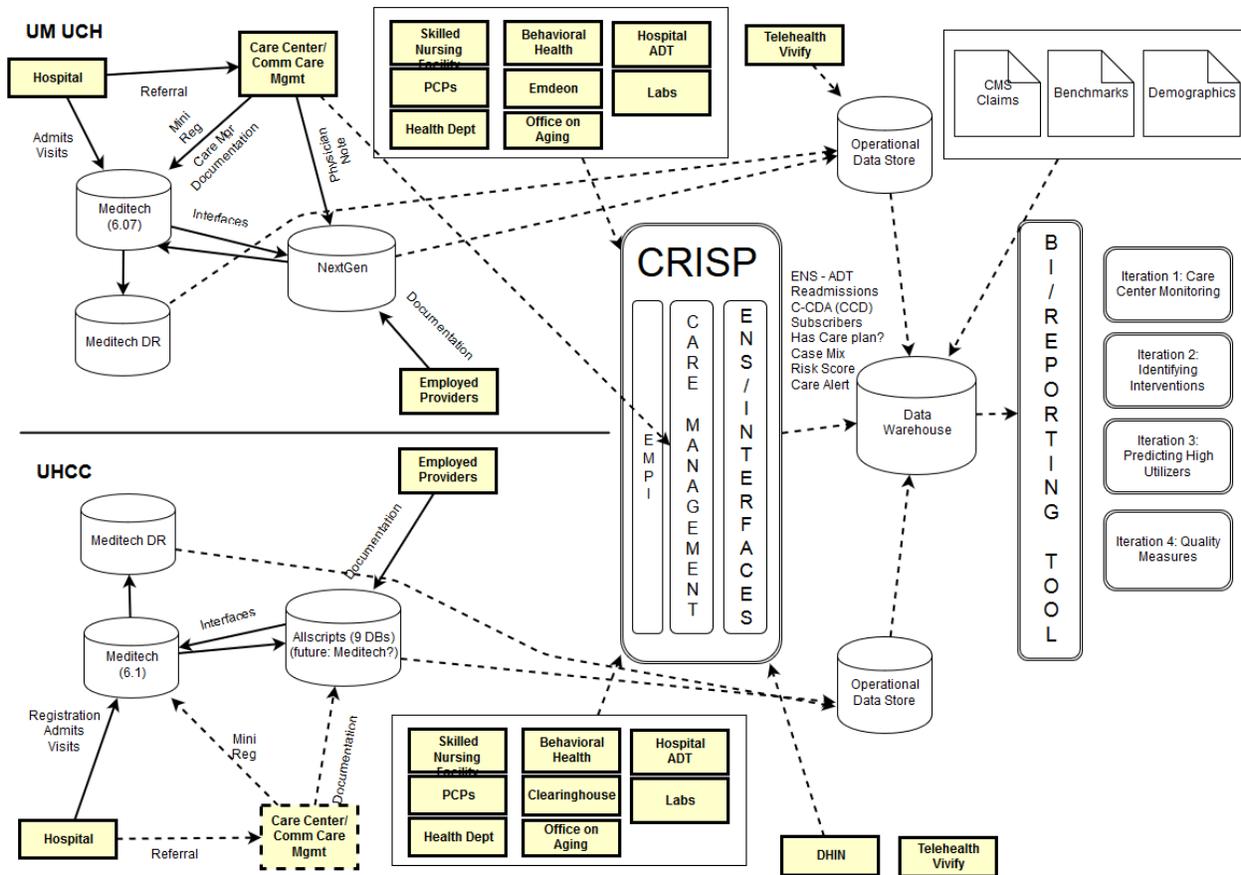
8. Key Assumptions and Risks

1. Connectivity is established between the DW and the source systems in a timely manner.
2. The hosting and connectivity is in place in a timely manner.
3. CRISP data referenced in the plan and MOU is available according to the schedule specified in the MOU.

4. Key technical, administrative, and clinical SMEs are available.
5. All data needed for metrics are stored in source systems as structured data.
6. Data sources have a structured column that stores the last updated date for each table or set of tables. These columns will be used to incrementally update the data.
7. Schemas will be provided for C-CDA files and other structured files.
8. Data models and/or data dictionaries exists for source databases. Alternatively, SMEs area available who are familiar with the data structures.
9. Schedules and estimates are based on information gathered during the assessment and will be confirmed or modified during the initiation phase of the project.

9. Data Flow

The data flow below shows the major components of the proposed solution. Solid lines designate flows and functionality that is already in place, while dotted lines designate planned data flows and functionality.



**MEMORANDUM OF UNDERSTANDING
BETWEEN
UNION HOSPITAL OF CECIL COUNTY, INC.
AND
UNIVERSITY OF MARYLAND UPPER CHESAPEAKE HEALTH SYSTEM, INC.**

This Memorandum of Understanding (“MOU”) is made this _____ day of _____, 2015, by and between UNION HOSPITAL OF CECIL COUNTY, INC. (“UNION”) and UNIVERSITY OF MARYLAND UPPER CHESAPEAKE HEALTH SYSTEM, INC. (“UMUCH”).

WHEREAS, UNION is a private, non-profit corporation providing health care services to the community in Cecil County, Maryland and surrounding areas, as well as promoting the overall health of the community;

WHEREAS, UMUCH is a private, non-profit corporation providing health care services to the community in Harford County, Maryland and surrounding areas, as well as promoting the overall health of the community;

WHEREAS, UNION and UMUCH have determined and agreed that it is in their best interest and the best interests of their communities to work collaboratively on **[population health projects, care coordination, etc.]** and to make an application for **[insert name of grant program]** (“grant application”); and

WHEREAS, the grant application prepared and approved by UNION and UMUCH is to be submitted to the Health Services Cost Review Commission on or before **[insert application due date]**;

NOW, THEREFORE, for and in consideration of the recitals, which are incorporated by reference herein, the mutual covenants contained, it is agreed by and between the parties hereto as follows:

I. Development of Application and Collaborative Model

The purpose of the University of Maryland Upper Chesapeake Health (UMUCH) and Union Hospital of Cecil County (UHCC) Regional Partnership (RP) is to address the medical and social needs of high utilizer patients and those with multiple chronic conditions. The partnership will create the infrastructure for care coordination programs to reduce unnecessary and avoidable hospital utilization and optimize the health of the community. These organizations have previously partnered on a Behavioral Health joint venture that develops new and integrated programs within Cecil and Harford Counties.

II. Roles and Responsibilities

A. General

- a. The parties will provide funding for an agreed upon program (or set of interventions) to assist with high risk Medicare and dual-eligible patients. To that end, the parties agree to develop key competencies in concert and share resources, including data analytic capabilities. The parties agree to work closely with community-based partners to find common-workflow solutions and identify shared processes that lead to the achievement of our goals.
- b. To ensure the success of the collaboration, the parties will provide administrative oversight (governance) of the program through a Steering Committee, which will consist of four representatives from each party, including the CEO or his designee, the CFO or his designee, the CMO or his designee, and the Program Director or his designee.
- c. The Steering Committee will be responsible for providing oversight of the grant application and any collaborative activities funded by the grant application. Specifically, the Steering Committee will meet at least quarterly to monitor and assess the efficacy of any interventions under the grant application, and to consider any new interventions.

B. UNION

UNION agrees to promote to the success of the collaboration by contributing to the project through time, in-kind contributions and with the use of grant funds. Specifically, UNION agrees to:

- a. Operate a High Risk clinic as the launching point for the expanded care coordination effort;
- b. Fully participate with the CRISP initiatives outlined in the CRISP-Regional partnership Memorandum of Understanding dated **[insert date]**;
- c. Provide human resources, where appropriate, to assist in the development and maintenance of data analysis processes; and
- d. Adhere to mutually agreed upon patient workflow and treatment methodologies.
- e. Undertake other lawful activities from time to time that are necessary and desirable to promote the aims of the collaboration.

C. UMUCH

UMUCH agrees to promote to the success of the collaboration by contributing to the project through time, in-kind contributions and with the use of grant funds. Specifically, UMUCH agrees to:

- a. Operate a High Risk clinic as the launching point for the expanded care coordination effort;
- b. Fully participate with the CRISP initiatives outlined in the CRISP-Regional partnership Memorandum of Understanding dated **[insert date]**;
- c. Provide human resources, where appropriate, to assist in the development and maintenance of data analysis processes; and
- d. Adhere to mutually agreed upon patient workflow and treatment methodologies.
- e. Use of Community Health team members to complete the Care Management teams, where appropriate.
- f. Undertake other lawful activities from time to time that are necessary and desirable to promote the aims of the collaboration.

III. Financial

- a. Any monies received pursuant to the grant application shall be used as enumerated therein and consistent with the collaboration and goals outlined above. The grant application will delineate spending priorities as Community-based care management, shared IT platforms such as care management or secure texting, development of a patient registry and reporting capabilities.
- b. It is anticipated the distribution of funding related to the grant application will be delineated to each party in accordance with the HSCRC's guidelines as a percent of each party's net revenue. The initial mutually beneficial expenditures (IT platforms, patient registry, etc.), will be shared 50/50 based on an expected equal benefit of the service(s) to each party. The determination of which expenditures qualify as mutually beneficial expenditures shall be made consistent with the majority voting requirements enumerated in section (c) below. Any and all remaining funds will be expended utilizing the net-revenue-based-rate-increase that accrues to each party and expenditures will be approved by majority vote of the Steering Committee with a minimum of one vote-for-approval from each party.
- c. The parties envision that certain interventions may be necessary and mutually desirable to promote the collaborative model and its goals, but may not be adequately funded via amounts received from the grant application. The Steering

Committee shall make funding determinations for any interventions that are not adequately funded by the grant application, and shall retain discretion as to the respective contributions and responsibilities of each party. Any affirmative funding determination shall require a simple majority vote, provided, however, that such majority must include an affirmative vote by at least one representative from each party. Nothing contained herein precludes either party from independently pursuing a desired intervention if the Steering Committee elects not fund it.

IV. Duration

The duration of this MOU shall be [insert] or [December 31, 2016.] The MOU can be changed at any time through written consent of both parties.

Communications regarding changes in the MOU will be coordinated by the following individuals:

Primary UNION Contact
Name: _____
Phone: _____
Email: _____

Primary UMUCH Contact
Name: _____
Phone: _____
Email: _____

IN WITNESS WHEREOF, the parties have executed this Memorandum of Understanding by causing the same to be signed on the day and year first above written.

WITNESS/ATTEST:

UNIVERSITY OF MARYLAND UPPER
CHESAPEAKE HEALTH SYSTEM, INC.

By: _____
Lyle E. Sheldon
Title: CEO
Date:

UNION HOSPITAL OF CECIL COUNTY,
INC.

By: _____

Dr. Ken Lewis

Title: CEO

Date:



ICN Infrastructure Support Memorandum of Understanding

DRAFT

This Memorandum of Understanding (MOU) between Chesapeake Regional Information System for our Patients (CRISP) and the University of Maryland Upper Chesapeake and Hospital of Cecil County Partnership (“Upper Chesapeake” or “RP”) sets forth the terms and understanding to enhance coordination services provided through the state-designed health information exchange (HIE) Integrated Care Network (ICN) infrastructure with the goal of facilitating care, reducing costs, and improving health outcomes.

Purpose

CRISP will help the RP plan and implement infrastructure for care coordination programs developed within the Health Services Cost Review Commission’s Hospitals for Health System Transformation and subsequent care transformation, quality improvement, and cost reduction initiatives. RP and CRISP will work jointly to meet the objects in each of the core ICN categories listed below and to execute the deliverables set forth below.

Community Provider Connectivity

CRISP is connecting ambulatory practices, long-term care/post-acute facilities, local health departments, and other relevant community health providers in order to:

- Easily understand where a patient has received care or has a treatment relationship with a non-hospital provider.
- Achieve clinical document transfer from to the non-hospital provider to the CRISP clinical query portal for treatment decisions at the point of care.

Successfully connecting with these organizations requires close collaboration between the RP and CRISP. Specific deliverables include the following:

RP Agrees To:	CRISP Agrees To:
<ul style="list-style-type: none"> • By end of 4Q 2015: <ul style="list-style-type: none"> ○ Provide CRISP with a prioritized listing of ambulatory, post-acute, or other providers that it is interested in having ADT or C-CDA connectivity with CRISP ○ Individually contact and encourage the identified organizations to work with CRISP to establish ADT and C-CDA connectivity 	<ul style="list-style-type: none"> • By end of 1Q of 2016: <ul style="list-style-type: none"> ○ Make contact with each practice identified by Upper Chesapeake in order to communicate the process to get connected, timing, financial contributions that CRISP can make, etc. ○ Provide Upper Chesapeake with a work plan and high-level timeline for getting the identified organizations connected • By end of 4Q 2016:



- CRISP will make best efforts to establish either an ADT / encounter connectivity, or clinical data connection with 75% of the identified organizations.

Preliminary Listing of Organizations Identified by Upper Chesapeake:

- UC Diabetes Center
- UC Wound Care Center
- UC Behavioral Health
- UC CARE Center* (Transition Clinic)
- UC Cardiology Practice
- UC Endocrinology Practice
- West Cecil Beacon Health (FQHC)
- Union GYN *
- Union Primary **
- Union Pulmonology **
- Union Urology **
- Union ENT **
- Union Endocrinology **
- Union Psych ***
- Union GI ****
- Union Vascular ****
- Union Neurology *****
- Union Hematology & Oncology *****
- Mian
- Rusia
- John Mulvey
- RHOPA (Jamil Khapri, Martha Hossord) Regional Hemotology and Oncology Physician Associates
- Brian DeMuth
- NBMA (North Bay Medical Associates) Gary Beste, Timothy Odonnell, Eileen Pack, Narayana Pula, Madhu Sachdev, Sheelmohan Sachdev, Elizabeth Strab
- Stone Run - barry baker, joseph weidner
- Christopher Wendel
- Renee Perkis, Susan Ferez
- Meridian Practice - Carlo Gopez, helene Lee
- Tri-State (Elizabeth Lowe)
- Ian Myers
- MaherNashed
- Fair Hill - Bonni Roberts, Venessa Dillar
- PWH (Partners in Womens Health) Judith Hidalgo-Ahned
- Pulmonary Critical Care Associates of Baltimore



- Nephrology Center of Maryland
- Advanced Imaging
- Quest/ Lab Corp

Reporting and Analytics

CRISP Reporting Services provides information to hospitals and provider organizations to facilitate outcome measurement, strategic planning, and care coordination. CRISP will continue to enhance available reports and the RP will provide feedback regarding these offerings.

In order to gain broader adoption and value from CRISP Reporting and Analytics services, the RP and CRISP agree to the following:

RP Agrees To:	CRISP Agrees To:
<ul style="list-style-type: none">• By end of Q1 2016:<ul style="list-style-type: none">○ Upper Chesapeake will pilot the Tableau PaTH reports and provide feedback to CRISP on improvements that can be made.	<ul style="list-style-type: none">• By end of Q4 2015<ul style="list-style-type: none">○ Until PaTH reports becomes available, a CRISP resource will work with Upper Chesapeake will identify patients for care management.• By end of Q1 2016:<ul style="list-style-type: none">○ Provide access, training and a forum to submit feedback to Upper Chesapeake resources that are using the reports.○ As required, train and credential identified personnel to utilize CRISP Reporting Services (CRS).



CRISP Alerts and Notifications

Alerts and notifications might take a variety of forms leveraging CRISP tools such as ENS and other integration capabilities. CRISP and RP will review potential use cases for in-context alerts with the intention of piloting those applicable to RP provider sites. Examples of use cases include:

- A notification that a care plan exists
- Notification that a patient has had a recent hospitalization
- Notification that a patient has a PCP subscribing to ENS alerts
- Alert that a patient risk score has increased

In order to gain broader adoption and value from alerts and notifications, the RP and CRISP agree to the following:

RP Agrees To:	CRISP Agrees To:
<ul style="list-style-type: none">• By end of Q4 2015:<ul style="list-style-type: none">○ Pilot the ENS PROMPT user interface and provide rapid feedback to CRISP on new features or functions that could be provided.○ Provide documentation of patient consent process○ Have Hart to Heart Transportation act as an ENS data source to trigger notifications to RP subscribers.	<ul style="list-style-type: none">• By end of Q4 2015:<ul style="list-style-type: none">○ Provide the Care Center with access to the ENS PROMPT user interface, provide training and support as required.○ Incorporate encounter data from connected ambulatory practices for care center members○ Establish a new ADT feed with Hart to Heart Transportation and make it available in ENS.

CRISP Clinical Query Portal Enhancements

CRISP is improving the functionality of the existing Clinical Query Portal to include elements that are relevant to more coordinated care. Examples of this improved functionality include:

- A listing of current notification subscribers
- A dedicated section that lists care plans that have been provided to CRISP.
- A dedicated section that provides a care summary
- A risk score derived from risk-stratified case mix data

In order to gain broader adoption and value from the CRISP Query Portal, the RP and CRISP agree to the following:

RP Agrees To:	CRISP Agrees To:
<ul style="list-style-type: none">• By end of Q4 2015:<ul style="list-style-type: none">○ Work with CRISP to inventory care plans that are actively used within the RP , notify CRISP of their source system and ability to send to the CRISP query portal	<ul style="list-style-type: none">• By end of Q1 2016:<ul style="list-style-type: none">○ Connect with source systems to begin receiving care plans and make them available in the CRISP query portal



CRISP Care Management Software

RP will provide feedback on care management software currently in use (or other market analysis on existing software in the community, if available). RP and CRISP will work jointly to develop appropriate strategies to expand community-wide use of care management software, potentially through interfaces with multiple vendors and/or provision of a standard product as needed.

In order to gain broader adoption and value from the CRISP Query Portal, the RP and CRISP agree to the following:

RP Agrees To:	CRISP Agrees To:
<ul style="list-style-type: none">• By end of Q1 2016:<ul style="list-style-type: none">○ Pilot the Mirth Care Management platform for CRISP for the Upper Chesapeake Care Center; provide rapid feedback on the usefulness of the tool to CRISP.	<ul style="list-style-type: none">• By end of Q1 2016:<ul style="list-style-type: none">○ Implement and deploy the Mirth Care platform for the Upper Chesapeake Care Center; provide training and support to users as required.○ Cover the cost of the Mirth Care platform for a period of 2 years with an anticipated start date of April 2016

CRISP Secure Texting

CRISP will implement a secure messaging solution that meets the requirements of the RP.

RP Agrees To:	CRISP Agrees To:
<ul style="list-style-type: none">• By the end of Q1 2016<ul style="list-style-type: none">○ Provide multiple representatives to score and evaluate potential platforms for secure texting○ Identify users / organizations in the RP that will pilot the chosen platform• By the end of Q2 2016<ul style="list-style-type: none">○ Provide feedback on the solution including:<ul style="list-style-type: none">▪ Usability▪ Interoperability▪ Privacy▪ Scalability▪ Community demand	<ul style="list-style-type: none">• By end of Q1 2016:<ul style="list-style-type: none">○ Implement the chosen platform for pilot users and provide training and support as required



Duration

The duration of the MOU shall be until the sooner of either the completion of all of the deliverables within this document or December 31, 2016. CRISP and RP will work in good faith to meet the timelines for each deliverable. The MOU can be changed anytime through written consent of both parties.

Communications regarding changes in the MOU and other correspondence related to this documents shall be coordinated by the following individuals:

Primary CRISP Contact

Name: David Horrocks, President
Phone: 877-952-7477
Email: David.horrocks@crisphealth.org

Primary RP Contact

Name: _____
Phone: _____
Email: _____

Acknowledgement

CRISP

By:

Date:

RP

By:

Date:



December 18, 2015

Mr. Steve Ports, Director
HSCRC Center for Engagement and Alignment
4160 Patterson Avenue
Baltimore, MD 21215

Dear Mr. Ports:

The University of Maryland Upper Chesapeake Health (UMUCH) and Union Hospital in Cecil County (UHCC) would like to express their collaborative support for the UM UCH and UHCC Partnership grant application. As the US health care system transforms and hospitals expand their scope to include population health, the need to reduce fragmentation and improve efficiency by redesigning the traditional access to care is imperative. To that end, our two hospital systems are committed to providing an integrated regional system to meet the Triple Aim objectives of improved health, improved quality of care, and reduced cost.

UMUCH and UHCC have been working for months, along with additional partners from both counties, to cooperatively develop a system that provides enhanced care coordination for the most vulnerable members of our community. Through enhanced data sharing and tracking via CRISP, comprehensive care management, community-based care management teams and cohesive procedures and policies, the UMUHC and UHCC Partnership will provide enhanced somatic, and psycho/social care seamlessly. This partnership will enhance the systems of care with both hospital for high risk and rising risk patients across the northern Chesapeake region. Our initial focus will be on the Medicare or dually-insured population who have multiple chronic conditions and high resource use, with the intent of expanding the model towards improving overall population health in the community.

We sincerely appreciate the opportunity to redefine population health in our region, and thank the HSCRC for its leadership in this endeavor.

Sincerely,

A handwritten signature in blue ink that reads "Lyle E. Sheldon".

Lyle E. Sheldon, FACHE
President & CEO

A handwritten signature in blue ink that reads "Kenneth S. Lewis MD".

Kenneth Lewis, M.D., J.D.
President & CEO



Mr. Steve Ports, Director
HSCRC Center for Engagement and Alignment
4160 Patterson Avenue
Baltimore, MD 21215

November 23, 2015

Dear Mr. Ports:

The Harford County and Cecil County Health Departments would like to express their support for the University of Maryland Upper Chesapeake Health and Union Hospital of Cecil County's Strategic Hospital Transformation Plan. It is an exciting time for population health initiatives, and the new all-payer system and global budget model creates a perfect segue to create more systematic integration between hospitals and local Health Departments to reduce readmissions and complications for high risk patients. The Harford and Cecil County Regional Partnership is an innovative and collaborative health model that aligns well with the Department of Health and Mental Hygiene State Health Improvement Process (SHIP).

Representatives from Harford and Cecil Health Departments have been active partners in the Regional Partnership team to develop a comprehensive implementation plan that provides a warm hand off from hospital care, to Community Care teams, to supportive psycho/social wrap around care available through local health departments and community based organizations. To support the success of this partnership, each health department will establish a single point of contact to streamline communications with hospital High Risk Clinics and Community Care Teams, ensuring that patients are not lost to care. In addition, local health department electronic medical information will be linked to CRISP for easy data sharing and generation of patient alerts for those in need of additional support. Supportive evidence based prevention programming will also be embedded in the community to address chronic disease management and targeted issues such as fall prevention.

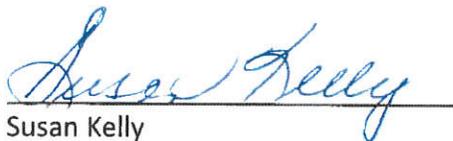
The Harford and Cecil Health Departments will play a significant role in recognizing people with rising health risks and directing them through the newly established treatment pathways in order to avoid unnecessary escalation. As always, the Local Health Improvement Coalitions of each county will continue to work towards improving population health by addressing the targeted health needs of their respective communities.

Harford and Cecil County Health Departments are emboldened by this new implementation plan and are grateful to the HSCRC for the opportunity to partner with local hospitals on this grant proposal.

Sincerely,



Stephanie Garrity
Health Officer
Cecil County Health Department



Susan Kelly
Health Officer
Harford County Health Department



December 3, 2015

Mr. Steve Ports, Director
HSCRC Center for Engagement and Alignment
4160 Patterson Avenue
Baltimore, MD 21215

Dear Mr. Ports,

Healthy Harford, Inc., *the health communities' initiative of Harford County*, would like to express its support of the HSCRC Grant with Union Hospital of Cecil County and the University of Maryland Upper Chesapeake Health System. Healthy Harford is a 501 (c)(3) founded in 1993 by the Upper Chesapeake Health System, Harford County Government and the Harford County Health Department. The mission is to inspire and empower healthy people, healthy families and healthy communities in mind, body and spirit. We are committed to developing a coordinated network of care creating the healthiest community in Maryland. Healthy Harford works with numerous partners, stakeholders, and citizens to develop, support, and implement strategies to improve community health.

Healthy Harford has had the opportunity to participate as an active stakeholder in the development of the newly created treatment initiatives that will target people in Cecil and Harford County who are frequently hospitalized and have multiple chronic conditions, and people with rising health risks. One of the primary responsibilities of Healthy Harford has been oversight of the Local Health Improvement Coalition (LHIC). LHIC is an integral mechanism for improving population health in the community and reaching people who are considered to have high health risks. Healthy Harford, in partnership with the Harford County Health Department, manages and provides staffing for the LHIC.

Through the HSCRC Grant, Cecil County has agreed to partner with Health Harford to expand its scope of services to include developing an entity known as Healthy Cecil - making our community health initiatives truly regional. In addition, Healthy Harford will be working with numerous partners to develop Community-based Management Teams in both Cecil and Harford Counties. We expect to work with people in the community who present with vulnerable health conditions and have complex psycho-social challenges such as food insecurity, unstable housing, poverty, and other challenges.

We highly support the Regional Partnership and are hopeful of grant funding in order to implement the newly created initiatives in Cecil and Harford County.

Sincerely,

Sharon Lipford, LCSW-C
Executive Director

BARRY GLASSMAN
HARFORD COUNTY EXECUTIVE

BILLY BONIFACE
DIRECTOR OF ADMINISTRATION



EDWARD HOPKINS
DIRECTOR OF EMERGENCY SERVICES

November 17, 2015

Mr. Steve Ports, Director
HSCRC Center for Engagement & Alignment
4160 Patterson Avenue
Baltimore, MD 21215

Dear Mr. Ports:

Harford County Government, Department of Emergency Services would like to express its support of the Regional Partnership for Health System Transformation Grant with the University of Maryland Upper Chesapeake Health System and Union Hospital.

The Harford County Department of Emergency Services (DES) is a multi-component department. The department is comprised of the 9-1-1 Communications Center, which includes 911 call taking as well as public safety dispatch for fire, EMS and law enforcement. DES also houses, the Office of Emergency Management, the Hazardous Materials Response Team (HAZMAT) and the Technical Rescue Team. Additionally, DES serves as the liaison to the Harford County Volunteer Fire and EMS Association, which is the umbrella group for the volunteer fire service, and the Harford County EMS Foundation, which serves as a staffing entity to ensure all ambulances are staff with appropriately trained responders. All of these components have both regular day-to-day functions as well as emergency response function during and after an emergency or disaster.

The Harford County DES and its components are staffed by public safety professionals, using state-of-the-art technology. The Communications/911 Center covers the entire county including the 3 incorporated municipalities of Aberdeen, Bel Air, and Havre de Grace, along with all outlying communities. Utilizing the center's Priority Dispatch System, dispatchers instruct the caller with a medical, fire or police emergency, on what to do until 1st responders arrive.

Upon reviewing 911 calls for repeat EMS responses in Harford County, 22 addresses were identified with having greater than 100 emergency service responses. This totaled 3,672 ambulance call-outs to 22 locations. It has become apparent that there are opportunities for the Harford County DES to partner with University of Maryland Upper Chesapeake Health to

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develop a better coordinated system of care. The Harford County DES would like to partner with the University of Maryland Upper Chesapeake Health for follow up with citizens in the community who are vulnerable and utilize the 911/Emergency Medical System frequently. We highly support the Regional Partnership, and look forward to working together to create a seamless system of care in Harford County. With kind regards, I am

Sincerely,

A handwritten signature in black ink, appearing to read "Edward Hopkins". The signature is fluid and cursive, with the first name "Edward" and last name "Hopkins" clearly distinguishable.

Edward Hopkins
Director